# LOS BANOS CREEK RECHARGE AND RECOVERY PROJECT

## DRAFT INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

OCTOBER 2025

PREPARED FOR:

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1015 6th Street
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# ACRONYMS AND ABBREVIATIONS

AB ..... Assembly Bill
APE ..... Area of Potential Effect
BMP ..... Best Management Practices
BPS ..... Best Performance Standards
BUOW ..... burrowing owl
CalEEMod ..... California Emissions Estimator Modeling (software)
CARB ..... California Air Resources Board
CCAA ..... California Clean Air Act
CCIC ..... Central California Information Center
CCID ..... Central California Irrigation District
CDFW ..... California Fish and Wildlife
CEQA ..... California Environmental Quality Act
CFC ..... Chlorofluorocarbons
CGP ..... Construction General Permit
$CH_4$ ..... methane
CNDDB ..... California Natural Diversity Database
CNPS ..... California Native Plant Society
CO ..... carbon monoxide
$CO_2$ ..... carbon dioxide
County ..... Merced County
CVP ..... Central Valley Project
CWA ..... Clean Water Act
DMC ..... Delta Mendota Canal
DTSC ..... Department of Toxic Substances Control
EIR ..... Environmental Impact Report
FMMP ..... Farmland Mapping and Monitoring Program
GHG ..... greenhouse gas
GWP ..... Global Warming Potential
HCP ..... Habitat Conservation Plan
HFC ..... Hydrofluorocarbons
IPaC ..... U.S. Fish and Wildlife Service's Information for Planning and Consultation system

I-5 ..... Interstate 5
IPaC ..... Information for Planning and Consultation (system)
IS ..... Initial Study
IS/MND ..... Initial Study/Mitigated Negative Declaration
ITP ..... Incidental Take Permit
MCFD ..... Merced County Fire Department
MCSO ..... Merced County Sheriff's Office
MMRP ..... Mitigation Monitoring and Reporting Program
MND ..... Mitigated Negative Declaration
MP ..... milepost
$MTCO_2e$ ..... metric tons of carbon dioxide equivalent
NAAQS ..... National Ambient Air Quality Standards
NAHC ..... Native American Heritage Commission
NCCP ..... Natural Community Conservation Plan
ND ..... Negative Declaration
$NO_2$ ..... nitrogen dioxide
NOx ..... nitrogen oxides
$N_2O$ ..... nitrous oxide
NRHP ..... National Register of Historic Places
$O_3$ ..... ozone
Pb ..... lead
PFC ..... Perfluorocarbons
PG&E ..... Pacific Gas and Electric Company
$PM_{10}$ ..... particulate matter 10 microns in size
$PM_{2.5}$ ..... particulate matter 2.5 microns in size
ppb ..... parts per billion
ppm ..... parts per million
Project ..... Los Banos Creek Recharge and Recovery Project
Reclamation ..... United States Bureau of Reclamation
ROG ..... Reactive Organic Gases
RWQCB ..... Regional Water Quality Control Board
SGMA ..... Sustainable Groundwater Management Act
SJKF ..... San Joaquin kit fox

SJVAB ..... San Joaquin Valley Air Basin
SJVAPCD ..... San Joaquin Valley Air Pollution Control District
SLF ..... Sacred Land Files
SLWD ..... San Luis Water District
$SO_2$ ..... sulfur dioxide
$SO_x$ ..... sulfur oxides
SR ..... state route
SRA ..... state responsibility area
SWPPP ..... Storm Water Pollution Prevention Plan
SWRCB ..... State Water Resources Control Board
U.S. ..... United States
USACE ..... United States Army Corps of Engineers
USEPA ..... United States Environmental Protection Agency
USFWS ..... United States Fish and Wildlife Service
USGS ..... United States Geological Survey
UST ..... underground storage tanks
µg/m3 ..... micrograms per cubic meter
Vulcan ..... Vulcan Materials Company
WEAP ..... Worker Environmental Awareness Program

# CHAPTER 1 INTRODUCTION

Provost & Pritchard Consulting Group (Provost & Pritchard) has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) on behalf of the San Luis Water District (Lead Agency) to address the environmental effects of the Los Banos Creek Recharge and Recovery Project (Project). This document has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq. The District is the CEQA lead agency for this Project.

The site and the Project are described in detail in Chapter 2 roject Description.

## 1.1 REGULATORY INFORMATION

An Initial Study (IS) is a document prepared by a lead agency to determine whether a project may have a significant effect on the environment. In accordance with California Code of Regulations Title 14 (Chapter 3, Section 15000, *et seq.*)-- also known as the CEQA Guidelines--Section 15064 (a)(1) states that an environmental impact report (EIR) must be prepared if there is substantial evidence in light of the whole record that the Project under review may have a significant effect on the environment and should be further analyzed to determine mitigation measures or project alternatives that might avoid or reduce project impacts to less than significant levels. A negative declaration (ND) may be prepared instead if the lead agency finds that there is no substantial evidence in light of the whole record that the project may have a significant effect on the environment. An ND is a written statement describing the reasons why a proposed Project, not otherwise exempt from CEQA, would not have a significant effect on the environment and, therefore, why it would not require the preparation of an EIR (CEQA Guidelines Section 15371). According to CEQA Guidelines Section 15070, a ND or *mitigated* ND shall be prepared for a project subject to CEQA when either:

a. The IS shows there is no substantial evidence, in light of the whole record before the agency, that the proposed Project may have a significant effect on the environment, or
b. The IS identified potentially significant effects, but:
    1. Revisions in the project plans or proposals made by or agreed to by the applicant before the proposed MND and IS is released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur is prepared, and
    2. There is no substantial evidence, in light of the whole record before the agency, that the proposed Project as *revised* may have a significant effect on the environment.

## 1.2 DOCUMENT FORMAT

This IS/MND contains six chapters. Chapter 1 Introduction, provides an overview of the Project and the CEQA process. Chapter 2 roject Description, provides a detailed description of proposed Project components and objectives. Chapter 3 Determination, the Lead Agency's determination based upon this initial evaluation. Chapter 4 Environmental Impact Analysis presents the CEQA checklist and environmental analysis for all impact areas, mandatory findings of significance, and feasible mitigation measures. If the Project does not have the potential to significantly impact a given issue area, the relevant section provides a brief discussion of the reasons why no impacts are expected. If the Project could have a potentially significant impact on a resource, the issue area discussion provides a description of potential impacts, and appropriate mitigation measures and/or permit requirements that would reduce those impacts to a less than significant level. Chapter 5 Mitigation, Monitoring, and Reporting Program (MMRP), provides the

proposed mitigation measures, implementation timelines, and the entity/agency responsible for ensuring implementation. Chapter 6 References details the documents and reports this document relies upon to provide its analysis.

The California Emissions Estimator Modeling software (CalEEMod) Output Files, Biological Evaluation, Cultural Resources Identification Report, and draft Monitoring Plan are provided as technical Appendix A, Appendix B, Appendix C, and Appendix D respectively, at the end of this document.

# CHAPTER 2 ROJECT DESCRIPTION

## 2.1 PROJECT BACKGROUND

### 2.1.1 Project Title

Los Banos Creek Recharge and Recovery Project

### 2.1.2 Lead Agency Name and Address

San Luis Water District
1015 6th Street
Los Banos, CA 93635

### 2.1.3 Contact Person and Phone Number

#### Lead Agency Contact

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District Engineer
(209) 826-4043
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#### CEQA Consultant

Provost & Pritchard Consulting Group
Amy M. Wilson, Environmental Project Manager
(559) 636-1166

### 2.1.4 Project Location

The Project is located in Merced County, California, approximately 110 miles south-southeast of Sacramento and 150 miles northwest of Bakersfield (see Figure 2-1 and Figure 2-2). The centroid of the Project site is 37° 01' 01.03" N, 120° 53' 55.21" W.

### 2.1.5 General Plan Designation and Zoning

| Project Area | General Plan Designation | Zoning District |
|---|---|---|
| **ONSITE** | Agricultural | General Agricultural |
| **ADJACENT LANDS** | Agricultural | General Agricultural |

### 2.1.6 Description of Project

#### Project Background and Purpose

The Project is located within the boundaries of San Luis Water District's (SLWD) service area and predominantly on properties owned by Vulcan Materials Company surrounding the intersection of Los

Banos Creek and the Delta-Mendota Canal (DMC), generally within existing quarry pits located on the properties that are adjacent to the aforementioned waterways. The Project area is located southwest of the City of Los Banos within Merced County, more near and along Los Banos Creek between the San Luis Canal and the Central California Irrigation District (CCID) Outside Canal. The property has been the site of a pilot project to recharge groundwater and more recently groundwater recharge operations under the State of California Governor's Executive Orders N-4-23 and N-7-23. The Project has received funding through the State of California Department of Water Resources Sustainable Groundwater Management Act Implementation Grant and through the Consolidated Appropriations Act pursuant to Public Law No. 118-42. The Project is eligible to receive Central Valley Project (CVP) water consistent with SLWD's CVP Contract No. 14-06-200-7773A-IR1-P.

SLWD and Vulcan have entered into a 20-year License Agreement (License Agreement) that automatically renews for five-year periods unless a notice of termination is issued by either party. The License Agreement facilitates SLWD's ability to construct, operate, and maintain all the necessary infrastructure to conduct storage, and recharge operations in the proposed Central and South Basins. The License Agreement provides for the addition of basins to be used for water supply projects as they become available.

## Project Description

The Project entails using existing gravel pits (basins), designated as the Central Basin and the Southern Basin, to capture, store, recharge, and bank CVP and Warren Act water and/or Los Banos creek flood waters. The Central Basin is approximately 85 acres and has the capacity to store approximately 1,000 acre-feet. The Southern Basin is approximately 51 acres and is expected to store approximately 800 acre-feet upon completion of mining operations. The Basins will serve four purposes:

### 1. Surface Water Storage

Conveyed using the DMC, CVP and Warren Act water will be stored during the winter months and returned to the DMC in the spring to serve agricultural demand. Some of the return water may be exchange with Reclamation to serve agricultural demands from the San Luis Canal. CVP water may be transferred to SLWD from other CVP contractors for short term storage, and the return transfer will take place in a subsequent water year, typically the next water year. In most cases the transfer(s) will be conducted using the Accelerated Water Transfer Program.

### 2. Groundwater Recharge

The Central Delta Mendota Groundwater Sustainability Agency is developing groundwater management policies. It is expected that policies will be developed to encourage recharge and other actions that will improve groundwater sustainability. The basins will be operated to achieve both their maximum storage and recharge potential. Assuming a conservative daily infiltration rate of 0.5 inches per day, the Central Basin can recharge over a 90-day period approximately 242 acre-feet. Using the same assumptions, the Southern Basin can recharge approximately 208 acre-feet. Evaporation losses will be calculated using data from the California Irrigation Management Information System and deducted from the daily surface volume to calculate net recharge. SLWD will consider transfers of surface water for recharge by other contractors to help improve basin wide groundwater sustainability. These types of transfers for recharge will typically be conducted by CVP water contractors within the Delta Mendota Sub-Basin.

### 3. Groundwater Recovery

When drought conditions occur, SLWD may extract, or effectively recover, a portion of the water recharged in the Central and Southern Basins and introduce the water into the Delta-Mendota

Canal. Recovery of the recharged water will comply with the Delta-Mendota Subbasin Groundwater Sustainability Plan, limited to avoid significant and unreasonable impacts, as defined under the Sustainable Groundwater Management Act (SGMA) of 2014, and at least 5% of all water recharged will remain in the aquifer and will not be recovered. Recovered water will be used within the SLWD boundaries (which is wholly within the Central Delta Mendota Groundwater Sustainability Agency boundaries).

All water recovered and introduced into the DMC will comply with all relevant standards and monitoring protocols established for the introduction of pumped water into the DMC. The relevant standards and monitoring protocols are detailed in a draft Monitoring Plan prepared for the Project provided in Appendix D.

#### 4. Flood Water Capture

Los Banos Creek is prone to flooding. During a declaration of flood emergency or when the State of California Governor's office issues Executive Orders such as N-4-23 and N-7-23 the basins may be used to divert flood water.

### DMC Diversions

Under the Project, CVP and/or Warren Act water will be conveyed through the DMC and diverted into the Central Basin or the Southern Basin at three locations. The first point of diversion will be constructed at approximately mile post MP 80.03-L where a new storage and recovery pump system will be installed to lift water from and return water to the DMC from the Central Basin. The second point of diversion will be constructed at approximately mile-post MP 80.03-R where a second new storage and recovery pump system will be installed to lift water from and return water to the DMC from the Southern Basin. The third point of diversion is at the existing diversion structure near Check 15 at mile post MP 79.60-R (Los Banos Creek) which will gravity flow water from the DMC into Los Banos Creek where a weir and diversion structure will be constructed to divert flows into the Central Basin.

### Los Banos Creek Diversions

Flood water flowing in Los Banos Creek may be diverted downstream of the DMC siphon crossing where the aforementioned weir and diversion structure will be constructed to divert flows into the Central Basin. Flood waters will only be diverted under the previously stated conditions. Under the Project, the weir and diversion structure would be constructed and the capacity to divert flood waters would increase.

### Conveyance and Infrastructure

The Project would include constructing the following infrastructure and conveyance components:

- Construct a 30 to 50 cfs water transfer facility between the Central Basin and the DMC.
- Construct a 30 to 50 cfs water transfer facility between the Southern Basin and the DMC.
- Construct a weir in Los Banos Creek downstream of the DMC siphon crossing and the existing Vulcan haul road crossing to facilitate convey water into the Central Basin from Los Banos Creek to capture water released from the DMC or flood flows;
- Construct a diversion structure on the right bank of Los Banos Creek immediately upstream of the newly constructed weir to convey water flowing in Los Banos Creek into the Central Basin.

The Project also includes contouring of the of the bottom of the existing pits being used for the Central Basin and the Southern Basin to facilitate the evacuation of the storage space. There will be no excavation work to create water storage space as the storage space was effectively created through past mining

operations. Reshaping and stability improvements to the banks of the basins will also be performed. Additionally, the land slide slope of the existing levee along Los Banos Creek will be reinforced.

## Construction Schedule

Construction of the Project is anticipated to be completed within 12 months. Generally, construction would occur between the hours of 7am and 6pm, Monday through Saturday, excluding holidays.

## Equipment

Construction equipment would likely include the following equipment used during construction:

- Excavators,
- Backhoes,
- Graders,
- Skid steers,
- Loaders,
- Hauling trucks,
- Scrapers,
- Compactors (Large and Small dependent on area conditions),
- Bulldozer,
- Large tractor and large discing unit, and
- Water trucks supplying water for dust control and conditioning soil for compaction.

## Operation and Maintenance

### System Operation

The Project may have different and overlapping operations depending on the water year and water type. The following descriptions are based on an average water year and are subject to change as the water year deviates from the average.

- Surface Water Storage – Filling of the basins could begin as soon as November through February and discharge starting in March through June.
- Groundwater Recharge – As water is made available recharge operations could take place anytime throughout the year. At a minimum groundwater recharge will take place during the short-term Surface Water Storage operation. The summer months will be avoided to reduce evaporation losses.
- Flood Water – Typical flood events can start as early as January and as late as March. Flood water would be diverted when the appropriate flood stage is triggered, and storage capacity is available. Releases from the Los Banos Creek Detention Dam can take place at any time but typically occur from the end of September through the middle of March, when the conservation pool is at its lowest volume.

In the latter of consecutive dry years, there is the possibility that the Project may not conduct surface water storge or recharge operations.

### Recovery Infrastructure and Operations

As a part of the Project, up to three recovery wells would be constructed south of the Delta-Mendota Canal and west of Creek Avenue, as shown on Figure 2-4. The specific locations for the wells will be selected based on a hydrogeological evaluation of potential sites. Each well will be connected to a discharge pipeline to a point-of-introduction into the Delta-Mendota Canal. Where practical, existing turnout facilities, such

as the turnout at MP 80.03R, or newly constructed facilities, such as the water transfer facility between the DMC and the Southern Basin, will be utilized and improved as necessary. Whereas not practical, a new point of introduction will be constructed. Any construction would take place within the Project site.

A draft Monitoring Plan has been developed specifically for this Project to ensure the following: (1) at least 5% of all recharged groundwater is retained within the aquifer; (2) extractions only occur when groundwater levels are above established minimum thresholds; (3) extractions are not causing or contributing to groundwater quality degradation; and (4) extractions are not causing or contributing to land subsidence. The recovered water that is introduced shall comply with the established monitoring plan for water introduced into the Delta-Mendota Canal.

### Water Quality Testing

Stored surface water introduced back into the Delta-Mendota Canal will comply with the draft Monitoring Plan prepared specifically for this Project. Stored surface water and recharged water recovered back into the DMC would be tested and comply fully with this draft Monitoring Plan. As part of this Monitoring Plan, when water is diverted into the basins from the DMC, water quality sampling will be conducted monthly. Constituents identified in the water quality requirements established for the introduction of water into the Delta-Mendota Canal will be tested (DMC Water Quality Requirements). Prior to stored water being returned to the DMC water quality testing will be conducted and compared to the DMC Water Quality Requirements. In the event the monthly water quality testing of the DMC is of lesser quality than the DMC Water Quality Requirements, the monthly DMC test results shall be used as the benchmark for the stored water. Water from the basins shall not be reintroduced into the DMC if the water quality has degraded significantly from the baseline test results (the DMC Water Quality Requirements or monthly DMC water quality test results). Reclamation may authorize minor water quality deviations from the DMC Water Quality Requirements.

## 2.1.7 Site and Surrounding Land Uses and Setting

**Table 2-1: Existing Uses, General Plan Designation, & Zone Districts of Surrounding Properties**

| Direction from Project Site | Existing Use | General Plan Designation | Zone District |
|---|---|---|---|
| **NORTH** | Agriculture | Agricultural | General Agricultural |
| **EAST** | Agriculture | Agricultural | General Agricultural |
| **SOUTH** | Agriculture | Agricultural | General Agricultural |
| **WEST** | Agriculture | Agricultural | General Agricultural |

## 2.1.8 Other Public Agencies Whose Approval May Be Required

- United States Bureau of Reclamation
- State Water Resources Control Board
- Regional Water Quality Control Board
- California Department of Fish and Wildlife
- United States Army Corps of Engineers
- United States Fish and Wildlife Service

## 2.1.9 Consultation with California Native American Tribes

Public Resources Code Section 21080.3.1, *et seq. [codification of Assembly Bill (AB) 52, 2013-14*] requires that a lead agency, within 14 days of determining that it will undertake a project, must notify in writing any

California Native American Tribe traditionally and culturally affiliated with the geographic area of the project if that Tribe has previously requested notification about projects in that geographic area. The notice must briefly describe the project and inquire whether the Tribe wishes to initiate request formal consultation. Tribes have 30 days from receipt of notification to request formal consultation. The lead agency then has 30 days to initiate the consultation, which then continues until the parties come to an agreement regarding necessary mitigation or agree that no mitigation is needed, or one or both parties determine that negotiation occurred in good faith, but no agreement will be made.

The SLWD has not received any written correspondence from a Tribe pursuant to Public Resources Code Section 21080.3.1 requesting notification of a proposed project.

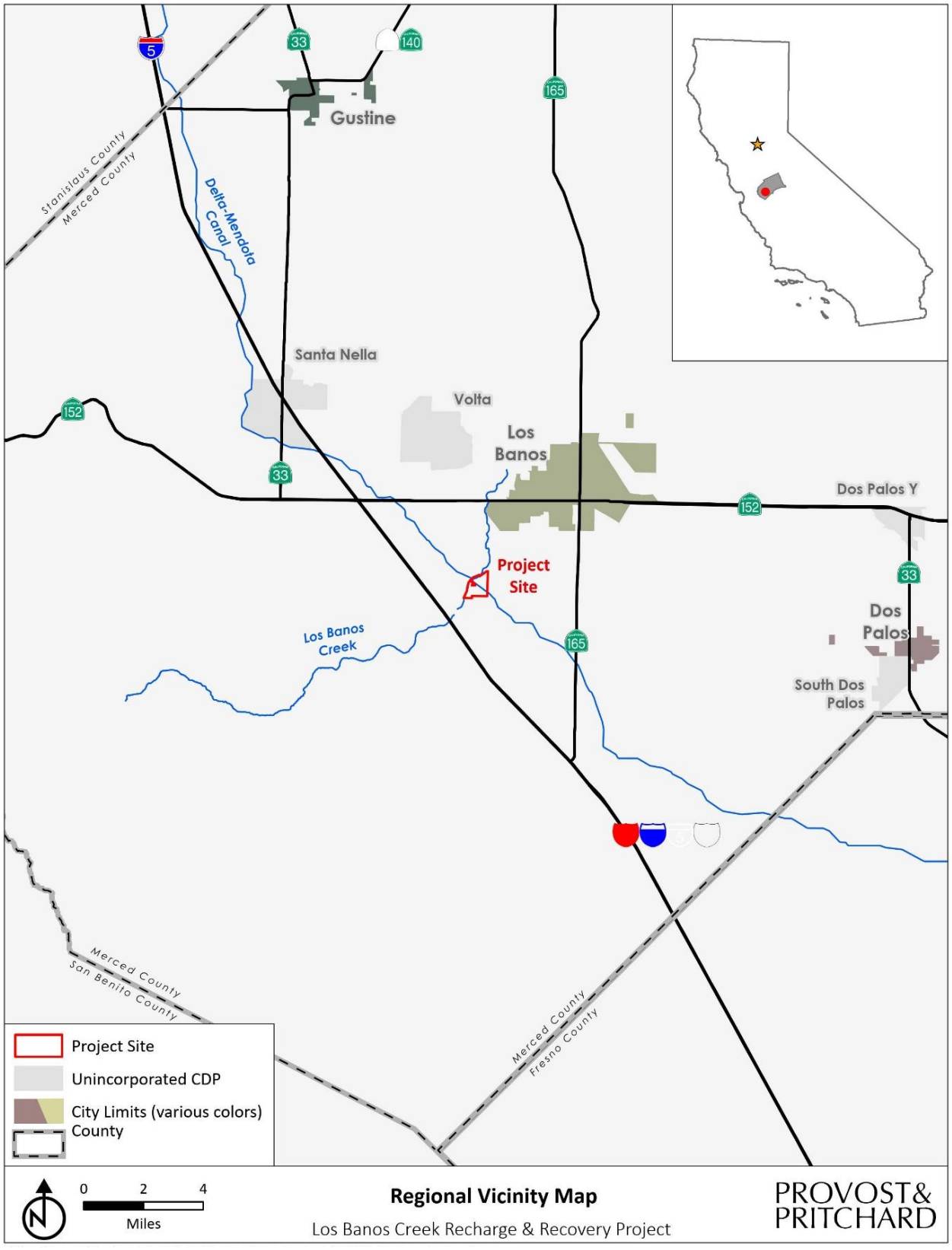



**Figure 2-1: Regional Location**

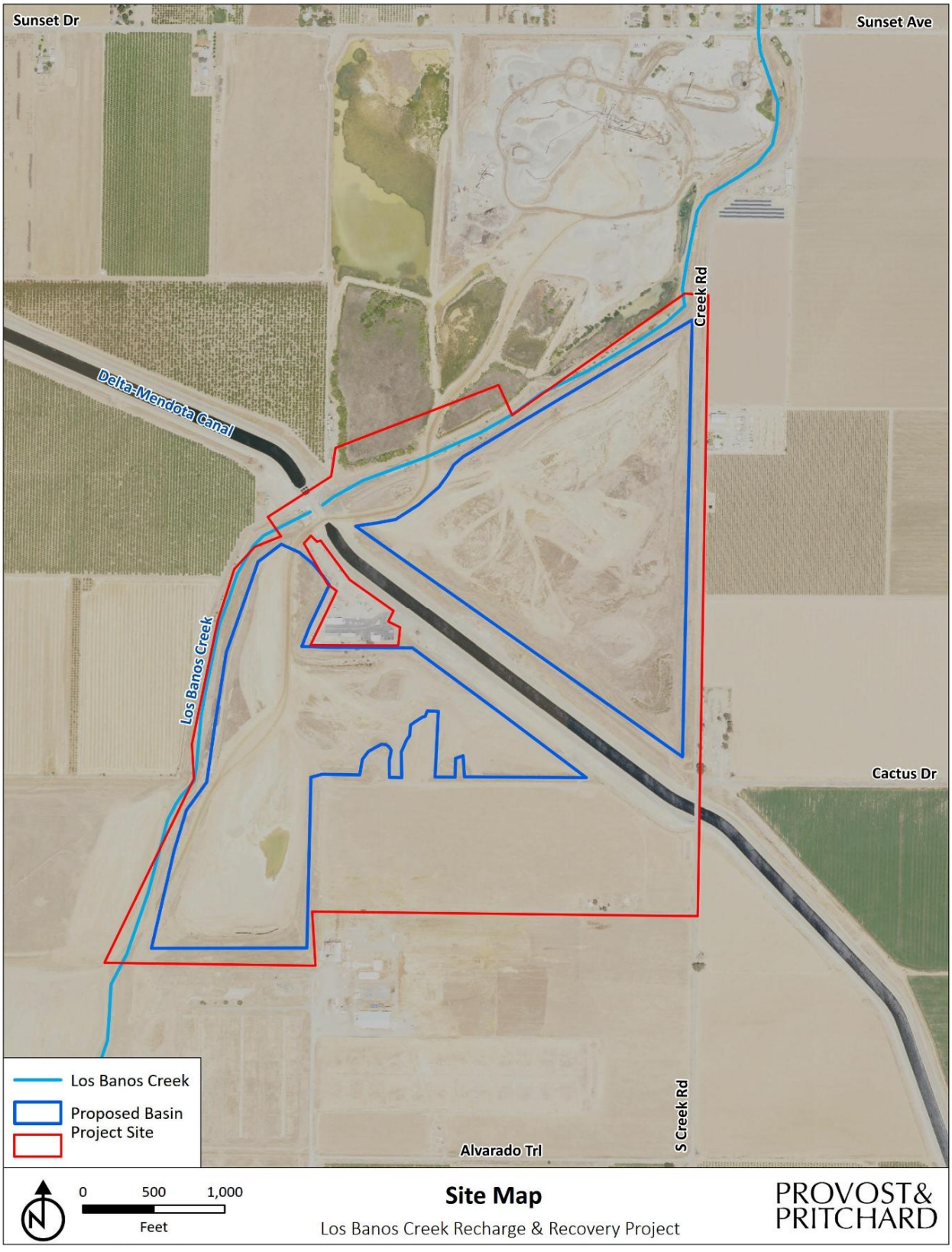



**Figure 2-2: Aerial Site Map**

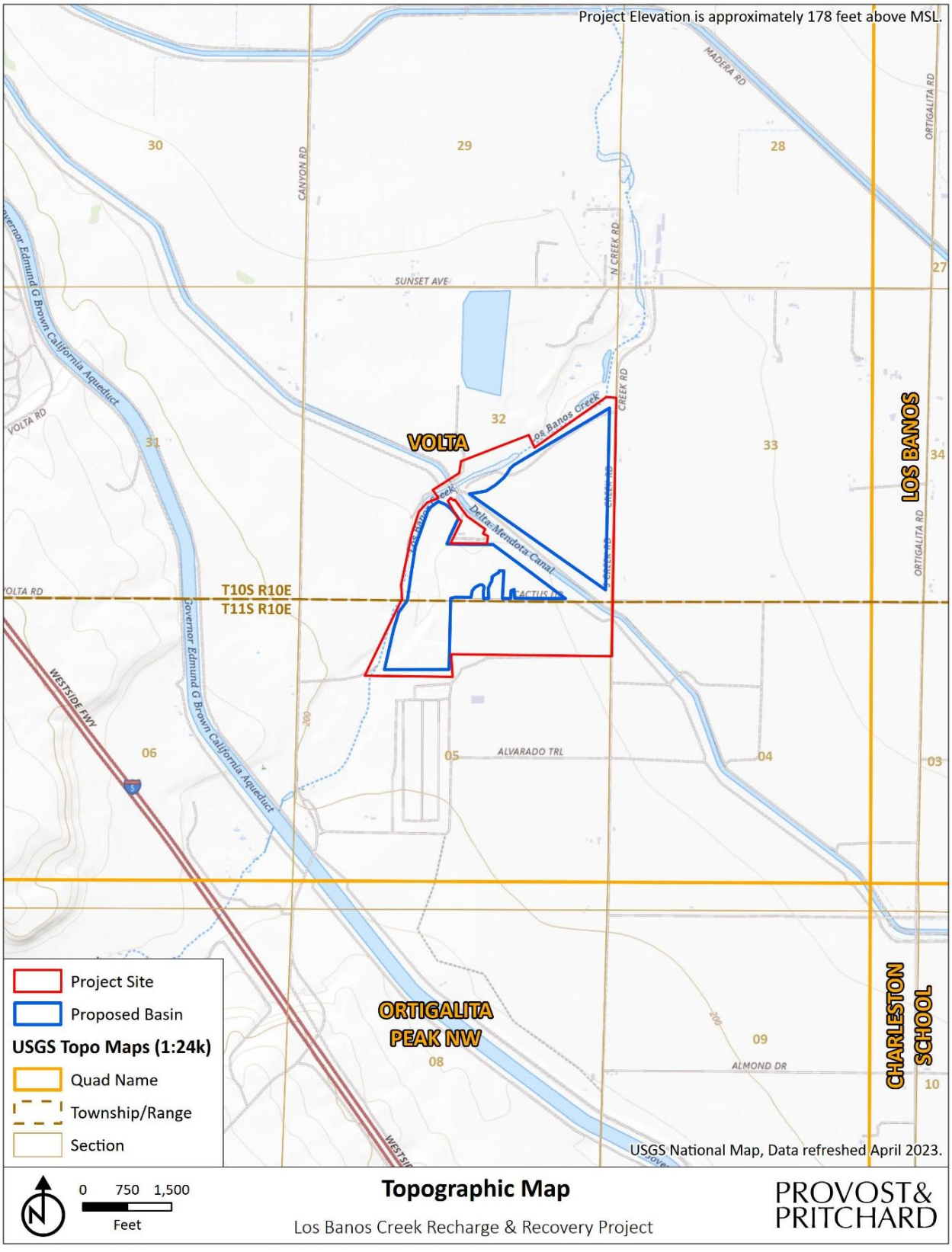



**Figure 2-3: Topographic Quadrangle Map**

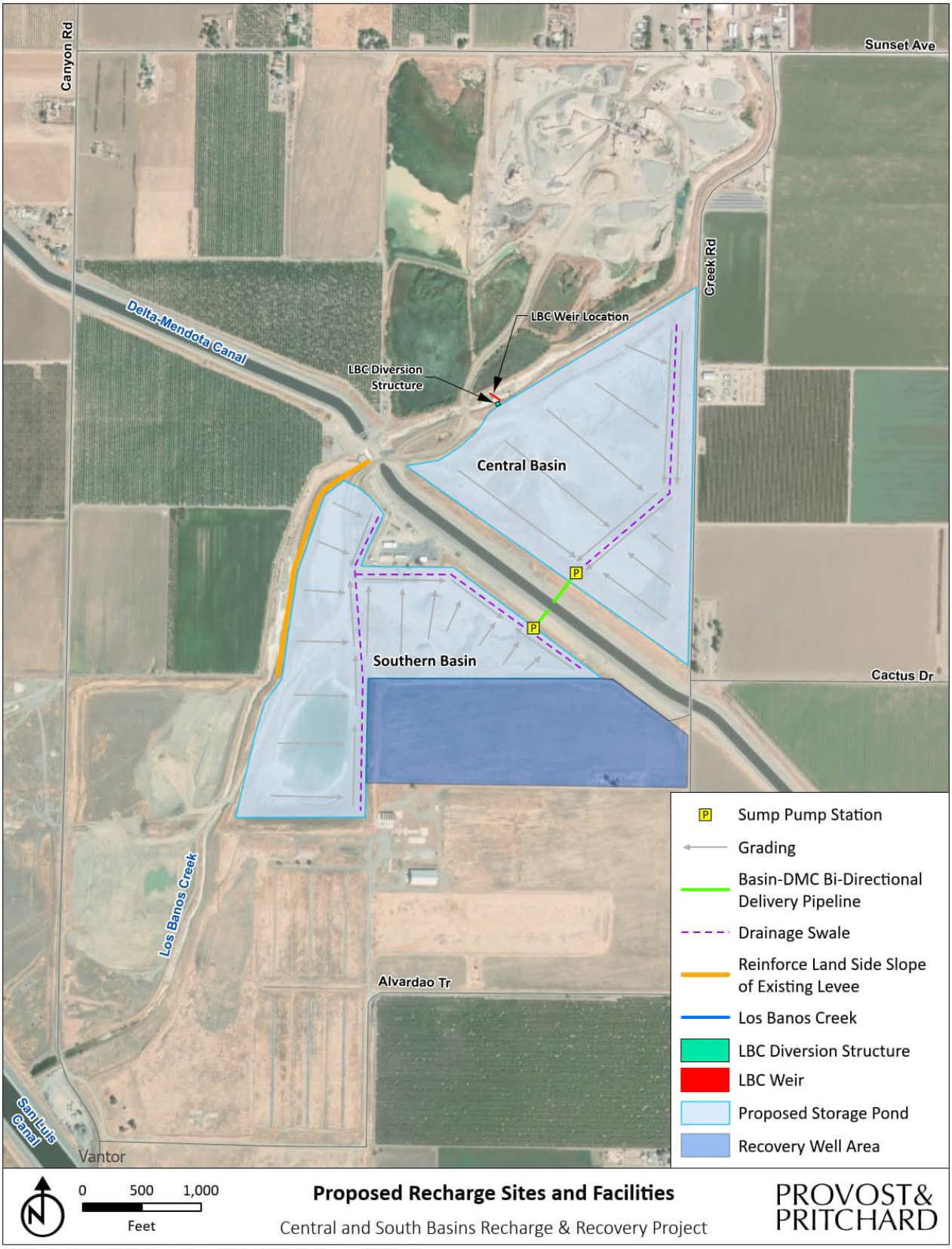



**Figure 2-4: Proposed Recharge Sites and Facilities Map**

# CHAPTER 3 DETERMINATION

## 3.1 POTENTIAL ENVIRONMENTAL IMPACTS

As indicated by the discussions of existing and baseline conditions, and impact analyses that follow in this Chapter, environmental factors not checked below would have no impacts or less than significant impacts resulting from the project. Environmental factors that are. checked below would have potentially significant impacts resulting from the project. Mitigation measures are recommended for each of the potentially significant impacts that would reduce the impact to less than significant.

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

The analyses of environmental impacts in Chapter 4 Impact Analysis result in an impact statement, which shall have the following meanings.

**Potentially Significant Impact.** This category is applicable if there is substantial evidence that an effect may be significant, and no feasible mitigation measures can be identified to reduce impacts to a less than significant level. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

**Less than Significant with Mitigation Incorporated.** This category applies where the incorporation of mitigation measures would reduce an effect from a "Potentially Significant Impact" to a "Less than Significant Impact." The lead agency must describe the mitigation measure(s), and briefly explain how they would reduce the effect to a less than significant level (mitigation measures from earlier analyses may be cross-referenced).

**Less than Significant Impact.** This category is identified when the proposed Project would result in impacts below the threshold of significance, and no mitigation measures are required.

**No Impact.** This category applies when a project would not create an impact in the specific environmental issue area. "No Impact" answers do not require a detailed explanation if they are adequately supported by the information sources cited by the lead agency, which show that the impact does not apply to the specific 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).

# 3.2 DETERMINATION

On the basis of this initial evaluation (to be completed by the Lead Agency):

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "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.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



Signature

OCTOBER 28, 2015

Date

STEVEN P. SNODER
ASSISTANT GENERAL MANAGER

Printed Name/Position

# CHAPTER 4 ENVIRONMENTAL IMPACT ANALYSIS

## 4.1 AESTHETICS

**Table 4-1: Aesthetics Impacts**

| Except as provided in Public Resources Code Section 21099, would the project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Have substantial adverse effect on a scenic vista? | ☐ | ☐ | ☒ | ☐ |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | ☐ | ☐ | ☐ | ☒ |
| c) In non-urbanized 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? | ☐ | ☐ | ☒ | ☐ |
| d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | ☐ | ☐ | ☒ | ☐ |

### 4.1.1 Baseline Conditions

The Project area is located in Merced County, just less than two miles southwest of the City of Los Banos. The Project area is largely surrounded by agricultural land used for crops and gravel mining operations. In addition, Interstate 5 (I-5), rural roadways, Los Banos Creek and Los Banos Creek Detention Reservoir, and the DMC lie within the vicinity of the Project area. The nearest scenic highway segment is at the intersection of Interstate 5 and State Route 152, approximately 4.6 miles northwest of the Project area.[1]

### 4.1.2 Impact Analysis

a) Have substantial adverse effect on a scenic vista?

Less than Significant Impact. Los Banos Creek is recognized as a scenic resource by the Merced County General Plan. However, the construction and operation of the proposed water storage basins would not have an adverse effect, as the nature and aesthetic of the creek would not be changed. The basins would

[1] (California Department of Transportation 2023)

be constructed within the footprint of two existing gravel pits that are already concaved. Therefore, any impact would be less than significant.

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

No Impact. The Scenic Highway Program was created to preserve and protect designated scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. A highway may be officially designated "scenic" depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. There are no trees, rock outcroppings, or historical buildings that would be substantially damaged by the Project. The nearest scenic highway segment is approximately 4.6-miles northwest of the Project. There would be no impact.

c) In non-urbanized 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?

Less than Significant Impact. The Project is not located in an urbanized area and therefore would not conflict with zoning or scenic regulations within an urban area. Following construction of the Project, the visual character of the site would not be significantly changed, as the water storage basins would be constructed within the existing gravel pits. Water storage basins and their appurtenant facilities are common visual occurrences within agricultural areas within the San Joaquin Valley. Therefore, the Project would not degrade the existing visual character or public views of the site, and any impacts would be less than significant.

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

Less than Significant Impact. The Project would include site lighting at the water transfer facilities along the DMC for safe operation. While there are no sensitive receptors in the Project vicinity, lighting would be designed in a manner that would reduce any potential light spillage. The Project would not include any structures that would be built in a manner that would generate significant glare. Furthermore, no nighttime construction is proposed that would create a temporary source of light or glare. Impacts would be less than significant.

# 4.2 AGRICULTURE AND FORESTRY RESOURCES

**Table 4-2: Agriculture and Forest Impacts**

| Would the project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | ☐ | ☐ | ☐ | ☒ |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? | ☐ | ☐ | ☐ | ☒ |
| 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))? | ☐ | ☐ | ☐ | ☒ |
| d) Result in the loss of forest land or conversion of forest land to non-forest use? | ☐ | ☐ | ☐ | ☒ |
| 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? | ☐ | ☐ | ☐ | ☒ |

## 4.2.1 Baseline Conditions

Agricultural land is the predominant open space landscape and surrounds the Project area from all sides. In the immediate vicinity of the Project area are access roads, mining operations, and various scattered rural residences. While land uses on surrounding properties include various agricultural uses and are designated by the Farmland Mapping and Monitoring Program (FMMP) as Unique Farmland, Farmland of Local Importance, and Prime Farmland, the Project area is designated as Vacant or Disturbed Land.[2] Figure 4-1 illustrates the FMMP designations for the Project area and its vicinity.

## 4.2.2 Impact Analysis

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?

[2] (California Department of Conservation 2018)

**No Impact.** The Project area is designated as Vacant or Disturbed Land by the FMMP. As such, the Project would not convert any existing Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. There would be no impact.

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

**No Impact.** As per the Merced County zoning ordinance the Project area is zoned A-1 for General Agriculture. Additionally, the site is not under a Williamson Act contract. The Project would convert two existing gravel pits into two water storage basins for the purpose of water storage, groundwater recharge, and flood control. Additionally, a surface water diversion structure would be constructed along the DMC in order to divert water. No land within the Project construction area is actively farmed or used for agriculture; therefore, no land would be removed from agriculture use. There would be no impact

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.** As mentioned, the Project is zoned for agricultural use under the A-1 zoning designation. The Project area does not contain any lands zoned for forest land or timberland and therefore would not impact any such designation. There would be no impact.

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

**No Impact.** The Project area does not contain any forest land, nor is there any forest land in the surrounding area. Therefore, the Project would not result in the loss of forest land or conversion of forest land to non-forest use. There would be no impact.

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?

**No Impact.** The Project would result in the construction of two water storage basins from existing gravel pits, a surface water diversion structure, and appurtenant facilities for the purpose of water storage, groundwater recharge, and flood control. The groundwater recharge aspect would ultimately support the long-term viability of farming operations in the region. Therefore, Project implementation would not result in the conversion of farmland to a non-agricultural use. There would be no impact.

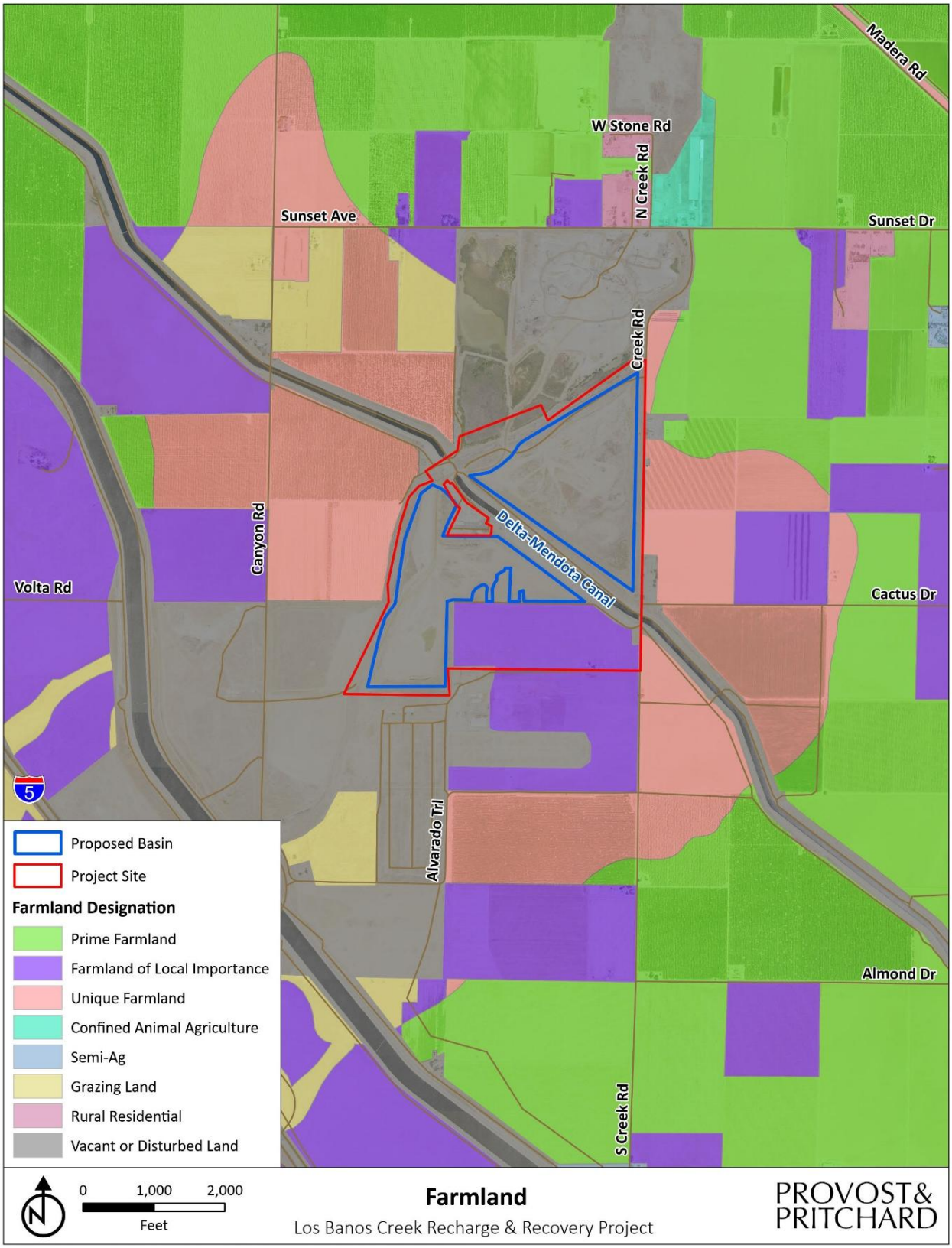



**Figure 4-1: FMMP Map**

# 4.3 AIR QUALITY

**Table 4-3: Air Quality Impacts**

| Would the project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Conflict with or obstruct implementation of the applicable air quality plan? | ☐ | ☐ | ☐ | ☒ |
| 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? | ☐ | ☐ | ☒ | ☐ |
| c) Expose sensitive receptors to substantial pollutant concentrations? | ☐ | ☐ | ☒ | ☐ |
| d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? | ☐ | ☐ | ☒ | ☐ |

## 4.3.1 Baseline Conditions

The Project would be located in the County of Merced, within the boundaries of the San Joaquin Valley Air Pollution Control District (SJVAPCD) and the San Joaquin Valley Air Basin (SJVAB). The Project site is in an area dominated by agricultural land uses. The SJVAB is positioned within the San Joaquin Valley of California. The San Joaquin Valley is bounded by the Sierra Nevada Mountain Range to the east and the Coastal Mountain Range to the west. Wind within the SJVAB typically channels south-southwest during the summer months, while wind flows to the north-northwest during the winter months. Wind velocity for the region is considered low for an area of such size. Due to a lack of strong wind and the natural confinement of the mountain ranges surrounding the SJVAB, the region experiences some of the worst air quality in the world.

### Regulatory Attainment Designations

Under the California Clean Air Act (CCAA), the California Air Resources Board (CARB) is required to designate areas of the State as attainment, nonattainment, or unclassified with respect to applicable standards. An "attainment" designation for an area signifies that pollutant concentrations did not violate the applicable standard in that area. A "nonattainment" designation indicates that a pollutant concentration violated the applicable standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. Depending on the frequency and severity of pollutants exceeding applicable standards, the nonattainment designation can be further classified as serious nonattainment, severe nonattainment, or extreme nonattainment, with extreme nonattainment being the most severe of the classifications. An "unclassified" designation signifies that the data does not support either an attainment or nonattainment designation. The CCAA divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The United States Environmental Protection Agency (USEPA) designates areas for ozone, carbon monoxide (CO), and nitrogen dioxide ($NO_2$) as "does not meet the primary standards," "cannot be classified," or "better than national standards." For sulfur dioxide ($SO_2$), areas are designated as "does not meet the

primary standards," "does not meet the secondary standards," "cannot be classified," or "better than national standards." However, the CARB terminology of attainment, nonattainment, and unclassified is more frequently used. The USEPA uses the same sub-categories for nonattainment status: serious, severe, and extreme. In 1991, USEPA assigned new nonattainment designations to areas that had previously been classified as Group I, II, or III for particulate matter 10 microns in size ($PM_{10}$) based on the likelihood that they would violate national $PM_{10}$ standards. All other areas are designated "unclassified."

The State and national attainment status designations pertaining to the SJVAB are summarized in Appendix A. The SJVAB is currently designated as a nonattainment area with respect to the State $PM_{10}$ standard, ozone, and $PM_{2.5}$ standards. The SJVAB is designated nonattainment for the National Ambient Air Quality Standard (NAAQS) 8-hour ozone and particulate matter 2.5 microns in size ($PM_{2.5}$) standards. On September 25, 2008, the USEPA re-designated the San Joaquin Valley to attainment status for the $PM_{10}$ NAAQS and approved the $PM_{10}$ Maintenance Plan.

**Table 4-4: Summary of Ambient Air Quality Standards and Attainment Designation**

| Pollutant | Averaging Time | California Standards* | | National Standards* | |
|---|---|---|---|---|---|
| | | Concentration* | Attainment Status | Primary | Attainment Status |
| Ozone ($O_3$) | 1-hour | 0.09 ppm | Nonattainment/ Severe | – | No Federal Standard |
| | 8-hour | 0.070 ppm | Nonattainment | 0.075 ppm | Nonattainment (Extreme)** |
| Particulate Matter ($PM_{10}$) | AAM | 20 µg/m$^3$ | Nonattainment | – | Attainment |
| | 24-hour | 50 µg/m$^3$ | | 150 µg/m$^3$ | |
| Fine Particulate Matter ($PM_{2.5}$) | AAM | 12 µg/m$^3$ | Nonattainment | 12 µg/m$^3$ | Nonattainment |
| | 24-hour | No Standard | | 35 µg/m$^3$ | |
| Carbon Monoxide (CO) | 1-hour | 20 ppm | Attainment/ Unclassified | 35 ppm | Attainment/ Unclassified |
| | 8-hour | 9 ppm | | 9 ppm | |
| | 8-hour (Lake Tahoe) | 6 ppm | | – | |
| Nitrogen Dioxide ($NO_2$) | AAM | 0.030 ppm | Attainment | 53 ppb | Attainment/ Unclassified |
| | 1-hour | 0.18 ppm | | 100 ppb | |
| Sulfur Dioxide ($SO_2$) | AAM | – | Attainment | -- | Attainment/ Unclassified |
| | 24-hour | 0.04 ppm | | -- | |
| | 3-hour | – | | 0.5 ppm | |
| | 1-hour | 0.25 ppm | | 75 ppb | |
| Lead (Pb) | 30-day Average | 1.5 µg/m$^3$ | Attainment | – | No Designation/ Classification |
| | Calendar Quarter | – | | -- | |
| | Rolling 3-Month Average | – | | 0.15 µg/m$^3$ | |
| Sulfates ($SO_4$) | 24-hour | 25 µg/m$^3$ | Attainment | No Federal Standards | |
| Hydrogen Sulfide ($H_2S$) | 1-hour | 0.03 ppm (42 µg/m$^3$) | Unclassified | | |
| Vinyl Chloride ($C_2H_3Cl$) | 24-hour | 0.01 ppm (26 µg/m$^3$) | Attainment | | |

| Pollutant | Averaging Time | California Standards* | | National Standards* | |
|---|---|---|---|---|---|
| | | Concentration* | Attainment Status | Primary | Attainment Status |
| Visibility-Reducing Particle Matter | 8-hour | Extinction coefficient: 0.23/km-visibility of 10 miles or more due to particles when the relative humidity is less than 70%. | Unclassified | | |

** For more information on standards visit: https://ww3.arb.ca.gov/research/aaqs/aaqs2.pdf*
*** No Federal 1-hour standard. Reclassified extreme nonattainment for the Federal 8-hour standard 2025.*
****Secondary Standard*
*Source: CARB 2015; SJVAPCD 2015*

## Construction-Generated Emissions

Construction of the Project is assumed to be completed over approximately 12 months. Emissions associated with the Project were calculated using CalEEMod Air Quality Model, Version 2022.1.1.29. The emissions modeling includes emissions generated by off-road equipment, haul trucks, and worker commute trips. Emissions were quantified based on anticipated construction schedules and the default parameters contained in the model. Localized air quality impacts associated with the Project would be minor and were qualitatively assessed. Modeling assumptions and output files are included in Appendix A.

## Thresholds of Significance

Air pollutant emissions have regional effects and localized effects. This analysis assesses the regional effects of the Project's criteria pollutant emissions in comparison to SJVAPCD thresholds of significance for short-term construction activities of the Project; operational emissions are anticipated to be negligible as operations would be mostly passive in nature. Localized emissions from Project construction are also assessed using concentration-based thresholds that determine if the Project would result in a localized exceedance of any ambient air quality standards or would make a cumulatively considerable contribution to an existing exceedance.

The primary pollutants of concern during Project construction and operation are reactive organic gases (ROG), nitrogen oxides ($NO_X$), $PM_{10}$, and $PM_{2.5}$. The SJVAPCD Guide for Assessing and Mitigating Air Quality Impact adopted in 2015 contains thresholds for ROG and $NO_X$; sulfur oxides ($SO_X$), CO, $PM_{10}$, and $PM_{2.5}$.

Ozone is a secondary pollutant that can be formed miles away from the source of emissions through reactions of ROG and $NO_X$ emissions in the presence of sunlight. Therefore, ROG and NOx are termed ozone precursors. The SJVAB often exceeds the state and national ozone standards. Therefore, if the Project emits a substantial quantity of ozone precursors, the Project may contribute to an exceedance of the ozone standard. The SJVAB also exceeds air quality standards for $PM_{10}$, and $PM_{2.5}$; therefore, substantial Project emissions may contribute to an exceedance for these pollutants.

The SJVAPCD adopted significance thresholds for construction-related ROG, $NO_X$, PM, CO, and $SO_X$, these thresholds are included in Table 4-5.

**Table 4-5: Project-Level Air Quality CEQA Thresholds of Significance**

| Pollutant | Significance Threshold | |
|---|---|---|
| | Construction Emissions (tons/year) | Operational Emissions (tons/year) |
| ROG | 10 | 10 |
| $NO_X$ | 10 | 10 |
| CO | 100 | 100 |
| $SO_X$ | 27 | 27 |
| $PM_{10}$ | 15 | 15 |
| $PM_{2.5}$ | 15 | 15 |

Source: SJVAPCD. 2015. Guidance for Assessing and Mitigating Air Quality Impacts. Website: https://ww2.valleyair.org/media/g4nl3p0g/gamaqi.pdf. Accessed May 6, 2025.

## 4.3.2 Impact Analysis

Estimated construction-generated emissions are summarized in Table 4-6 and

Table 4-7. Operational emissions of the Project would be considered negligible due to the type of use proposed on-site.

**Table 4-6: Unmitigated Short-Term Construction Generated Emissions of Criteria Air Pollutants**

| Source | Annual Emissions (Tons per Year) | | | | | |
|---|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $SO_X$ | $PM_{10}$ | $PM_{2.5}$ |
| Maximum Annual Project Construction Emissions | 0.41 | 3.63 | 3.75 | 0.01 | 1.71 | 0.83 |
| *SJVAPCD Threshold* | *10* | *10* | *100* | *27* | *15* | *15* |
| Threshold Exceeded? | No | No | No | No | No | No |

**Table 4-7: Maximum Daily Construction Related Emissions of Criteria Air Pollutants**

| Source | Daily Emissions Maximum (in pounds) | | | | | |
|---|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $SO_X$ | $PM_{10}$ | $PM_{2.5}$ |
| Construction – Summer | 3.24 | 29.2 | 29.8 | 0.06 | 21.0 | 11.3 |
| Construction – Winter | 3.22 | 29.2 | 29.6 | 0.06 | 21.0 | 11.3 |
| *SJVAPCD Threshold* | *100* | *100* | *100* | *100* | *100* | *100* |
| Threshold Exceeded? | No | No | No | No | No | No |

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

No Impact. The Project would not conflict with or obstruct implementation of the applicable air quality plan. The Project would align with the standards and guidelines set by the SJVAPCD. Therefore, there would be no impact.

b) Would the project 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. The Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment. As shown in Table 4-6 and

Table 4-7, the Project would not exceed an emissions threshold which has been set by the SJVAPCD for construction related emissions. The Project would result in negligible quantities of operational emissions. Therefore, impacts would be less than significant.

c) Would the project expose sensitive receptors to substantial pollutant concentrations?

**Less than Significant Impact.** As discussed above, the Project would not result in significant long-term operational emissions. Constructed related emissions, shown in Table 4-6 and

Table 4-7 would be temporary in nature and would cease upon Project construction. There are no sensitive receptors immediately adjacent to the Project site; the closest residence is approximately one-half mile away. Impacts would be less than significant.

d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

**Less than Significant Impact.** During construction activities, construction equipment exhaust would temporarily emit odors. Construction would be completed within the County of Merced in a rural, agricultural area. Construction of the Project would be temporary, and odors would not remain after Project completion. Therefore, impacts would be less than significant.

# 4.4 BIOLOGICAL RESOURCES

**Table 4-8: Biological Resources Impacts**

| Would the project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? | ☐ | ☒ | ☐ | ☐ |
| 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? | ☐ | ☐ | ☐ | ☒ |
| c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? | ☐ | ☒ | ☐ | ☐ |
| 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? | ☐ | ☒ | ☐ | ☐ |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | ☐ | ☐ | ☐ | ☒ |
| 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? | ☐ | ☐ | ☐ | ☒ |

## 4.4.1 Baseline Conditions

### General

A Biological Resources Evaluation report, dated May 2025, was prepared for the Project and can be found in this document as Appendix B. A reconnaissance-level field survey of the Project site was conducted on January 29, 2024, and March 18, 2025, by Provost & Pritchard biologist. The survey consisted of walking and driving throughout the Project site (see Figure 2-2) while identifying and noting land uses, biological habitats and communities, and plant and animal species encountered. Habitats were also assessed to help with determining if they could be suitable for various rare or protected plant and animal species.

The Project site is located in the west of the San Joaquin Valley, east of the City of Los Banos and south/southwest of the City of Santa Nella in the western portion of Merced County. The Project site includes ruderal roads, two gravel pits, the DMC, and Los Banos Creek. The surrounding lands of the Project site include agricultural, industrial, and paved roads. The Project site is located within the *Volta* United States Geological Survey (USGS) 7.5-minute quadrangle within the southeast quadrat of Section 32, Township 10 South, Range 10 East, and northwest quadrat of Section 05, Township 11 South, Range 10 East. The topography of the site is approximately 105-205 feet above mean sea level. Like most of California, the site experiences a Mediterranean climate. Warm, dry summers are followed by cool, moist winters. In the summer, average high temperatures range between 80- and 95-degrees Fahrenheit (°F), but do not often exceed 100 °F, and the humidity is generally low. Winter temperatures are often below 40 °F during the day and rarely exceed 65 °F. On average, Los Banos, CA receives approximately 9 inches of precipitation in the form of rain yearly, most of which occurs between October and April, and the site would be expected to receive similar amounts of precipitation.[3]

## Soils

Three soil mapping units representing two soil types were identified within the project site and are listed in Table 4-9 (see Appendix D of Appendix B for the full Web Soil Survey Report). The soils are displayed with their core properties in the table below, according to the Major Land Resource Area of California. Xerofluvents are found on floodplains along rivers and streams, and Caranza-Woo is primarily used for crop irrigation, grazing, and wildlife habitat.

**Table 4-9: List of Soils Located on the Project Site and Their Basic Properties**

| Soil | Soil Map Unit | Percent of Site | Hydric Soil Category | Drainage | Permeability | Runoff |
|---|---|---|---|---|---|---|
| *Carranza-Woo* | 0 to 2 percent slopes | 50.0% | Predominantly Nonhydric | Well drained | Moderate over slow permeability or moderate over rapid permeability depending on the kind of substratum | Low to high runoff |
| *Xerofluvents* | Extremely gravelly | 47.6% | Predominantly hydric | Poorly drained | Moderately rapid | Low |
| *Water* | - | 2.3% | - | - | - | - |

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions such that under sufficiently wet conditions, hydrophytic vegetation can be supported. Hydric soil ratings are derived from specific soil properties as well as climate, parent material, vegetation, landform type, and biological activity of a certain location. One of the major soil mapping units are predominately hydric and make up 47.6% of the site. The other of the major soil mapping units is predominantly nonhydric and make up 50.0% of the site. Water identified on the site is within DMC.

## Biotic Habitats

Four biotic habitats were observed within the project site and included ruderal, canal, riverine, and non-native grassland (see Figure 4-2). These habitats and their constituent plant and animal species are described in more detail in the following sections.

[3] (Centers n.d.),

## Ruderal

The project site mainly consisted of gravelly clay loam ruderal habitat. The central portion of this habitat was disturbed by ongoing general mining practices. The edges of this habitat contained invasive grasses and herbaceous vegetation while the center was mostly bare. Within the central portion of this habitat were two separate gravel pits areas that collected water due to topography and became detention ponds that contained stagnant water during the 2024 survey.

Vegetation observed within this habitat included tamarisk (*Tamarix* sp.) eucalyptus (*Eucalyptus* sp.) trees, non-native grasses, bermuda grass (*Cynodon dactylon*), bromegrass (*Bromus diandrus*), bur clover (*Medicago polymorpha*), bristly oxtongue (*Helminthotheca echioides*), California oatgrass (*Danthonia californica*), common groundsel (*Senecio vulgaris*), curly dock (Rumex crispus), gumweed (*Grindelia* sp.), horehound (*Marrubium vulgare*), hollowleaf annual lupine (*Lupinus succulentus*), hairy gumweed (*Grindelia hirsutula*), nightshade (*Datura wrightii*), needle spikerush (*Eleocharis acicularis*), poison-hemlock (*Conium maculatum*), prickly lettuce (*Lactuca serriola*), redstem filaree (*Erodium cicutarium*), rigid fiddleneck (*Amsinckia menziesii*), Russian thistle (*Salsola gobicola*), seep willow (*Baccharis salicifolia*), southern cattail (*Typha domingensis*), shortpod mustard (*Hirschfeldia incana*), stinkwort (*Dittrichia graveolens*), unidentified bryum moss (*Bryum* sp.), Spanish clover (*Acmispon americanus*), velvet grass (*Holcus lanatus*), and willow herb (*Epilobium brachycarpum*).

The survey of the project site resulted in the identification of numerus bird species including American pipit (*Anthus rubescens*), American crow (*Corvus brachyrhynchos*), black phoebe (*Sayornis nigricans*), greater yellowlegs (*Tringa melanoleuca*), hermit thrush (*Catharus guttatus*), house finch (*Haemorhous mexicanus*), killdeer (*Charadrius vociferus*), mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), red-tailed hawk (*Buteo jamaicensis*), Say's phoebe (*Sayornis saya*), savannah sparrow (*Passerculus sandwichensis*), yellow-rumped warbler (*Setophaga coronate*), and western meadowlark (*Sturnella neglecta*). Other terrestrial species observed included California ground squirrel (*Otospermophilus beecheyi*), coyote (*Canis latrans*), common side-blotched lizard (*Uta stansburiana elegans*), and western fenced lizard (*Sceloporus occidentalis*). Several potential fox dens were observed near the edge habitat of the embankments within the Central Basin project site adjacent to South Creek Road. The crest along the edge of the ruderal habitat contained several Botta's pocket gopher (*Thomomys bottae*) burrows. Coyote, domestic dog (*Canis lupus familiaris*), and racoon (*Procyon lotor*) tracks were also observed within the project site. A domestic dog carcass was observed along an access road in the central portion of the project site. The cause of death was unknown. Staff from the Vulcan Materials Company mentioned that they have seen garter snakes (*Thamnophis* sp.). No snakes were observed during the 2024 or 2025 field survey. The areas that held water were scanned for aquatic species and only mosquito (*Culicidae*) larvae and mosquito fish (*Gambusia affinis*) were observed within the southern basin/ gravel pit. One juvenile American bullfrog (*Rana catesbeiana*) was observed and calls from this species were heard from a distance during the January 2024 survey.

## Canal

The DMC bisects the project site, with an approximate 6.9-acre section of the DMC. The embankments of the canal were made of concrete. The surrounding edges of the canal contained gravel roads that were well maintained and clear of vegetation. The bridge along DMC located near the southeastern corner of the project site had unoccupied swallow (*Hirundinidae*) nests.

## Riverine

The riverine habitat includes an approximate 7.8-acre section of Los Banos Creek. The river was flowing at the time of the March 2025 biological survey. This habitat was visually scanned for aquatic species, and none were visually observed within the creek. Vegetation within the Los Banos Creek was sparse and

included mule fat (*Baccharis salicifolia*), willows (*Salix* sp.), giant reed (*Arundo donax*), California poppy (*Eschscholzia californica*), California oatgrass, Spanish clover, and wire lettuce species (*Stephanomeria* sp.). The survey of the riverine habitat resulted in the observation of two pairs of mallards (*Anas platyrhynchos*) flying along Los Banos Creek. A northern harrier (*Circus hudsonius*) was observed flying overhead near Los Banos Creek along the western edge of the project site. Calls from an unidentified frog (possibly Pacific tree frog [*Pseudacris regilla*]) were heard from Los Banos Creek.

### Non-native Grassland

Three areas of non-native grassland habitat was observed within the project site along the northern and southern boundaries. The two northern non-native grassland areas are north of Los Banos Creek. Killdeer were observed around these areas exhibiting nest-protecting behavior. The non-native grassland habitat in the south was previously used as an agricultural field and entirely composed of non-native grasses. At the southern non-native grassland, the wildlife observed included red-tailed hawks, turkey vultures (*Cathartes aura*), California ground squirrels, and common side-blotched lizards. Numerous dens were observed throughout the area, some with a noticeable runway and suspected San Joaquin kit fox (SJKF), but no other signs (scat, tracks, sightings) were observed. Within two of these dens, individual California whiptails (*Aspidoscelis tigris munda*) were seen taking refuge.

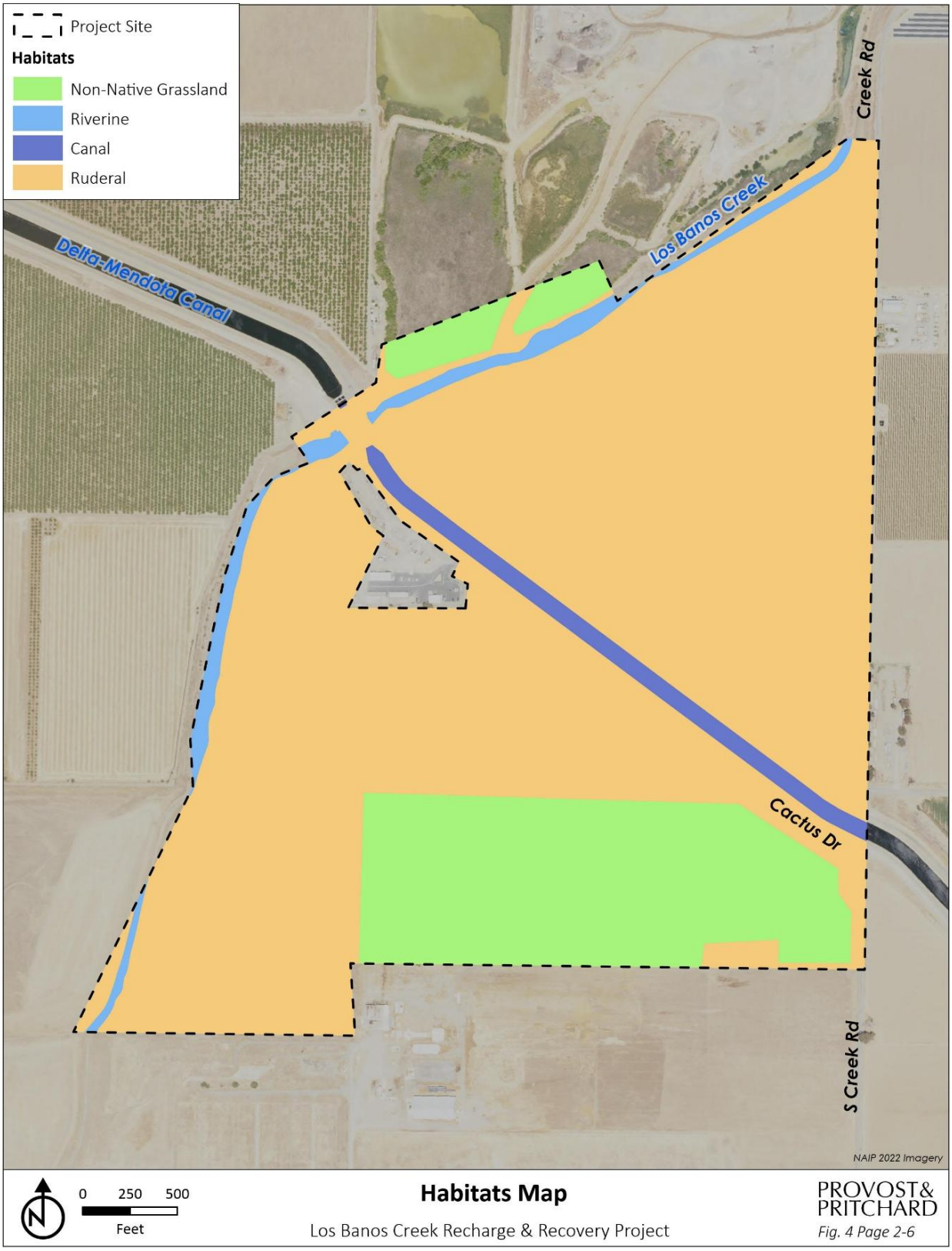



**Figure 4-2: Habitats Maps**

### Natural Communities of Special Concern and Riparian Habitat

Natural communities of special concern are those that are of limited distribution, distinguished by significant biological diversity, or home to special status species. California Department of Fish and Wildlife (CDFW) has classified and mapped all natural communities in California. Just as the special status plant and animal species (see Section 3.6), these natural communities of special concern can be found within the California Natural Diversity Database (CNDDB). There are no recorded observations of a natural community of special concern mapped within the site and no natural communities of special concern were observed during the field survey.

Riparian habitat is composed of plant communities that occur along the banks, and sometimes over the banks, of most waterways and is an important habitat for numerous wildlife species. CDFW has jurisdiction over most riparian habitat in California. Riparian vegetation was observed within the project site along Los Banos Creek, which has a length of approximately 0.8 miles within the project site, however, the vegetation did not constitute a contiguous area of riparian habitat. Another waterway within the project site is DMC which flows 0.7 miles from the northeast to the southeast corner. This canal is manmade/ concrete-lined and is unlikely to be impacted by project activities.

### Designated Critical Habitat

The United States Fish and Wildlife Service (USFWS) often designates areas of "critical habitat" when it lists species as threatened or endangered. Critical habitat is a specific geographic area that contains features essential for the conservation of a threatened or endangered species, which may require special management and protection. According to the Information for Planning and Consultation system (IPaC), designated critical habitat is absent from the project site and vicinity.

### Wildlife Movement Corridors and Native Wildlife Nursery Sites

Wildlife movement corridors are routes that animals regularly and predictably follow during seasonal migration, dispersal from native ranges, daily travel within home ranges, and inter-population movements. Movement corridors in California are typically associated with valleys, ridgelines, rivers, and creeks supporting riparian vegetation. Los Banos Creek and the DMC within the site likely act as a corridor for terrestrial wildlife during the dry season.

Native wildlife nursery sites are areas where a species or group of similar species raise their young in a concentrated place, such as maternity bat roosts. The unoccupied swallow nests underneath the bridge along DMC could function as native wildlife nursery sites for birds.

### Special Status Plants and Animals

A query of the CNDDB for occurrences of special status plant and animal species was conducted for the *Volta* USGS 7.5-minute quadrangle that contains the site, and for the eight surrounding USGS quadrangles: *Howard Ranch, Ingomar, San Luis Ranch, San Luis Dam, Los Banos, Los Banos Valley, Ortigalita Peak NW,* and *Charleston School*. A query of the IPaC was also completed for the site. These species, and their potential to occur within the site, are listed in Table 4-10 and Table 4-11, below. Other special status species that did not show up in the CNDDB query, but have the potential to occur in the vicinity, are also included in Table 4-11. Species lists obtained from CNDDB and IPaC are available in Appendix B and Appendix C, respectively of Appendix B.

**Table 4-10: List of Special Status Plants with Potential to Occur on the Site and/or in the Vicinity**

| Species | Status* | Habitat | Occurrence within the Site |
|---|---|---|---|
| Arburua Ranch jewelflower (*Streptanthus insignis ssp. lyonia*) | California Native Plant Society (CNPS) 1B | Found in the inner south coast ranges, in serpentine, grassland, oak woodland habitat. Found at elevations between 650 feet and 2,950 feet. Blooms April – June. | **Absent.** Suitable habitat for this species was absent from the project site and the site is outside of the elevational range for this species. |
| Alkali milk-vetch (*Astragalus tener* var. *tener*) | CNPS 1B | Found growing in alkali soils in the San Joaquin Valley and throughout the Delta-Bay region of California in low and flooded areas at elevations below 200 feet. Blooms March – June. | **Absent.** Suitable habitat and soils for this species were absent from the project site. |
| Alkali-sink goldfields (*Lasthenia chrysantha*) | CNPS 1B | Found in vernal pool and wet saline flat habitats in the San Joaquin Valley region at elevations below 700 feet. Blooms February – April. | **Absent.** Suitable habitat for this species was absent from the project site. |
| California alkali grass (*Puccinellia simplex*) | CNPS 1B | Found in the San Joaquin Valley and other parts of California in saline flats and mineral springs within valley grassland and wetland-riparian communities at elevations below 3,000 feet. Blooms March – May. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Chaparral ragwort (*Senecio aphanactis*) | CNPS 2B | Found in chaparral, cismontane woodland, and coastal scrub, typically within drying alkaline flats at elevations between 50 and 2,800 feet. Blooms February – May. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*) | CNPS 1B | Found on alkaline and saline soils in vernal pools and playas in grassland at elevations below 4,500 feet. Blooms April – May. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Delta button-celery (*Eryngium racemosum*) | CE, CNPS 1B | Found in riparian scrublands in floodplains near the California Delta at elevations below 100 feet. Blooms June – August. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Hall's bush-mallow (*Malacothamnus hallii*) | CNPS 1B | Generally found in chaparral and coastal scrub habitats throughout northern coastal California, the San Joaquin Valley, and the Sierra Nevada foothills. Some populations of this species have been found to grow in serpentine soils. Occurs at elevations below 2,500 feet. Blooms May – July. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Heartscale (*Atriplex cordulata* var. *cordulata*) | CNPS 1B | Found in the Central Valley in saline or alkaline soils within shadscale scrub, valley grassland, and wetland-riparian communities at elevations below 250 feet. Blooms June – July. | **Absent.** Suitable habitat for this species was absent from the project site and possibly extirpated. |
| Hispid salty bird's-beak (*Chloropyron molle* ssp. *hispidum*) | CNPS 1B | Grows in the damp, alkali soils of meadows, playas, and sinks in the San Joaquin Valley and Delta-Bay region of California. Found at elevations below 450 feet. Blooms June – July. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Lemmon's jewelflower (*Caulanthus lemmonii*) | CNPS 1B | Grows in the California Coast Ranges and Mojave Desert woodlands and grasslands at elevations between 250 and 3,700 feet. Often associated with | **Absent.** Suitable habitat for this species was absent from the project site. |

| Species | Status* | Habitat | Occurrence within the Site |
|---|---|---|---|
| | | pinyon pines and junipers. Blooms March – May. | |
| Lesser saltscale (*Atriplex minuscula*) | CNPS 1B | Found in the San Joaquin Valley in sandy, alkaline soils in alkali scrub, valley and foothill grassland, and alkali sink communities at elevations below 750 feet. Blooms April – October. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Lost Hills crownscale (*Atriplex coronata* var. *vallicola*) | CNPS 1B | Found in the San Joaquin Valley in dried ponds and vernal pools with alkaline soils in alkali scrub, and valley and foothill grasslands at elevations below 2,900 feet. Blooms April – September. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Northern slender pondweed (*Stuckenia filiformis ssp. alpina*) | CNPS 2B | Found in marshes and swamps with calcareous to brackish water. Blooming occurs from June through early-July. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Prostrate vernal pool navarretia (*Navarretia prostrata*) | CNPS 1B | Found in the San Joaquin Valley as well as areas along the central and southern coast of California. Grows in a variety of grassland and wetland habitats in mesic, alkaline soils at elevations below 2,300 feet. Blooms April – July. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Recurved larkspur (*Delphinium recurvatum*) | CNPS 1B | Occurs in chenopod scrub, cismontane woodland, and grassland habitats on poorly drained, fine, alkaline soils; often in valley saltbush or valley chenopod scrub communities at elevations between 100 and 2,600 feet. Blooms March – June. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Sanford's arrowhead (*Sagittaria sanfordii*) | CNPS 1B | This species is an aquatic plant and is found in the San Joaquin Valley and other parts of California in freshwater marshes, ponds, canals, and ditches at elevations below 1,000 feet. Blooms May – October. | **Unlikely.** While Los Banos Creek could offer possible habitat for this species, surrounding areas are highly disturbed with mining activities in the north and nearby agricultural activity in the south. The nearest recorded observation of this species was approximately 7 miles northeast of the project site in 1948. |
| Shining navarretia (*Navarretia nigelliformis* ssp. *radians*) | CNPS 1B | Found in cismontane woodland and valley and foothill grassland communities, sometimes in vernal pools. Occurs at elevations between 200 and 3,200 feet. Blooms May – July. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Spiny-sepaled button-celery (*Eryngium spinosepalum*) | CNPS 1B | Found in the Sierra Nevada foothills and the San Joaquin Valley. Occurs in vernal pools, swales, and roadside ditches. Often associated with clay soils in vernal pools within grassland communities. Occurs at elevations between 50 and 4,200 feet. Blooms April – July. | **Absent.** Suitable habitat for this species was absent from the project site. |

| Species | Status* | Habitat | Occurrence within the Site |
|---|---|---|---|
| Vernal pool smallscale (*Atriplex persistens*) | CNPS 1B | Occurs in the Central Valley in alkaline vernal pools at elevations below 400 feet. Blooms June – September. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Wright's trichocoronis (*Trichocoronis wrightii var. wrightii*) | CNPS 2B | Found in wetland riparian meadows, and vernal pools at elevations below 65 feet. Blooms May – September | **Absent.** Suitable habitat for this species was absent from the project site. |

**Table 4-11: List of Special Status Animals with Potential to Occur on the Site and/or in the Vicinity**

| Species | Status* | Habitat | Occurrence within the Site |
|---|---|---|---|
| American badger (*Taxidea taxus*) | CSSC | Prefers drier open stages of shrub, forest, and herbaceous habitats with friable soils to burrow, but can be found within numerous habitats throughout California, including the margins of agricultural lands. Needs a sufficient prey base of burrowing rodents. | **Unlikely.** The project site and surrounding areas are frequently disturbed. An American badger could potentially pass through the project site, but it is unlikely they would forage or live within the project site. While there were mammal burrows present at the site, the size was not suitable for this species and lacked the key features common in badger burrows (entrance shape and clawmarks). The nearest recorded observation of this species within the vicinity was approximately 7.3 miles northwest of the project site in 2006. |
| Bald eagle (*Haliaeetus leucocephalus*) | CE, CFP | Resides in old growth forests as well as lower montane coniferous forests. Can also be found in open uplands in the winter. Nests are generally found in large trees within a mile of water. Nests and winters along ocean shores, lake margins, and rivers. | **Unlikely.** This species could potentially pass through the project site, but it is unlikely they would forage or nest within the project site with constant machinery disturbance. The nearest recorded observation of this species was approximately 1.3 miles northwest of the project site in 1987. |
| Blunt-nosed leopard lizard (*Gambelia sila*) | FE, CE, CFP | Occurs in the San Joaquin Valley region in expansive, arid areas with scattered vegetation. Today they inhabit non-native grassland and alkali sink scrub communities of the valley floor marked by poorly drained, alkaline, and saline soils. They can be found at elevations ranging from 98 to 2,600 feet. They are absent from areas with steep slopes and dense vegetation, and areas subject to seasonal flooding. Adults may excavate shallow burrows but rely on deeper pre-existing rodent burrows for hibernation and reproduction. | **Unlikely.** While there are areas of non-native grasslands this species could utilize within the project site, surrounding areas are highly disturbed with mining activities in the north and agricultural activity in the south. The nearest recorded observation was approximately 4.8 miles east of the project site in the 1970's. |
| Burrowing owl (*Athene cunicularia*) | CSSC | Resides in open, dry grasslands, deserts, scrublands, and other areas with low growing vegetation. Nests and roosts underground in existing burrows created by mammals, most often by ground squirrels, and human-made structures. | **Possible.** The project site had mammal burrows of the appropriate size to be utilized by this species. However, no signs of this species (whitewash, feathers, or owl pellets) were observed during the field surveys. Foraging habitat and prey species were both observed throughout the site. The nearest recorded observation was |

| Species | Status* | Habitat | Occurrence within the Site |
|---|---|---|---|
| | | | approximately 5 miles northwest of the project site in 2002. |
| California condor (*Gymnogyps californianus*) | FE, CE, CFP | Typically nests in cavities in canyon or cliff faces but has also been recorded nesting in giant sequoias in Tulare County. Requires vast expanses of open savannah, grassland, and/or foothill chaparral in mountain ranges of moderate altitude. Forages for carrion up to 100 miles from their roost/nest sites. | **Absent.** Suitable nesting and foraging habitats were absent within the site and surrounding areas. This species could fly over the site but would not be expected to nest or forage within the site. The CNDDB query resulted in no observations of this species within the regional vicinity of the project site. |
| California red-legged frog (*Rana draytonii*) | FT, CSSC | Inhabits perennial rivers, creeks, and stock ponds with vegetative cover within the Coast Range and northern foothills of the Sierra Nevada. | **Unlikely.** The project site was highly disturbed by heavy machinery. Los Banos Creek and adjacent pools lacked dense vegetative cover. The nearest CNDDB record for this species is 6 miles southwest from the project site along Los Banos Creek, but a water diversion structure in Los Banos Creek Reservoir obstructs habitat connectivity. |
| California tiger salamander – central California DPS (*Ambystoma californiense*) | FT, CT | Requires vernal pools or seasonal ponds for breeding and small mammal burrows for aestivation. Generally found in grassland and oak savannah plant communities in central California from sea level to 1,500 feet in elevation. Can migrate up to 1.3 miles to breed. | **Unlikely.** The project site was highly disturbed by heavy machinery and lacked vernal pools for breeding. In addition, there are bullfrogs on the site that predate on this species, which would likely preclude them from breeding on the site. The nearest recorded observation at a stock pond approximately 6 miles southwest of the project site in 1985. |
| Conservancy fairy shrimp (*Branchinecta conservatio*) | FE | Found in large, turbid freshwater vernal pools in the Central Valley, from Tehama County in the north to Merced County in the south, with one outlying population in Ventura County's Interior Coast Ranges. | **Absent.** Suitable vernal pool habitats required by this species were absent from the project site and surrounding areas. |
| Foothill yellow-legged frog – south Sierra DPS (*Rana boylii*) | FC, CE | Frequents rocky streams and rivers with rocky substrate and open, sunny banks in forests, chaparral, and woodlands. Occasionally found in isolated pools, vegetated backwaters, and deep, shaded, spring-fed pools. | **Unlikely.** Open banks with pooling habitat were present within the project site and along Los Banos Creek. However, the project site lacks adjacent woodland and chaparral habitat, and the surrounding areas are frequently disturbed by heavy machinery. The nearest recorded observation was near the San Luis State Recreational Area approximately 5.2 miles. southwest of the project site in 1985. |
| Fresno kangaroo rat (*Dipodomys nitratoides exilis*) | FE, CE | An inhabitant of alkali sinks and open grassland habitats in Merced, Kings, Fresno, and Madera counties. Prefers bare, alkaline, clay-based soils subject to seasonal inundation with more friable soil mounds around shrubs and grasses. | **Absent.** Alkaline sinks are absent from the project site. The project site and surrounding areas are frequently disturbed by heavy machinery and no signs of this species (tail drags, etc.) were observed during the field surveys. |
| Giant gartersnake (*Thamnophis gigas*) | FT, CT | Occurs in marshes, sloughs, canals, ditches, rice fields, and adjacent uplands. Prefers locations with emergent vegetation for cover and open areas for basking. This species uses small mammal burrows adjacent | **Unlikely.** Nearby observations of this species have all occurred in areas with wetland habitats which are absent from the project site. While Los Banos Creek does contain small mammal burrows along the bank, open areas for basking, and |

| Species | Status* | Habitat | Occurrence within the Site |
|---|---|---|---|
| | | to aquatic habitats for hibernation in the winter and to escape from excessive heat in the summer. | some emergent aquatic vegetation that could be used as cover from predators within the project site, the nearby habitats are highly disturbed, and these species would not be expected to utilize the creek when higher quality habitat is regionally abundant. Additionally, the creek flows intermittently and ephemerally rather than perennially, which are less than marginal conditions for this species. The nearest recorded observation of this species within the vicinity of the project site was near the Santa Fe Grade Road, between intersections with Britto Road and Pacheco Boulevard, approximately 7.6 miles northwest of the project site in 1976. |
| Giant kangaroo rat (*Dipodomys ingens*) | FE, CE | Inhabits annual grassland communities with few or no shrubs and well-drained, sandy-loam soils on gentle slopes on the western side of the San Joaquin Valley. | **Unlikely.** The project site and surrounding areas are frequently disturbed by heavy machinery and no signs of this species (tail drags, etc.) were observed during the field surveys. The last recorded observation from CNDDB was approximately 9.6 miles south of the project site in 1932. |
| Golden eagle (*Aquila chrysaetod*) | CFP | This species typically nests on cliff ledges or large trees, rarely on the ground. They prefer an expanse of open terrain and are found over tundra, prairie, rangeland, desert, and grassland habitats. | **Unlikely.** Suitable foraging habitat for this species was absent from the project site. While there were eucalyptus trees present along the southern edge of the project site, the size of the trees could not support a golden eagle nest. The last recorded CNDDB observation was about one mile south of the intersection of I-5 and Arburua Rd. Approximately 1.8 miles north of the project site in 1987. |
| Loggerhead shrike (*Lanius ludovicianus*) | CSSC | Frequents open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low herbaceous cover. In the Central Valley, this species nests in riparian areas, desert scrub, and agricultural hedgerows. | **Possible.** The non-native grassland and open terrain within the project site offered possible foraging habitat. While sparse, the willows and thickets along Los Banos Creek could provide nesting opportunity for this species. The last recorded observation from CNDDB was approximately 14.5 miles north of the project site in 2014 and from iNaturalist 0.5 miles south in 2018. |
| Longhorn fairy shrimp (*Branchinecta longiantenna*) | FE | Inhabits clear to turbid vernal pools or seasonally ponded areas. | **Absent.** Suitable vernal pool habitats required by this species were absent from the project site and surrounding areas. |
| Monarch butterfly (*Danaus plexippus*) | FC | Roosts in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby. Larval host plants consist of milkweeds. Winter roost sites extend along the Pacific coast from northern Mendocino to Baja California, Mexico. | **Absent.** The project site had minimum vegetation and lacked appropriate tree groves. No milkweed was observed within the project site or along Los Banos Creek. |
| Nelson's antelope squirrel (*Ammospermophilus nelsoni*) | CT | Found in the western San Joaquin Valley on dry, sparsely vegetated, loamy soils. Relies heavily on existing small mammal burrows. | **Unlikely.** While suitable soil and minimum vegetation were present within some areas of the project site, the site and surrounding areas are primarily composed of disturbed habitats. Small mammal burrows were observed onsite, however California |

| Species | Status* | Habitat | Occurrence within the Site |
|---|---|---|---|
| | | | ground squirrels were observed throughout the site and appeared to be utilizing the observed burrows. The site is located several miles north of the current known range of this species. The last recorded observation from CNDDB was approximately 8.8 miles southeast of the project site in 1920. |
| Northern California legless lizard (*Anniella pulchra*) | CSSC | Found primarily underground, burrowing in loose, sandy soil. Forages in loose soil and leaf litter during the day. Occasionally observed on the surface at dusk and night. | **Absent.** Suitable soil and leaf litter required by this species were absent from the project site. |
| Northern harrier (*Circus hudsonius*) | CSSC | Nests and forges in various grasslands, including salt grass in desert sinks, riparian scrub, and wetland edges. Nests are constructed on the ground from sticks in wet areas, usually on the edge of marshes. | **Present.** While this species was observed flying eastern edge of the project site near Los Banos Creek, suitable nesting habitat was absent. Since this species is a ground nesting bird, eggs and offspring would potentially be preyed upon by transient coyotes or other nocturnal mammals. Frequent disturbance from heavy machinery would also decrease the possibility of this species nesting within the project site and surrounding area. |
| Northwestern pond turtle (*Actinemys marmorata*) | FPT, CSSC | An aquatic turtle of ponds, marshes, slow-moving rivers, streams, and irrigation ditches with riparian vegetation. Requires adequate basking sites and sandy banks or grassy open fields to deposit eggs. | **Unlikely.** There were ponded areas within the project site along Los Banos Creek with nearby grassy open fields at the time of the second field survey. However, the creek was entirely dry during the first survey. While there are several regional recorded observations of this species, these observations are concentrated around reservoirs and areas with wetlands and riparian habitat. While this species may pass through the project site, the habitat within the site is marginal compared to regionally available habitat. The nearest recorded observation was in Los Banos reservoir and detention dam and Los Banos recreation area approximately 3 miles southwest of the project site in 1985. |
| San Joaquin coachwhip (*Masticophis flagellum ruddocki*) | CSSC | Found in open dry habitats with little or no tree cover in valley grassland and saltbush scrub communities in the San Joaquin Valley. Relies on mammal burrows for refuge and oviposition sites. | **Unlikely.** Mammal burrows and grassland habitat were present within the project site and surrounding areas. However, all regional recorded observations of this species have occurred west of Interstate 5, primarily in the coast range foothills. CDFW's California Wildlife Habitat Relationships does not have this region of the valley floor mapped as predicted habitat for this species. The last recorded observation was in Los Banos detention dam, at the east end of Los Banos reservoir approximately 2.2 miles southwest of the project site. |
| San Joaquin kit fox (*Vulpes macrotis mutica*) | FE, CT | Opportunistically forages in a variety of habitats. Dens in burrows within alkali sink, valley grassland, and | **Possible.** The project site contained suitable dens along South Creek Road and throughout the southern non-native |

| Species | Status* | Habitat | Occurrence within the Site |
|---|---|---|---|
| | | woodland habitats in valleys and adjacent foothills and in human-made structures in cities, rangeland, and agricultural areas. | grassland habitat. The nearest recorded observation was near Salt Creek approximately 4.5 miles southwest of the project site in 2003. |
| Steelhead – Central Valley DPS (*Oncorhynchus mykiss irideus* pop.11) | FT | This winter-run fish begins migration to fresh water during peak flows during December through February. The spawning season is typically from February to April. After hatching, this species will move to deeper, mid-channel habitats in late summer and fall. In general, both juveniles and adults prefer complex habitat with boulders, submerged clay, undercut banks, and large woody debris. | **Absent.** The project site does not contain the appropriate aquatic habitat used for the migration of this species. |
| Swainson's hawk (*Buteo swainsoni*) | CT | Nests in large trees in open areas adjacent to grasslands, grain or alfalfa fields, or livestock pastures suitable for supporting rodent populations. | **Possible.** This species can potentially nest within the eucalyptus trees and use the non-native grassland for foraging habitat along the southern edge of the project site. The nearest recorded observation was approximately 1.6 miles south of the project site in 2005. |
| Tricolored blackbird (*Agelaius tricolor*) | CT, CSSC | Nests colonially near fresh water in dense cattails or tules, or in thickets of riparian shrubs. Forages in grassland and cropland. Large colonies are often found foraging in dairy farm feed fields. | **Unlikely.** Suitable habitat for this species was absent from the project site. The project site lacked dense vegetation for this species to take cover or nest. The last recorded observation from CNDDB was at the Los Banos recreation area approximately 1.6 miles southwest of the project site in 1992. |
| Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) | FT | Lives in mature elderberry shrubs in the Central Valley and adjacent foothills from Tehama County south through Merced and Mariposa Counties with two scattered populations in Madera and Fresno Counties. Adults are active from March to June. | **Absent.** The project site lacked required elderberry shrubs for this species to live on. |
| Vernal pool fairy shrimp (*Branchinecta lynchi*) | FT | Occupies vernal and seasonal pools, with clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools. | **Absent.** Suitable vernal pool habitats required by this species were absent from the project site and surrounding areas. |
| Vernal pool tadpole shrimp (*Lepidurus packardi*) | FE | Occurs in vernal pools, clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools. | **Absent.** Suitable vernal pool habitats required by this species were absent from the project site and surrounding areas. |
| Western mastiff bat (*Eumops perotis californicus*) | CSSC | Found in open, arid to semi-arid habitats, including dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas, where it feeds on insects in flight. Roosts most commonly in crevices in cliff faces but may also use high buildings and tunnels. | **Unlikely.** The project site lacked high buildings, cliff crevices and tunnels for this species to roost but this species could use the project site to forage. The nearest recorded observation was approximately 7 miles southwest of the project site in 1994. |
| Western spadefoot (*Spea hammondii*) | FPT, CSSC | The majority of the time this species is terrestrial and occurs in small mammal burrows and soil cracks, | **Unlikely.** The project site contained aquatic pools along Los Banos Creek, but the vegetation cover was minimum. The area is |

| Species | Status* | Habitat | Occurrence within the Site |
|---|---|---|---|
| | | sometimes in the bottom of dried pools. Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Vernal or seasonal pools, that hold water for a minimum of three weeks, are necessary for breeding. | frequently disturbed by aggregate mining activities. Predators such as American bullfrogs could predate on this species. The nearest recorded observation was approximately 7.8 miles east of the project site in 1992. |
| Yellow rail (*Coturnicops noveboracensis*) | CSSC | Found in marshes, and large meadows or shallow marshes dominated by sedges and grasses. Typically in fresh or brackish marsh with water no more than a foot deep. | **Unlikely.** The project site lacked suitable habitat for this species. The project is regularly disturbed by mining activities. The nearest recorded observation was approximately 3.5 miles northeast of the project site in 1911. |

***EXPLANATION OF OCCURRENCE DESIGNATIONS AND STATUS CODES**

| | |
|---|---|
| Present: | Species observed on the site at time of field surveys or during recent past. |
| Likely: | Species not observed on the site, but it may reasonably be expected to occur there on a regular basis. |
| Possible: | Species not observed on the site, but it could occur there from time to time. |
| Unlikely: | Species not observed on the site, and would not be expected to occur there except, perhaps, as a transient. |
| Absent: | Species not observed on the site and precluded from occurring there due to absence of suitable habitat. |

**STATUS CODES**

| | | | |
|---|---|---|---|
| FE | Federally Endangered | CE | California Endangered |
| FT | Federally Threatened | CT | California Threatened |
| FC | Federal Candidate | CCT | California Threatened (Candidate) |
| | | CFP | California Fully Protected |
| | | CSSC | California Species of Concern |

## 4.4.2 Impact Analysis

a) Would the project 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?

Less than Significant Impact with Mitigation Incorporated. Of the 21 regionally occurring special status plant species, all are considered absent from or unlikely to occur within the Project site due to past or ongoing disturbance and/or the absence of suitable habitat.

Since it is unlikely that these species would occur onsite, implementation of the Project should have no impact on these 21 special status species through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted.

Of the 31 regionally occurring special status animal species, 26 are considered absent from or unlikely to occur within the project site due to past or ongoing disturbance and/or the absence of suitable habitat. These species include: American badger, bald eagle, blunt-nosed leopard lizard, California condor, California red-legged frog, California tiger salamander, conservancy fairy shrimp, foothill yellow-legged frog, Fresno kangaroo rat, giant gartersnake, giant kangaroo rat, golden eagle, longhorn fairy shrimp, monarch butterfly, Nelson's antelope squirrel, northern California legless lizard, San Joaquin coachwhip, steelhead, northwestern pond turtle, tricolored blackbird, valley elderberry longhorn beetle, vernal pool fairy shrimp, vernal pool tadpole shrimp, western mastiff bat, western spadefoot, and yellow rail. Since it is unlikely that these species would occur onsite, implementation of the Project should have no impact on these 26 special status species through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted for these 26 species.

### General Project-Related Impacts

The Project has the potential to impact a number of sensitive resources, as described in more detail in the following sections. Impacts to these resources would be a violation of state and federal laws or considered a potentially significant impact under CEQA. Implementation of the mitigation measures BIO-1 and BIO-2 will help reduce potential impacts to these resources to a less than significant level under CEQA and will help with complying with state and federal laws protecting these resources.

### Project-Related Mortality and/or Nest Abandonment of Migratory Birds, Raptors, and Special Status Birds

The Project site and adjacent areas contain suitable foraging habitat for a variety of protected bird species, such as migratory birds, raptors, and special status birds including northern harrier, Swainson's hawk, and loggerhead shrike. It is anticipated that during the nesting bird season, protected birds could nest on the ground or in shrubs and trees within, and adjacent to, the site and forage within the site. Protected birds located within or adjacent to the site during construction have the potential to be injured or killed by project-related activities. In addition to the direct "take" of protected birds within the site and adjacent areas, these birds nesting in these areas could be disturbed by project-related activities resulting in nest abandonment. Projects that adversely affect the nesting success of protected birds or result in the mortality of these birds would be a violation of state and federal laws and considered a potentially significant impact under CEQA. While foraging habitat for protected birds, such as northern harriers, Swainson's hawks, and loggerhead shrikes, is present on the site, suitable foraging habitat is located adjacent to the site and within the vicinity of the site. Loss of the foraging habitat from implementation of the Project is not considered a significant impact. Implementation of mitigation

measures BIO-3, BIO-4, and BIO-5 will reduce potential impacts to protected nesting birds to a less than significant level under CEQA and will help the project comply with state and federal laws protecting these bird species.

### Project-Related Mortality and/or Disturbance of Burrowing Owl

The Project area contains suitable nesting and foraging habitat for burrowing owl (BUOW). Construction activities that adversely impact the nesting success of burrowing owls or result in the mortality of individuals constitute a violation of state and federal laws and would be considered a significant impact under CEQA. While the Project area may temporarily remove some potential foraging habitat for BUOW, there is abundant foraging habitat adjacent to the site that could be used and after the project is completed, they may continue to forage over the project site. Therefore, implementation of the Project would not significantly reduce potential foraging habitat for this species and no mitigation measures are warranted for loss of BUOW foraging habitat. Implementation of mitigation measures BIO-6, BIO-7, and BIO-8 will reduce potential impacts to nesting or roosting BUOW to a less than significant level under CEQA.

### Project-Related Mortality and/or Disturbance to San Joaquin Kit Fox

The Project site contained suitable denning and foraging habitat for San Joaquin kit fox (SJKF). SJKF denning within the project site during construction have the potential to be injured or killed by project-related activities. Projects that result in the mortality of individuals would be a violation of state and federal laws and considered a potentially significant impact under CEQA. While the project site may remove some potential foraging habitat for SJKF, there is abundant foraging habitat adjacent to the project site that could be used, and implementation of the project would not significantly reduce potential foraging habitat for this species. Therefore, no mitigation measures are warranted for loss of SJKF foraging habitat. Implementation of mitigation measures BIO-9, BIO-10, and BIO-11 will reduce potential impacts to SJKF to a less than significant level under CEQA and help the project comply with state and federal laws protecting this species.

b) Would the project 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?

No Impact. Riparian habitat is absent from the Project area. Furthermore, there are no CNDDB-designated "natural communities of special concern" in the Project area. Therefore, there would be no impact. Mitigation measures are not warranted.

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

Less than Significant Impact with Mitigation Incorporated. The Project involves the construction of one flow control weir in Los Banos Creek and two 30 to 50 cfs water transfer facilities: one between the Central Basin and the DMC, another between the Southern Basin and the DMC. The USFWS National Wetlands Inventory Map was consulted for known wetlands in the area and riverine was classified to be within the boundaries of DMC and Los Banos Creek. Freshwater emergent wetlands were mapped adjacent to Los Banos Creek near the western edge of the project area and freshwater ponds south of DMC. Project-related impacts to some or all of these waters would be considered a potentially significant impact under CEQA and the National Environmental Policy Act. Impacts to waters of the U.S. are also subject to the permit requirements of Sections 401 and 404 of the Clean Water Act and impacts to waters

of the state are subject to the permit requirements of Section 401 of the Clean Water Act and California Fish and Game Code. The placement of fill within any wetlands or other jurisdictional features will require a 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB), 404 permit from the United States Army Corps of Engineers (USACE), and a Lake or Streambed Alteration Agreement from CDFW.

There are no designated wild and scenic rivers within the project site; therefore, the project would not result in direct impacts to wild and scenic rivers.

If construction involves ground disturbance over an area greater than one acre, the project would need to obtain a Construction General Permit (CGP) under the Construction Storm Water Program administered by the RWQCB. A prerequisite for this permit is the development of a Storm Water Pollution Prevention Plan to ensure construction activities do not adversely affect water quality. This plan will need to be prepared in support of the CGP application. Implementation of mitigation measure BIO-12 will reduce potential impacts to waters to a less than significant level under CEQA and will ensure compliance with state and federal laws protecting these waters.

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. The riverine and canal habitat of the Project site and surrounding areas could be used as a wildlife movement corridor, but impacts would be temporary and minimal, and wildlife may be able to continue using these features at night while construction is occurring and would be able to continue utilizing them after construction activities are completed.

The Project site has suitable features that could be used as native wildlife nursery sites. The unoccupied swallow nests underneath the bridge along DMC could function as native wildlife nursery sites for birds. Project-related impacts to any native wildlife nursery sites would be considered a significant impact under CEQA.

The potential impacts to species that could use the unoccupied swallow nests along DMC as a wildlife nursery site have been addressed in Mitigation Measures BIO-3, BIO-4, and BIO-5. Implementation of these will reduce potential impacts to native wildlife nursery sites to a less than significant level under CEQA. Additionally, implementation of mitigation measures BIO-13 and BIO-14 would reduce potential impacts to wildlife movement corridors to less than significant.

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

No Impact. The Project appears to be consistent with the goals and policies of the Merced County General Plan. There are no known Habitat Conservation Plans (HCPs) or Natural Community Conservation Plans (NCCPs) in the Project vicinity. Mitigation measures are not warranted.

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 is not located within the boundaries of an adopted HCP, NCCP, or other approved local, regional, or State habitat conservation plan. There would be no impact and mitigation measures are not warranted.

### 4.4.3 Mitigation

#### General Project-Related Impacts

**BIO-1** **(*WEAP Training*):** Prior to initiating construction activities (including staging and mobilization), all personnel associated with project construction will attend a mandatory Worker Environmental Awareness Program (WEAP) training, conducted by a qualified biologist (someone familiar with the identification and habitats of these species), to aid workers in identifying special status resources that may occur in the project site. The specifics of this program will include identification of the sensitive species and suitable habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction and mitigation measures required to reduce impacts to biological resources within the work area. This training will discuss special status species, describe the laws and regulations in place to provide protection of these species, identify the penalties for violation of applicable environmental laws and regulations, and include a list of required protective measures to avoid "take." A fact sheet summarizing this information, along with photographs or illustrations of sensitive species with potential to occur on the project site, will also be prepared for distribution to all contractors, their employees, and all other personnel involved with construction of the project. All trainees will sign a form documenting that they have attended WEAP training and understand the information presented to them.

**BIO-2** **(*BMPs*):** The project proponent will require that all workers employ the following best management practices (BMPs) in order to avoid and minimize potential impacts to special status species:

- Vehicles will observe a 15-mph speed limit while on unpaved access routes.
- All open trenches, holes, sumps, and other excavations greater than 12-inches with sidewalls steeper than a 1:1 (45 degree) slope will have an escape ramp of earth or a non-slip material with a less than 1:1 slope or these will be covered with barrier material such that animals are unable to dig or squeeze under the barrier and become entrapped
- Workers will inspect areas beneath parked vehicles, equipment, and materials prior to mobilization. If special status species are detected, the individual will either be allowed to leave of its own volition or will be captured by the qualified biologist (must possess appropriate collecting/handling permits) and relocated out of harm's way to the nearest suitable habitat beyond the influence of the project work area. "Take" of a state or federal special status (rare, California Species of Special Concern, threatened, or endangered) species is prohibited without the necessary federal or state take permit(s).
- The presence of any special status species will be reported to the project's qualified biologist, who will submit the occurrence to the CNDDB. If necessary, the biologist will report the occurrence to CDFW and/or USFWS.

### Project-Related Mortality and/or Nest Abandonment of Migratory Birds, Raptors, and Special Status Birds

**BIO-3** (*Avoidance*): The project's construction activities will occur, if feasible, between September 16 and January 31 (outside of the nesting bird season) to avoid impacts to nesting birds.

**BIO-4** (*Pre-construction Surveys*): If activities must occur within nesting bird season (February 1 to September 15), a qualified biologist will conduct a one-time take avoidance pre-construction survey for Swainson's hawk nests onsite and within a 0.5-mile radius within ten calendar days prior to the start of construction. This survey will be conducted in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000), or current guidance. The survey would also include inspecting for nesting migratory birds within up to 100 feet outside of the project site and for other nesting raptors within up to 500 feet outside of the project site. All raptor nests would be considered "active" upon the nest-building stage. If no active nests are observed, no further mitigation is required.

**BIO-5** (*Avoidance Buffers*): On discovery of any active nests or breeding colonies near work areas, a qualified biologist will determine appropriate avoidance buffer distances based on applicable CDFW and/or USFWS guidelines, the biology of the species, conditions of the nest(s), and the level of project disturbance. If necessary, avoidance buffers will be identified with flagging, fencing, or other easily visible means, and will be maintained until the biologist has determined that the nestlings have fledged.

### Project-Related Mortality and/or Disturbance of Burrowing Owl

**BIO-6** (*Pre-construction Take Avoidance Survey*): A qualified biologist will conduct a pre-construction take avoidance survey for BUOW and suitable burrows, in accordance with CDFW's *Staff Report on Burrowing Owl Mitigation* (2012) within seven (7) days prior to the start of construction activities in each section of the Project area. The survey will include the proposed work area and surrounding lands up to 500 feet, where accessible. If no BUOW individuals or active burrows are observed, no further mitigation is required.

**BIO-7** (*Avoidance Buffers*): If an active BUOW burrow is detected avoidance buffers will be implemented. A qualified biologist will determine appropriate avoidance buffer distances based on CDFW's 2012 *Staff Report on Burrowing Owl Mitigation*, the biology of BUOW, conditions of the burrow(s), and the level of project disturbance which can be found in the table below. If necessary, avoidance buffers will be identified with flagging, fencing, visual screens, or other easily visible means, and will be maintained until the biologist has determined that the nestlings have fledged and all BUOW have left the Project area.

| | | Level of Disturbance | | |
|---|---|---|---|---|
| Location | Time of Year | Low | Med | High |
| Nesting sites | April 1-Aug 15 | 200 meters | 500 meters | 500 meters |
| Nesting sites | Aug 16-Oct 15 | 200 meters | 200 meters | 500 meters |
| Nesting sites | Oct 16-Mar 31 | 50 meters | 100 meters | 500 meters |

**BIO-8** (*Passive Relocation*): If avoidance of an active BUOW burrow is not feasible, passive relocation could be utilized through the development of a Burrowing Owl Passive Relocation Plan (Plan). A qualified biologist will prepare a draft Burrowing Owl Passive Relocation Plan for review and approval by the Bureau of Land Management and CDFW prior to the start of any ground-disturbing activities. No passive relocation of burrowing owls will be permitted during breeding season (February 1 – August 31), unless a qualified biologist verifies through noninvasive methods that an occupied burrow is not occupied by a mated pair, and only upon authorization by CDFW.

### Project-Related Mortality and/or Disturbance San Joaquin Kit Fox

**BIO-9** (*Pre-Construction Survey*): Within seven (7) days prior to the start of construction a qualified biologist (someone familiar with the identification and sign of this species) will conduct a pre-construction survey for SJKF potential dens. The survey will be conducted on and within 200 feet of proposed work areas. If potential SJKF dens are detected during the pre-construction survey, each potential den will be monitored with a remote camera for a period of three consecutive nights. If there is no activity recorded at the den location, the den can be deemed "inactive" or "unoccupied" and closed or excavated the same day as determining the den inactive.

**BIO-10** (*Establish Buffers*): On discovery of any active SJKF dens near the project site a qualified biologist will determine appropriate construction setback distances (buffer zones) based on applicable CDFW and/or USFWS guidelines (see below). If needed, construction buffers will be identified with flagging, fencing, or other easily visible means. They will be maintained until the biologist has determined that the den will no longer be impacted by construction.

1. At least 100 feet around den(s);
2. At least 200 feet around natal dens (which SJKF young are reared); and
3. At least 500 feet around any natal dens with pups (except for any portions of the buffer zone that is already fully developed).

**BIO-11** (*ITP* and *Passive Relocation*): If an active BUOW burrow is detected within the proposed work area and cannot be avoided, it is recommended the project obtain an Incidental Take Permit (ITP) in order to implement protection plans and/or relocation plans in consultation with CDFW and/or USFWS and protect the project from "take" of this species.

### Project-Related Impacts to Regulated Waters, Wetlands, and Water Quality

**BIO-12** (*Permits*): If the project intends to impact jurisdictional waters, permits with USACE, RWQCB, and/or CDFW will be obtained to comply with state and federal regulations, if necessary. These permits, certifications, and agreements would ensure impacts to waters are minimized to the extent possible and permanent impacts would be offset by compensatory mitigation.

### Project-Related Impacts to Wildlife Movement Corridors and Native Wildlife Nursery Sites

**BIO-13** (*Operational Hours*): When possible, construction activities within the Los Banos Creek riverine habitat and the DMC canal habitat should be limited to a half hour after sunrise through a half hour before sunset to reduce potential impacts to wildlife movement corridors.

**BIO-14** (*Wildlife Access*): Access within these areas should not be blocked outside of construction hours or during overnight hours or weekends. If construction must block both sides of a wildlife access route, an alternative route through the construction area should be identified by a qualified biologist and maintained throughout the construction schedule timeframe.

# 4.5 CULTURAL RESOURCES

**Table 4-12: Cultural Resources Impacts**

| Would the project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Cause a substantial adverse change in the significance of a historical resource pursuant to in § 15064.5? | ☐ | ☒ | ☐ | ☐ |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5? | ☐ | ☒ | ☐ | ☐ |
| c) Disturb any human remains, including those interred outside of dedicated cemeteries? | ☐ | ☒ | ☐ | ☐ |

## 4.5.1 Baseline Conditions

### Pedestrian Survey

A Cultural Resources Identification Report was prepared for the Project, dated March 2025 (see Appendix C). On January 23 and 24, 2024, Kleinfelder archaeologist intensively surveyed the Project Area of Potential Effect (APE) (see Figure 2-2)using 5–10- and 15-meter transects, dependent on topography. A portion of the APE was not surveyed due to extensive flooding and the presence of a pond feature.

During the survey, Kleinfelder archaeologists periodically employed boot scrapes, and any exposed soil was closely examined. The soil was consistent with a yellowish-brown clay loam. Vegetation was not consistent throughout the APE; some patches of vegetation were present, while other parts were bare of any vegetation. When vegetation was present, it was primarily dense grassy ground cover ranging from 1 to 4 feet tall. In the areas near a pond (southwest of the APE) and flooded fields (northwest of the APE), cattails and reeds were observed.

The APE was heavily disturbed from extensive quarrying, tilling, and other land modification. Evidence of mechanical excavation was observed throughout the APE. Excavations and ground disturbance were evident in the extensive berms, pits, trenches, and equipment tracks. In addition, excavator teeth marks were observed along the walls of artificial hill cuts throughout the APE. The extent of ground disturbance within the APE ranged from 20 to 200 feet below ground surface.

Evidence of modern land use, primarily observed in the southeastern portion of the APE, was also observed and includes a concrete path, several concrete pads, a brick pile, and modern debris.

### Records Search

A records search of the APE and a 0.5-mile buffer was requested on March 11, 2024, and processed by the Central California Information Center (CCIC) on March 13, 2024. The purpose of the records search was to identify if any prehistoric and/or historic-period cultural resources and/or studies had been previously documented in the APE and/or its 0.5-mile radius to better understand the archaeological sensitivity of the area.

The CCIC records search identified one previously documented historic linear resource segment of the Delta Mendota Canal (P-24—001703 in Merced County, P-50-001904 in Stanislaus County, and P-24-000089 in San Joaquin County) within the APE. This resource is eligible for listing on the National Register of Historic Places (NRHP). Three additional previously recorded resources were identified within 0.5-mile of the APE. Six previous cultural resources studies were identified within the APE, and three previous cultural studies were identified within a 0.5-mile radius of the APE.

### Buried Resources Sensitivity

The geomorphology of the APE demonstrates a moderate chance for the presence of buried resources. Given the close proximity of historical water sources, Holocene to Historic-age soils, and proximity of previously recorded prehistoric resources in the Project vicinity, cultural sensitivity within the APE is considered moderate.

The APE was historically rural agricultural land. A review of historical maps depicts some light on the rural development of homes and roads in 1920s—1940s, whereas by the 1960s maps depict the gravel pits and associated development within the APE. The entire APE is highly disturbed and, as such, the APE is considered to have a low sensitivity for intact buried historic-era resources.

### Native American Outreach

On March 8, 2024, Kleinfelder requested from the California Native American Heritage Commission (NAHC) a search of their Sacred Lands File (SLF). The NAHC responded on March 11, 2024. The SLF search was requested to identify whether there are sensitive or sacred tribal cultural resources in the vicinity of the APE that could be affected by the Project. The NAHC's SLF results search of the APE was negative. The NAHC also included contact information of local Native American representatives who may have knowledge or interest in sharing information of resources of sacred significance present in or near the APE. Each representative was sent a nongovernmental outreach letter via email notifying them of the Project and asking if they had any knowledge of the Project area or surrounding vicinity. The outreach letter included a description of the Project, the CHRIS and SLF results, and a map of the Project APE. The tribes notified are listed in Section 4.18 Tribal Cultural Resources. The SLF can be found in Appendix C.

## 4.5.2 Impact Analysis

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

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

Less than Significant Impact with Mitigation Incorporated. The CCIC records search identified one previously documented historic linear resource segment of the DMC within the APE. This segment of the DMC, P-24—001703, is eligible for listing on the NRHP. The Project would repurpose existing gravel pits and transform them into water storage basins. Although work would be conducted within the vicinity of the DMC, no Project work would alter the structure of the DMC itself. A pipe would be placed up to the canal bank and then dropped down below the water line. The Project would not result in a loss of historic material that would compromise the historic integrity of the potential resource or result in a change in the canal's construction or alignment.

The presence of buried resources within the APE is considered moderate. Although the APE is considered to have a moderate sensitivity for buried historic-era resources and a moderate sensitivity for buried

prehistoric resources, the APE has been heavily disturbed by decades of gravel pit operations and there are no known archaeological resources within the APE. However, as there is always the potential for discovering buried cultural resources during ground-disturbing activities, mitigation measures CUL-1, CUL-2, and CUL-3, as seen in Section 4.5.3 below, will be implemented to reduce impacts to a less than significant level.

c) Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

Less than Significant Impact with Mitigation Incorporated. As mentioned above, although the APE is considered to have a moderate sensitivity for buried historic-era resources and a moderate sensitivity for buried prehistoric resources, the APE has been heavily disturbed by decades of gravel pit operations and there are no known archaeological resources within the APE. However, as there is always the potential for discovering buried cultural resources during ground-disturbing activities. Therefore, mitigation measure CUL-4 outlined below in Section 4.5.3 will be implemented in order to reduce impacts to less than significant.

### 4.5.3 Mitigation

**CUL-1** A qualified archaeologist shall provide an archaeological tailboard to any construction crew working on site during ground-disturbing activities.

**CUL-2** A qualified archaeologist monitor shall conduct spot-check monitoring as needed during ground-disturbing activity as determined by a qualified archaeologist.

**CUL-3** If archaeological components are encountered during ground-disturbing activities, all ground-disturbing work within 100 feet of the discovery location should cease until a qualified archaeologist can assess the significance of the finding and provide (if needed) avoidance and/or a data recovery plan.

**CUL-4** If human remains are uncovered during construction, the Merced County Coroner is to be notified to investigate the remains and arrange proper treatment and disposition. If the remains are identified on the basis of archaeological context, age, cultural associations, or biological traits to be those of a Native American, California Health and Safety Code 7050.5 and PRC 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent who will be afforded an opportunity to make recommendations regarding the treatment and disposition of the remains.

# 4.6 ENERGY

**Table 4-13: Energy Impacts**

| Would the project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation? | ☐ | ☐ | ☒ | ☐ |
| b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? | ☐ | ☐ | ☐ | ☒ |

## 4.6.1 Baseline Conditions

California's major sources of energy are petroleum products (i.e., gasoline, diesel, and oil), electricity, and natural gas.

Pacific Gas and Electric Company (PG&E) supplies electricity to the Project area. PG&E obtains its power through hydroelectric, thermal (natural gas), wind, and solar generation or via power purchases. PG&E continually produces new electric generation, and natural gas sources and implements continuous improvements to gas lines throughout its service areas to ensure the provision of services to residents.

## 4.6.2 Impact Analysis

a) Would the project 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. Construction and operation of the Project would require energy use to operate the proposed pump stations and wells, but this use would not be wasteful or inefficient, nor would it require new or expanded electric power or natural gas facilities. The Project would be required to adhere to energy use regulations, described in more detail below, that are intended to reduce energy use. Impacts would be less than significant.

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact. State and local authorities regulate energy use and consumption. These regulations at the State level are intended to reduce energy use and greenhouse gas (GHG) emissions. These include, among others, Assembly Bill 1493 – Light-Duty Vehicle Standards; California Code of Regulations Title 24, Part 6 – Energy Efficiency Standards; and California Code of Regulations Title 24, Parts 6 and 11 – California Energy Code and Green Building Standards. The Project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Therefore, there would be no impact.

# 4.7 GEOLOGY AND SOILS

**Table 4-14: Geology and Soils Impacts**

| Would the project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: | | | | |
| i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. | ☐ | ☐ | ☒ | ☐ |
| ii. Strong seismic ground shaking? | ☐ | ☐ | ☒ | ☐ |
| iii. Seismic-related ground failure, including liquefaction? | ☐ | ☐ | ☒ | ☐ |
| iv. Landslides? | ☐ | ☐ | ☒ | ☐ |
| b) Result in substantial soil erosion or the loss of topsoil? | ☐ | ☐ | ☒ | ☐ |
| 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? | ☐ | ☐ | ☒ | ☐ |
| 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? | ☐ | ☐ | ☒ | ☐ |
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater? | ☐ | ☐ | ☐ | ☒ |
| f) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature? | ☐ | ☐ | ☒ | ☐ |

## 4.7.1 Baseline Conditions

### Geology and Soils

The Project is located in Merced County, which lies within the California geologic region known as the Great Valley geomorphic province.[4] The Great Valley geomorphic province is characterized by a long alluvial plain that extends approximately 400 miles through the central part of California. The Great Valley is further divided into the northern Sacramento Valley and the southern San Joaquin Valley. The valleys were created

[4] (California Department of Conservation 2002)

as a result of the uplift of the two mountain ranges that flank them, the Coast Ranges to the west and the Sierra Nevada mountain range to the east.[5] The Project site itself is located in the San Joaquin Valley.

### Faults and Seismicity

The Project site is not located within the Alquist-Priolo Earthquake Fault Zone and no known faults cut through the local soil at the site. The nearest mapped principal fault is the San Andreas Fault, located approximately 31 miles southwest of the Project site.[6] The San Andreas Fault is the dominant active tectonic feature of the Coast Ranges and represents the boundary of the North American and Pacific plates. The nearest fault is the San Joaquin Fault, located approximately 2.3 miles southwest of the Project Area.[7]

### Liquefaction

The potential for liquefaction, which is the loss of soil strength due to seismic forces, is dependent on soil types and density, depth to groundwater, and the duration and intensity of ground shaking. The portion of Merced County where the Project is located has a low to moderate liquefaction risk.

### Soil Subsidence

Subsidence occurs when a large land area settles due to over-saturation or extensive withdrawal of ground water, oil, or natural gas. These areas are typically composed of open-textured soils, high in silt or clay content, that become saturated. Merced County depends heavily on groundwater for its water needs. Historical water data shows the use of surface water supplied by the irrigation districts is decreasing during droughts, while the pumping of groundwater for irrigation has been increasing. Several consequences can occur if aquifer levels continue to decline, including land subsidence. According to the USGS, the Project is not located in area substantially impacted by subsidence.[8]

### Dam and Levee Failure

According to the California Dam Breach Inundation Maps, the Project area is not located in a dam or levee failure inundation zone.[9]

## 4.7.2 Impact Analysis

a) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

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

ii. Strong seismic ground shaking?

iii. Seismic-related ground failure, including liquefaction?

iv. Landslides?

[5] Ibid.
[6] (California Department of Conservation 2023)
[7] Ibid.
[8] (United State Geological Survey (USGS) 2025)
[9] (California Department of Water Resources 2022)

**a-i – a-iv) Less than Significant Impact.** The Project is not located within an Alquist-Priolo Earthquake Fault Zone. The nearest active fault in Merced County is the San Joaquin Fault. Additionally, the Project proposes two water storage basins from existing gravel pits, a surface water diversion structure, and appurtenant facilities and would not include habitable structures. Therefore, there would not be any people permanently on site that could be impacted. Impacts would be less than significant.

b) Would the project result in substantial soil erosion or the loss of topsoil?

**Less than Significant Impact.** Earthmoving activities associated with the Project would include excavation and pond construction. These activities could expose soils to erosion processes and the extent of erosion would vary depending on slope steepness/stability, vegetation/cover, concentration of runoff, and weather conditions. Dischargers whose 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, are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity CGP Order 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling or excavation but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The CGP requires the development of a Stormwater Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Since the Project site is already mostly excavated and has relatively flat terrain with a low potential for soil erosion and would comply with the California State Water Resources Control Board (SWRCB) requirements of implementing a SWPPP, the impact would be less than significant.

c) Would the project 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.** The Project is not anticipated to adversely affect soil stability or increase the potential for local or regional landslides, subsidence, liquefaction, or collapse. As discussed previously, the Project site is in an area that is not reasonably assumed to contain conditions conducive to liquefaction hazards. The Project would not exacerbate hazards related to unstable soil and would not result in on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse. Recovery of groundwater via Project recovery wells would be completed in the upper aquifer, which would help to prevent subsidence. Furthermore, the Project would comply with the draft Monitoring Plan found in Appendix D, which includes groundwater recovery constraints to prevent significant subsidence impacts. As noted in Appendix D, the Project area is outside of the Special Subsidence Management Area (SSMA) identified in the Central Delta-Mendota Groundwater Sustainability Agency Pumping Reduction Plan. Impacts would be less than significant.

d) Would the project 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?

**Less than Significant Impact.** The Project would not contain any facilities that could be affected by expansive soils, nor would substantial grading change the topography such that the Project would generate substantial risks to life or property. In addition, the Project site does not include soils that are conducive to expanding and contracting; therefore, impacts would be less than significant.

e) Would the project 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 would not include any habitable structures; therefore, new septic installation or alternative wastewater disposal systems are not necessary for the Project. There would be no impact.

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

**Less than Significant Impact.** Paleontological resources are fossilized remains of flora and fauna and associated deposits. Most fossils are found in sedimentary rock. Sedimentary rock is formed by dirt (sand, silt, or clay) and debris that settles to the bottom of an ocean or lake and compresses for such a long time that it becomes hard as a rock. CEQA requires that a determination be made as to whether a project would directly or indirectly destroy a unique paleontological resource or site or unique geological feature (CEQA Appendix G(v)(c)). If an impact is significant, CEQA requires feasible measures to minimize the impact (CCR Title 14(3) Section 15126.4(a)(1)). PRC Section 5097.5 (see above) also applies to paleontological resources.

The Project would require grading and excavation activities on a site that has been previously disturbed from earthwork. The Project would comply with California Public Resources Code Section 5097.5 which pertains to the protection of paleontological resources. With compliance with said regulation, impacts would be less than significant.

# 4.8 GREENHOUSE GAS EMISSIONS

**Table 4-15: Greenhouse Gas Emissions Impacts**

| Would the project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | ☐ | ☐ | ☒ | ☐ |
| b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | ☐ | ☐ | ☐ | ☒ |

## 4.8.1 Baseline Conditions

Commonly identified GHG emissions and sources include the following:

**Carbon dioxide ($CO_2$)** is an odorless, colorless natural greenhouse gas. $CO_2$ is emitted from natural and anthropogenic sources. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic out gassing. Anthropogenic sources include the burning of coal, oil, natural gas, and wood.

**Methane ($CH_4$)** is a flammable greenhouse gas. A natural source of methane is the anaerobic decay of organic matter. Geological deposits, known as natural gas fields, also contain methane, which is extracted for fuel. Other sources are from landfills, fermentation of manure, and ruminants such as cattle.

**Nitrous oxide ($N_2O$)**, also known as laughing gas, is a colorless greenhouse gas. Nitrous oxide is produced by microbial processes in soil and water, including those reactions that occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load.

**Water vapor** is the most abundant, and variable greenhouse gas. It is not considered a pollutant; in the atmosphere, it maintains a climate necessary for life.

**Ozone ($O_3$)** is known as a photochemical pollutant and is a greenhouse gas; however, unlike other greenhouse gases, ozone in the troposphere is relatively short-lived and, therefore, is not global in nature. Ozone is not emitted directly into the atmosphere but is formed by a complex series of chemical reactions between volatile organic compounds, nitrogen oxides, and sunlight.

**Aerosols** are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

**Chlorofluorocarbons (CFCs)** are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. CFCs destroy stratospheric ozone; therefore, their production was stopped as required by the Montreal Protocol in 1987.

**Hydrofluorocarbons (HFCs)** are synthetic chemicals that are used as a substitute for CFCs. Of all the greenhouse gases, HFCs are one of three groups (the other two are perfluorocarbons and sulfur hexafluoride) with the highest global warming potential. HFCs are human-made for applications such as air conditioners and refrigerants.

**Perfluorocarbons (PFCs)** have stable molecular structures and do not break down through the chemical processes in the lower atmosphere; therefore, PFCs have long atmospheric lifetimes, between 10,000 and 50,000 years. The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

**Sulfur hexafluoride ($SF_6$)** is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It has the highest global warming potential of any gas evaluated. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

There are uncertainties as to exactly what the climate changes will be in various local areas of the earth, and what the effects of clouds will be in determining the rate at which the mean temperature will increase. There are also uncertainties associated with the magnitude and timing of other consequences of a warmer planet: sea level rise, spread of certain diseases out of their usual geographic range, the effect on agricultural production, water supply, sustainability of ecosystems, increased strength and frequency of storms, extreme heat events, air pollution episodes, and the consequence of these effects on the economy.

Emissions of GHGs contributing to global climate change are largely attributable to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. About three-quarters of human emissions of $CO_2$ to the global atmosphere during the past 20 years are due to fossil fuel burning. Atmospheric concentrations of $CO_2$, $CH_4$, and $N_2O$ have increased 31 percent, 151 percent, and 17 percent respectively since the year 1750 (CEC 2008). GHG emissions are typically expressed in carbon dioxide-equivalents ($CO_2e$), based on the GHG's Global Warming Potential (GWP). The GWP is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, one ton of $CH_4$ has the same contribution to the greenhouse effect as approximately 21 tons of $CO_2$. Therefore, $CH_4$ is a much more potent GHG than $CO_2$. In accordance with SJVAPCD's *CEQA Greenhouse Gas Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects*[10], proposed projects complying with Best Performance Standards (BPS) would be determined to have a less-than-significant impact. Projects not complying with BPS would be considered less than significant if operational GHG emissions would be reduced or mitigated by a minimum of 29 percent, in comparison to business-as-usual (year 2004) conditions. In addition, project-generated emissions complying with an approved plan or mitigation program would also be determined to have a less-than-significant impact.

CalEEMod air quality modeling software was run on May 6, 2025, and is contained in Appendix A.

## 4.8.2 Impact Analysis

### Project Related Emissions

Short-term construction emissions associated with the Project were calculated using CalEEMod, Version 2022.1.1.29. The emissions modeling includes emissions generated by off-road equipment, haul trucks, and worker commute trips. Emissions were quantified based on an anticipated construction schedule of approximately 12 months. Remaining assumptions were based on the default parameters contained in the

[10] (San Joaquin Valley Air Pollution Control District 2009)

model. Modeling assumptions and output files are included in Appendix A. Estimated construction-generated emissions are summarized in Table 4-16. GHGs impact the environment over time as they increase and contribute to climate change. As discussed in Section 4.3, the amount of operational related emissions generated would be considered negligible.

**Table 4-16: Short-term Construction Related GHG Emissions**

| | Emissions (MT CO2e) in Tons per Year |
|---|---|
| Maximum Annual Construction CO2e Emissions | 589 |
| AB 32 Consistency Threshold for Land-Use Development Projects* | 1,100 |
| AB 32 Consistency Threshold for Stationary Source Projects* | 10,000 |
| Threshold Exceeded? | No |

* As published in the Bay Area Air Quality Management District's CEQA Air Quality Guidelines. Available online at http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en Accessed 05/06/2024.

Construction related generation of GHGs would be a maximum of 589 metric tons of carbon dioxide equivalent ($MTCO_2e$) per year. While some operational emissions could result from the Project, this quantity would be negligible. The Project would not exceed the AB 32 consistency threshold for land use projects for both short term construction emissions and long-term operational emissions as a result.

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

**Less than Significant Impact.** The Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. GHG emissions would be generated during construction, and they would dissipate in quantity as time passes. As shown in Table 4-16, the Project would not result in the generation of GHG emissions that would exceed the AB 32 consistency threshold of 1,100 $MTCO_2e$ annually during construction activities. Therefore, impacts would be less than significant.

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

**No Impact.** The Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. The Project would be in compliance with all SJVAPCD policies and regulations and would not exceed an applicable threshold for GHG emissions. Therefore, there would be no impacts.

# 4.9 HAZARDS AND HAZARDOUS MATERIALS

**Table 4-17: Hazards and Hazardous Materials Impacts**

| Would the project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | ☐ | ☐ | ☒ | ☐ |
| 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? | ☐ | ☐ | ☒ | ☐ |
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | ☐ | ☐ | ☐ | ☒ |
| d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | ☐ | ☐ | ☒ | ☐ |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area? | ☐ | ☐ | ☒ | ☐ |
| f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | ☐ | ☐ | ☒ | ☐ |
| g) Expose people or structures, either directly or indirectly to a significant risk of loss, injury or death involving wildland fires? | ☐ | ☐ | ☒ | ☐ |

## 4.9.1 Baseline Conditions

### Hazardous Materials

The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies, and developers to comply with CEQA requirements in providing information about the location of hazardous materials release sites. Government Code Section 65962.5 requires the California Environmental Protection Agency to develop at least annually an updated Cortese List. The Department of Toxic Substances Control (DTSC) is responsible for a portion of the information contained in the Cortese List. Other State and local government agencies are required to provide additional hazardous material release information for the Cortese List. DTSC's EnviroStor database provides DTSC's component of Cortese

List data. In addition to the EnviroStor database, the SWRCB Geotracker database provides information on regulated hazardous waste facilities in California, including underground storage tank (UST) cases and non-UST cleanup programs, including Spills-Leaks-Investigations-Cleanups sites, Department of Defense (DOD) sites, and Land Disposal program. A search of the DTSC EnviroStor database and the SWRCB Geotracker performed on December 5, 2024, determined that there are no known active hazardous waste generators or hazardous material spill sites within the Project sites or immediate surrounding vicinity.[11]

### Airports

The nearest airport to the Project site is the Los Banos Municipal Airport, located approximately 2.75 miles northeast.

### Emergency Response Plan

The Merced County Department of Public Health is responsible for maintaining and coordinating the County's response to emergency events.[12]

### Sensitive Receptors

The nearest sensitive receptor to the Project site are the rural residences nearby. The closest rural residence is located approximately 0.5 miles to the northeast on Sunset Drive.

## 4.9.2 Impact Analysis

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

b) Would the project 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?

a and b) Less than Significant Impact. Construction activities as a part of the Project may involve the use of hazardous materials used for construction equipment. These may include materials such as fuels, paints, solvents, as well as other potentially hazardous materials. Storage, transport, and use of these materials would comply with all local, State, and federal standards and regulations. While unlikely, there is a risk that a leak of a hazardous material could occur during construction. Standard construction Best Management Practices (BMPs) included in the SWPPP would reduce potential releases of fuels and other hazardous materials by controlling runoff leaving the Project site. Therefore, with the inclusion of the SWPPP, impacts would be less than significant.

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 nearest school facility to the Project is Mercy Springs Elementary School, located approximately 3.6 miles northeast of the Project site in the City of Los Banos. Due to the Project's location, there would be no potential for the Project to emit emissions or materials within one-quarter mile of a school. Therefore, there would be no impact.

[11] (California Department of Toxic Substances Control 2024); (California State Waterboards 2024)
[12] (Merced County Department of Publich Health 2017)

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?

**Less than Significant Impact.** The Project does not involve land that is actively listed as a hazardous materials site pursuant to Government Code Section 65962.5 and is not included on a list compiled by the DTSC. Both the SWRCB's Geotracker and DTSC's EnviroStor websites were checked for contaminated groundwater or sites in the area. There would be no impact.

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

**Less than Significant Impact.** The Project is not located within an airport land use plan or within two miles of a public airport or public use airport. The nearest airport to the Project site is the Los Banos Municipal Airport, located approximately 2.75 miles northeast.

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

**Less than Significant Impact.** The Project does not provide any physical barriers or disturb any roadways in such a way that would impede emergency or hazards response; all work conducted near public rights-of-way would be required to meet County Fire Department and Sheriff Department standards which would ensure any impacts would be less than significant. Therefore, the Project would not interfere with implementation of an emergency response plan or evacuation plan, such as the Medical – Health Emergency Operations Plan of Merced County. Impacts would be less than significant. There would be no impact.

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

**Less than Significant Impact.** As discussed in further detail in Section 4.20, the Project would not expose people or structures either directly or indirectly to a significant loss, injury or death involving wildland fires. The Project site is in an area of Merced County that is not considered wildland. In addition, the Project would not conflict with any local, State, or federal standard or regulation governing wildfire. Therefore, there would be no impact.

# 4.10 HYDROLOGY AND WATER QUALITY

**Table 4-18: Hydrology and Water Quality Impacts**

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

## 4.10.1 Baseline Conditions

The Project is located in the San Joaquin Valley Basin. The San Joaquin Basin is divided into seven subbasins. The Project lies above the Delta-Mendota subbasin, which encompasses approximately 747,000 acres and provides groundwater for areas in the counties of Stanislaus, Merced, Madera, and Fresno. The Project is located in the Central Delta-Mendota Region which has a drafted Groundwater Sustainability Plan.[13]

[13] (Woodard & Curran and Provost & Pritchard Consulting Group 2022)

## 4.10.2 Impact Analysis

a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less than Significant Impact. The Project would require coverage under the SWRCB CGP. In accordance with the requirements of the CGP, a risk assessment would be prepared and submitted to the Central Valley RWQCB to determine the Project's risk level and associated water quality control requirements. These requirements would include the preparation and implementation of the aforementioned SWPPP identifying specific BMPs to be implemented and maintained on the site in order to comply with the applicable effluent standards and prevent any potential groundwater quality impacts. A SWPPP involves site planning and scheduling, limiting disturbed soil areas, and determining best management practices to minimize the risk of pollution and sediments being discharged from construction sites. Implementation of the SWPPP would minimize the potential for the Project to substantially alter the existing drainage pattern in a manner that would result in substantial erosion or siltation onsite or offsite. Additionally, there would be no discharge to any surface source. However, there would be percolation discharge to groundwater via the proposed recharge basins. Use of chemicals or surfactants would not be generated through the maintenance or operation of the Project and as such, there would be no discharge directly associated with Project implementation that could impact water quality standards. The Project would not violate any water quality standards and would not impact waste discharge requirements.

In accordance with the draft Monitoring Plan, the groundwater introduced into the DMC would be monitored for groundwater quality and would be required to meet the standards set forth by USBR. These standards are further described in Appendix D.

Impacts 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. The purpose of the Project is to store flood water and improve groundwater supplies by recharging the underlying aquifer. Implementation of the Project would increase the local groundwater table. Recovery operations would be in compliance with the draft Monitoring Plan. The requirements of the Monitoring Plan would further reduce any potential impacts to groundwater supplies. Any impacts to the underlying groundwater supply would be less than significant.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i. result in substantial erosion or siltation on- or off-site;

Less than Significant Impact with Mitigation Incorporated. The Project involves the construction of one flow control weir in Los Banos Creek and two water transfer facilities: one between the Central Basin and the DMC, another between the Southern Basin and the DMC. Freshwater emergent wetlands were mapped adjacent to Los Banos Creek near the western edge of the project area and freshwater ponds south of DMC. Project-related impacts to some or all of these waters would be considered a potentially significant impact under CEQA. Impacts to waters of the U.S. are also subject to the permit requirements of Sections 401 and 404 of the Clean Water Act (CWA) and impacts to waters of the state are subject to the permit requirements of Section 401 of the CWA and California Fish and Game Code. The placement

of fill within any wetlands or other jurisdictional features will require a 401 Water Quality Certification from the RWQCB, 404 permit from the USACE, and an LSA from CDFW.

Furthermore, implementation of the SWPPP would minimize the risk of sediments being discharged from the construction site into the Los Banos Creek. Impacts would be less than significant. This plan will need to be prepared in support of the CGP application. Implementation of mitigation measure **BIO-12** will reduce potential impacts to waters to a less than significant level under CEQA and will ensure compliance with state and federal laws protecting these waters.

ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

**Less than Significant Impact.** The Project would include impervious surfaces in the form of water conveyance facilities. These facilities would intentionally divert water to assist in flood control. Implementation of the Project would not increase flooding but would result in the betterment of its management. Therefore, impacts would be less than significant.

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

**Less than Significant Impact.** As mentioned throughout the document, the Project would divert flood waters in the event of an emergency flooding scenario. Implementation of the Project would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Impacts would be less than significant.

iv. impede or redirect flood flows?

**Less than Significant Impact.** The Project would not impede flood flows, but it would intentionally redirect flood flows from Los Banos Creek during emergency flooding events. Implementation of the Project would allow beneficial use of captured flood water whereas, without the Project, those flood waters would be lost and would potentially cause damaging effects to adjacent properties. Impacts would be less than significant.

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

**No Impact.** The Project is located inland and as a result would not be at risk of tsunamis, nor is it located near a body of water that would put it at risk of a seiche. According to the Federal Emergency Management Agency National Flood Hazard Layer and as shown in Figure 4-3, the Project site is not located in a flood hazard zone. Therefore, the Project would not be at risk of pollutants due to Project inundations. Therefore, there would be no impact.

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 Project would require preparation and implementation of the aforementioned SWPPP identifying specific BMPs to be implemented and maintained on the site in order to comply with the applicable effluent standards and prevent any potential groundwater quality impacts. Therefore, the Project would not conflict with a water quality control plan. Additionally, as mentioned previously, a draft Monitoring Plan has been developed specifically for this Project to prevent (1) water

quality degradation within the DMC; (2) land subsidence within and adjacent to the LBCRR Project area; and (3) undesirable results with respect to groundwater sustainability as identified in the Delta-Mendota GSP. Ultimately the Project would increase recharge to the underlying aquifer, thereby enhancing groundwater levels. Therefore, the Project would not conflict with a water quality control plan or a sustainable groundwater management plan. Impacts would be less than significant.

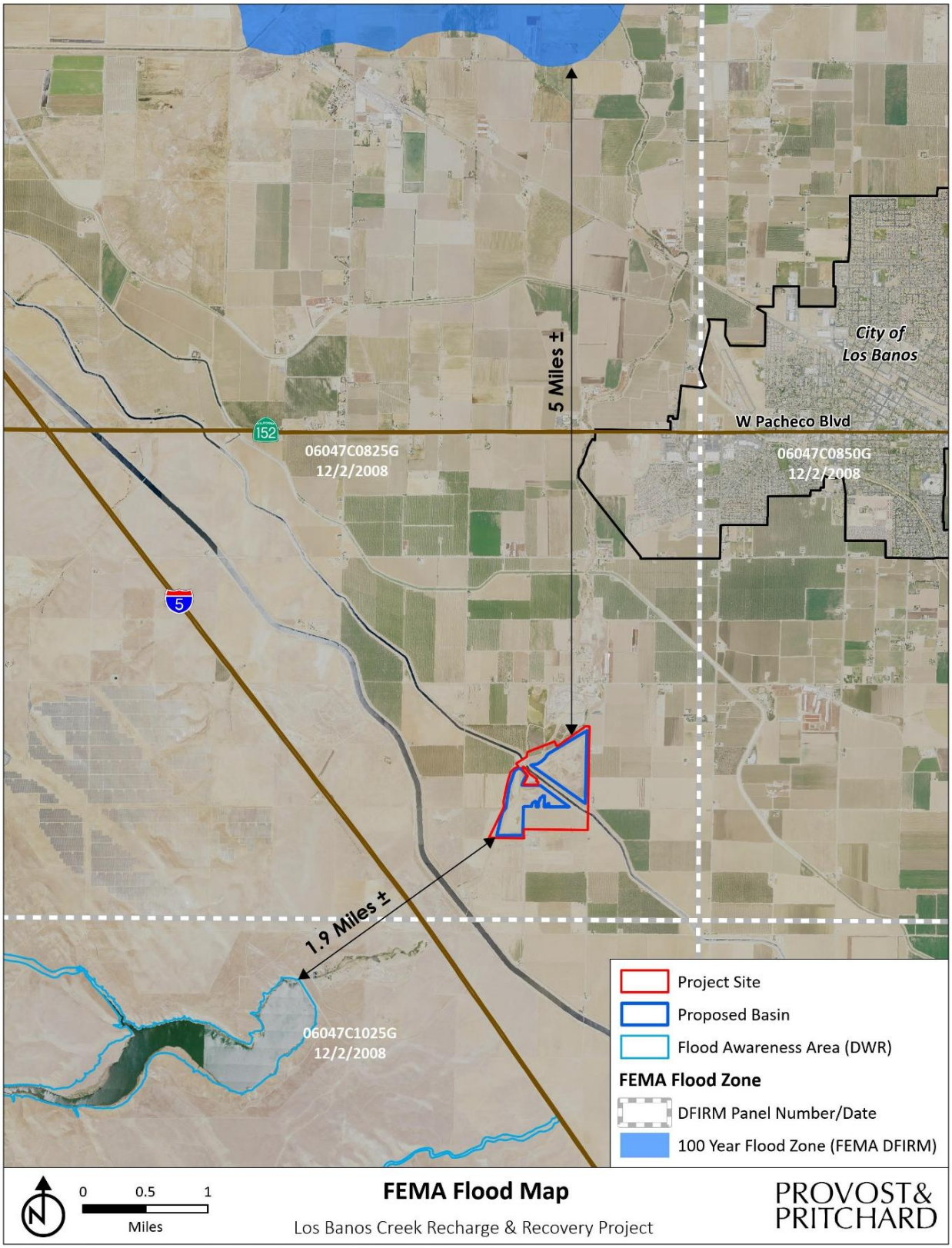



**Figure 4-3: FEMA Flood Map**

# 4.11 LAND USE AND PLANNING

**Table 4-19: Land Use and Planning Impacts**

| Would the project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| f) Physically divide an established community? | ☐ | ☐ | ☐ | ☒ |
| g) 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? | ☐ | ☐ | ☐ | ☒ |

## 4.11.1 Baseline Conditions

The Project area is located in Merced County and is governed by the Merced County General Plan and the Merced County Ordinance. The Project area and its adjacent lands are planned and zoned for agricultural purposes, as noted in Section 2.1.5. The existing use currently contains a gravel mining site.

## 4.11.2 Impact Analysis

a) Would the project physically divide an established community?

No Impact. The Project area is located in an unincorporated area of Merced County that is characterized by agriculture and zoned and planned for agricultural uses. The proposed water storage basins would not be constructed within an established community, nor would it physically divide one. There would be no impact.

b) Would the project cause a significant environmental conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. The Project would construct new infrastructure in the form of two water storage basins, a surface water diversion structure, and it's appurtenant facilities; the Project does not propose a change in land use and would not conflict with the County's adopted General Plan, zoning ordinances, or other policies or regulations. There would be no impact.

# 4.12 MINERAL RESOURCES

**Table 4-20: Mineral Resources Impacts**

| Would the project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | ☐ | ☐ | ☒ | ☐ |
| 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? | ☐ | ☐ | ☒ | ☐ |

## 4.12.1 Baseline Conditions

Minable minerals, or an "ore deposit," are defined as a deposit of ore or mineral having a value materially in excess of the cost of developing, mining, and processing the mineral and reclaiming the area. While Project Area is mapped as Mineral Resource Zone 3a (The significance of mineral deposits cannot be determined from the available data) by the California Geological Survey Mineral Resources Project, Vulcan has been operating and mining around the Project Area for aggregate and is a major exporter of aggregate across the region.

## 4.12.2 Impact Analysis

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?

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?

Less than Significant Impact. . Construction of the Project would not result in the loss of availability of known mineral resources. SLWD and Vulcan have entered into a License Agreement that facilitates SLWD's ability to construct, operate, and maintain all infrastructure necessary to conduct storage, and recharge operations in the proposed Central and South Basins. The License Agreement provides for the addition of basins to be used for water supply projects as they become available. The Central and South Basins would be converted from existing mining pits that have been fully mined and are now at a point to where they can be beneficially used for the purposes discussed above. Therefore, the Project would not 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 or 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. Impacts would be less than significant.

# 4.13 NOISE

**Table 4-21: Noise Impacts**

| Would the project result in: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? | ☐ | ☐ | ☒ | ☐ |
| b) Generation of excessive ground borne vibration or ground borne noise levels? | ☐ | ☐ | ☒ | ☐ |
| 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? | ☐ | ☐ | ☐ | ☒ |

## 4.13.1 Baseline Conditions

The primary existing noise sources in the Project vicinity are from traffic on nearby roadways and the noise generated from the mining and processing facilities surrounding the Project area. Other than traffic and mining related noise, the predominant noise sources surrounding the Project area are characterized as low intensity rural residential and agricultural uses, including noise from activities at surrounding residences, and agricultural cultivation and harvesting.

## 4.13.2 Impact Analysis

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?

b) Would the project result in generation of excessive ground borne vibration or ground borne noise levels?

**a and b) Less than Significant Impact.** The Project is located in an unincorporated area of Merced County that is zoned for agricultural use. Acceptable noise exposure levels vary by land use. Noise-sensitive land uses include residential, lodging, schools, and hospitals. The Project would produce temporary construction noise; however, the nearest noise-sensitive land use is a residence located approximately 150 feet east of the Project area across S. Creek Road. As discussed in Chapter 2, construction activities would be limited to Monday through Friday between the hours of 7:00 a.m. and 6:00 p.m. Construction noise would comply with County Ordinance 10.60.030 (5) and would be consistent with noise that is currently generated from the adjacent mining operations. The Project would not generate any operational noise. Any impact would be temporary and less than significant.

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 Project is not located within two miles of an airport. The nearest airport is the Los Banos Municipal Airport located approximately 2.75 miles northeast of the Project area. Furthermore, the Project would not construct any erected facilities that could impact the flight path of an incoming or outgoing aircraft. There would be no impact.

# 4.14 POPULATION AND HOUSING

**Table 4-22: Population and Housing Impacts**

| Would the project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | ☐ | ☐ | ☐ | ☒ |
| b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? | ☐ | ☐ | ☐ | ☒ |

## 4.14.1 Baseline Conditions

As of July 2023, Census data estimates Merced County's population to be 291,920, an increase in over 10,000 people since the Decennial Census in 2020.[14] As of 2022, there is an estimated 90,329 housing units with an average of 3.34 persons per household.[15]

## 4.14.2 Impact Analysis

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)?

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

a and b) No Impact. The goal of the Project is not to induce population growth. The Project's goal is to provide surface water storage, groundwater recharge and recovery, and flood control with the conversion of two existing gravel pits to basins. The Project would not encourage population growth directly or indirectly. No residential structures would be built or removed as part of the Project. Therefore, there would be no impact

[14] (United States Census Bureau 2023)
[15] Ibid.

# 4.15 PUBLIC SERVICES

**Table 4-23: Public Services**

| Would the project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: | | | | |
| i. Fire protection? | ☐ | ☐ | ☐ | ☒ |
| ii. Police protection? | ☐ | ☐ | ☐ | ☒ |
| iii. Schools? | ☐ | ☐ | ☐ | ☒ |
| iv. Parks? | ☐ | ☐ | ☐ | ☒ |
| v. Other public facilities? | ☐ | ☐ | ☐ | ☒ |

## 4.15.1 Baseline Conditions

Fire Protection: The Project would be served by the Merced County Fire Department (MCFD) for fire protection services. The closest MCFD station is located approximately 3.6 miles northeast of the Project site in the City of Los Banos.

Police Protection: The Project would be served by the Merced County Sheriff's Office (MCSO) for police protection services. The closest MCSO is located approximately 3.5 miles northeast of the Project site in the City of Los Banos.

Schools: The closest school to the Project site is Our Lady of Fatima School, located approximately 2.9 miles northeast.

Parks: The closest park or recreational facility to the Project site is the Los Banos Creek Reservoir, located approximately 1.9 miles southwest.

Landfills: The Billy Wright Landfill is the closest landfill, located approximately 4.1 miles northwest of the Project site.

## 4.15.2 Impact Analysis

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:

i. Fire Protection:

ii. Police Protection:

iii. Schools:

iv. Parks:

v. Other public facilities:

**a-i – a-v) No Impact.** The Project would not create or alter governmental facilities, nor would it enable the development of new facilities due to population increase. As the Project would not cause an increase in population, there would be no increase in demand for public services including fire, police, schools, parks, and other facilities. Therefore, there would be no impact.

# 4.16 RECREATION

**Table 4-24: Recreation Impacts**

| Would the project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | ☐ | ☐ | ☐ | ☒ |
| 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? | ☐ | ☐ | ☐ | ☒ |

## 4.16.1 Baseline Conditions

The Project is located in Merced County, just less than two miles southwest of the City of Los Banos. The Project area is largely surrounded by agricultural land used for crops and gravel mining operations. Merced County contains several County, State, and federal parks and recreation areas and public open space areas. There are approximately 114,000 acres of park and recreation facilities in the County that offer a variety of amenities such as picnicking, swimming, boating, hunting, bird watching, playgrounds, sports fields, and hiking.[16] The nearest recreation area is the Los Banos Creek Reservoir, located approximately 1.9 miles southwest of the Project.

## 4.16.2 Impact Analysis

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 Impact. The Project includes the construction and operation of two basins in Merced County. These basins would not increase the use or demand of any existing neighborhood, regional parks, or other recreational facilities of any kind. No aspect of the Project would result any impact or change to recreational facilities. No population growth is anticipated or associated with the Project. There would be no impact.

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 Project does not include recreational facilities, nor does it propose the expansion of any existing recreational facilities. There would be no impact.

[16] (Merced County 2013)

# 4.17 TRANSPORTATION

**Table 4-25: Transportation Impacts**

| Would the project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? | ☐ | ☐ | ☐ | ☒ |
| b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)? | ☐ | ☐ | ☐ | ☒ |
| c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | ☐ | ☐ | ☐ | ☒ |
| d) Result in inadequate emergency access? | ☐ | ☐ | ☐ | ☒ |

## 4.17.1 Baseline Conditions

The Project area is located within a quarry site surrounded predominantly by agricultural uses and open space. Vehicle access to the Project area would be taken via CA-33. State Route (SR) 152 to the north and SR 165 to the east are roadways that provide regional access to the site. In addition, I-5 is located east of the site, approximately 1.8 miles. There are no alternative transportation facilities, such as bus, bicycle, or pedestrian travel routes, in the vicinity of the Project.

## 4.17.2 Impact Analysis

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

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

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)?

d) Would the project result in inadequate emergency access?

No Impact. The Project includes the conversion of two quarry pits into two basins for the purpose of water storage, groundwater recharge, and flood control in an area that is not heavily trafficked. The Project does not include any work within public access roads and would not conflict with any program, plan or policy addressing circulation or transit, it would not conflict with CEQA Guidelines § 15064.3, subdivision (b), it would not increase geometric design hazards or existing roadways, nor would it impact emergency access. Therefore, there would be no impact.

# 4.18 TRIBAL CULTURAL RESOURCES

**Table 4-26: Tribal Cultural Resources Impacts**

| Would the project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: | | | | |
| i. Listed or eligible for listing in the California Register of Historical Resources, or in the local register of historical resources as defined in Public Resources Code section 5020.1(k), or | ☐ | ☒ | ☐ | ☐ |
| ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. | ☐ | ☒ | ☐ | ☐ |

## 4.18.1 Baseline Conditions

### Pedestrian Survey

A Cultural Resources Identification Report was prepared for the Project, dated March 2025 (see Appendix C). On January 23 and 24, 2024, Kleinfelder archaeologists he Project Area of Potential Effect (APE) was surveyed intensively using 5–10- and 15-meter transects, dependent on topography. A portion of the APE was not surveyed due to extensive flooding and the presence of a pond feature.

During the survey, Kleinfelder archaeologists periodically employed boot scrapes, and any exposed soil was closely examined. The soil was consistent with a yellowish-brown clay loam. Vegetation was not consistent throughout the APE; some patches of vegetation were present, while other parts were bare of any vegetation. When vegetation was present, it was primarily dense grassy ground cover ranging from 1 to 4 feet tall. In the areas near a pond (southwest of the APE) and flooded fields (northwest of the APE), cattails and reeds were observed.

The APE was heavily disturbed from extensive quarrying, tilling, and other land modification. Evidence of mechanical excavation was observed throughout the APE. Excavations and ground disturbance were evident in the extensive berms, pits, trenches, and equipment tracks. In addition, excavator teeth marks were observed along the walls of artificial hill cuts throughout the APE. The extent of ground disturbance within the APE ranged from 20 to 200 feet below ground surface.

Evidence of modern land use, primarily observed in the southeastern portion of the APE, was also observed and includes a concrete path, several concrete pads, a brick pile, and modern debris

## Records Search

A records search of the APE and a 0.5-mile buffer was requested on March 11, 2024, and processed by the Central California Information Center (CCIC) on March 13, 2024. The purpose of the records search was to identify if any prehistoric and/or historic-period cultural resources and/or studies had been previously documented in the APE and/or its 0.5-mile radius to better understand the archaeological sensitivity of the area.

The CCIC records search identified one previously documented historic linear resource segment of the Delta Mendota Canal (P-24—001703 in Merced County, P-50-001904 in Stanislaus County, and P-24-000089 in San Joaquin County) within the APE (Table 1). Three additional previously recorded resources were identified within 0.5-mile of the APE (Table 2). Six previous cultural resources studies were identified within the APE, and three previous cultural studies were identified within a 0.5-mile radius of the APE.

## Buried Resources Sensitivity

Given the above factors and the model presented in Table 4, the geomorphology of the APE demonstrates a moderate chance for the presence of buried resources. Given the close proximity of historical water sources, Holocene to Historic-age soils, and proximity of previously recorded prehistoric resources in the Project vicinity, cultural sensitivity within the APE is considered moderate.

The APE was historically rural agricultural land. A review of historical maps depicts some light on the rural development of homes and roads in 1920s—1940s, whereas by the 1960s maps depict the gravel pits and associated development within the APE. The entire APE is highly disturbed and, as such, the APE is considered to have a low sensitivity for intact buried historic-era resources.

## Native American Outreach

The District, as a public lead agency, has not received any written correspondence from a Tribe pursuant to Public Resources Code Section 21080.3.1 requesting notification of a proposed project.

Kleinfelder Archaeology requested a SLF search from the NAHC on March 8, 2024. The NAHC responded on March 11, 2024, via letter regarding Kleinfelder Archaeology's request . The SLF search did not identify the presence of cultural resources in the Project APE. The NAHC supplied a list of Native American representatives to contact for information or knowledge of cultural resources in the APE and the surrounding area. The following Native American organizations/individuals were contacted from the list provided by NAHC below:

1. Vice-Chairperson Ed Ketchum of the Amah Mutsun Tribal Band
2. Chairperson Valentin Lopez of the Amah Mutsun Tribal Band
3. Tribal Compliance Officer Timothy Perez of the Northern Valley Yokut/Ohlone Tribe
4. Tribal Historic Preservation Officer Shana Powers of the Santa Rosa Rancheria Tachi Yokut Tribe

5. Cultural Specialist I Nichole Escalon of the Santa Rosa Rancheria Tachi Yokut Tribe
6. Cultural Specialist II Samantha McCarty of the Santa Rosa Rancheria Tachi Yokut Tribe
7. Director of Cultural Resource Preservation Jazzmyn Gegere of the Sierra Southern Miwuk Nation
8. Chairperson Sandra Chapman of the Sierra Southern Miwuk Nation
9. Environmental Department Director Kerri Vera of the Tule River Indian Tribe
10. Tribal Archaeologist Joey Garfield of the Tule River Indian Tribe
11. Chairperson Neil Peyron of the Tule River Indian Tribe
12. Chairperson Kenneth Woodrow of the Wuksachi Indian Tribe/Eshom Valley Band

The outreach letters were sent via certified mail to each individual on the contact list on September 26, 2025 (Appendix C). The letters included a description of the Project, the CHRIS and SLF results, and a map of the Project APE. As of the date of this report, no responses have been received. Copies of the letters that were sent may be found in Appendix C.

## 4.18.2 Impact Assessment

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

i. Listed or eligible for listing in the California Register of Historical Resources, or in the local register of historical resources as defined in Public Resources Code section 5020.1(k), or

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public 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.** A search of the NAHC SLF was completed for the APE. No tribal cultural resources were identified. A records search identified one previously documented historic linear resource segment of the DMC. Although no tribal cultural resources have been identified, there is always the potential for discovering buried resources during ground-disturbing activities. Therefore, mitigation measures **CUL-1** through **CUL-4** outlined in Section 4.5.3 will be implemented in order to reduce impacts to less than significant.

## 4.18.3 Mitigation

See **CUL-1**, **CUL-2**, **CUL-3**, and **CUL-4** in Section 4.5.3.

# 4.19 UTILITIES AND SERVICE SYSTEMS

**Table 4-27: Utilities and Service Systems Impacts**

| Would the project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? | ☐ | ☐ | ☐ | ☒ |
| b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years? | ☐ | ☐ | ☐ | ☒ |
| 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? | ☐ | ☐ | ☐ | ☒ |
| 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? | ☐ | ☐ | ☒ | ☐ |
| e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste? | ☐ | ☐ | ☐ | ☒ |

## 4.19.1 Baseline Conditions

The nearest surface water adjacent to the Project site is the Los Banos Creek that runs southwest of the Project site and the DMC which intersects through the Project site. The Project area does not currently use any wastewater treatment services or contain wastewater treatment facilities. Solid waste disposal during construction would be provided by the Merced County Regional Waste Authority, which operates two landfills. The Billy Wright Landfill is the closest landfill located approximately 4.1 miles northwest of the site.

## 4.19.2 Impact Analysis

a) Would the project 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?

No Impact. The Project does not include any activities that would require the relocation or construction of new expanded water, wastewater treatment, storm drainage, electric power, natural gas, or telecommunication facilities. Electrical power would be required to operate the proposed pump stations at; however, existing PG&E facilities would be utilized for electricity needs. The Project would require

connection to the electricity source, but it would not necessitate construction of new electric power facilities. Impacts would be less than significant.

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?

No Impact. The Project consists of the conversion of two gravel pits to basins for the purpose of surface water storage, groundwater recharge, and flood control. Project operations would be passive and would not reduce the area's available water supply under any scenario. Therefore, there would be no impact

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?1

No Impact. The Project would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities. Therefore, there would be no impact.

d) Would the project 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. The Project would generate some solid waste during construction; however, it would be temporary and properly disposed of during construction and upon completion. No solid waste would be generated during operation and maintenance. Any impacts with regard to solid waste would be less than significant.

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

No Impact. The Project would continue to comply with any federal, State, and local regulations related to solid waste. There would be no impact.

# 4.20 WILDFIRE

**Table 4-28: Wildfire Impacts**

| If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Substantially impair an adopted emergency response plan or emergency evacuation plan? | ☐ | ☐ | ☐ | ☒ |
| 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 uncontrollable spread of wildfire? | ☐ | ☐ | ☐ | ☒ |
| 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? | ☐ | ☐ | ☐ | ☒ |
| 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? | ☐ | ☐ | ☐ | ☒ |

## 4.20.1 Baseline Conditions

The Project is located in an area that contains little to no development. The site primarily consists of open fields, fallowed agricultural lands, active and abandoned gravel pits, and County roads. According to the California Department of Forestry and Fire Protection, the Project is not located in a State Responsibility Area (SRA) or a Very High Fire Hazard Severity Zone.[17]

## 4.20.2 Impact Analysis

a) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

b) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

c) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads,

[17] (California Department of Forestry and Fire Protection 2023); (ArcGIS 2023)

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?

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

**a-d) No Impact.** As mentioned, the Project is not located in an SRA or lands classified as Very High Fire Severity Zones. Further analysis of the Project's potential impacts regarding wildfire are not warranted. There would be no impacts.

# 4.21 CEQA MANDATORY FINDINGS OF SIGNIFICANCE

**Table 4-29: CEQA Mandatory Findings of Significance**

| Does the project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | ☐ | ☒ | ☐ | ☐ |
| b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? | ☐ | ☐ | ☒ | ☐ |
| c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | ☐ | ☐ | ☒ | ☐ |

## 4.21.1 Statement of Findings

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 Impact with Mitigation Incorporated. The analysis conducted in this IS/MND results in a determination that the Project, with incorporation of mitigation measures, would have a less than significant effect on the environment. The potential for impacts to biological resources, cultural resources, and tribal cultural resources from the construction and operation of the Project would be less than significant with the incorporation of the mitigation measures discussed in Chapter 5 Mitigation, Monitoring, and Reporting Program. Accordingly, the Project would involve no potential for significant impacts through the degradation of the quality of the environment, the reduction in the habitat or population of fish or wildlife, including endangered plants or animals, the elimination of a plant or animal community or example of a major period 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 discussed above, the Project would result in less than significant impacts to biological resources, cultural resources, and tribal cultural resources with mitigation incorporated. Project operations would not require any on-site personnel. Maintenance would be performed on an as-needed basis and would not require any permanent on-site personnel. As such, the Project operations would generate minimal Project-related vehicle trips as a result of implementation. The implementation of the identified Project-specific mitigation measures, and compliance with applicable codes, ordinances, laws, and other required regulations would reduce the magnitude of any impacts associated with construction activities to a less than significant level.

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

**Less than Significant Impact.** The Project would convert two existing gravel pits into two water storage basins and a surface water diversion structure for the purpose of water storage, groundwater recharge and recovery, and flood control. The Project in and of itself would not create a significant hazard to the public or the environment. Construction-related air quality/dust exposure impacts could occur temporarily as a result of project construction. However, implementation of basic regulatory requirements identified in this IS/MND would ensure that impacts are less than significant. Therefore, the Project would not have any direct or indirect adverse impacts on humans. Impacts would be less than significant.

# CHAPTER 5 MITIGATION, MONITORING, AND REPORTING PROGRAM

This Mitigation Monitoring and Reporting Program (MMRP) has been formulated based upon the findings of the Initial Study/Mitigated Negative Declaration (IS/MND) for the Project in the San Luis Water District boundaries of Merced County. The MMRP lists mitigation measures recommended in the IS/MND for the Project and identifies monitoring and reporting requirements.

***Table 5-1: Mitigation, Monitoring, and Reporting*** Program presents the mitigation measures identified for the Project. Each mitigation measure is numbered with a symbol indicating the topical section to which it pertains, a hyphen, and the impact number. For example, AIR-2 would be the second mitigation measure identified in the Air Quality analysis of the IS/MND.

The first column of ***Table 5-1: Mitigation, Monitoring, and Reporting*** Program identifies the mitigation measure. The second column, entitled "When Monitoring is to Occur," identifies the time the mitigation measure should be initiated. The third column, "Frequency of Monitoring," identifies the frequency of the monitoring of the mitigation measure. The fourth column, "Agency Responsible for Monitoring," names the party ultimately responsible for ensuring that the mitigation measure is implemented. The last columns will be used by the Lead and Responsible Agencies to ensure that individual mitigation measures have been complied with and monitored

**Table 5-1: Mitigation, Monitoring, and Reporting Program**

| Mitigation, Monitoring, and Reporting Program | | | | | | |
|---|---|---|---|---|---|---|
| Item | Mitigation Measure | When Monitoring is to Occur | Frequency of Monitoring | Agency Responsible for Monitoring | Method to Verify Compliance | Verification of Compliance |
| **Biological Resources** | | | | | | |
| General Project-Related Measures | | | | | | |
| **BIO-1** | **(*WEAP Training*):** Prior to initiating construction activities (including staging and mobilization), all personnel associated with project construction will attend a mandatory Worker Environmental Awareness Program (WEAP) training, conducted by a qualified biologist (someone familiar with the identification and habitats of these species), to aid workers in identifying special status resources that may occur in the project site. The specifics of this program will include identification of the sensitive species and suitable habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction and mitigation measures required to reduce impacts to biological resources within the work area. This training will discuss special status species, describe the laws and regulations in place to provide protection of these species, identify the penalties for violation of applicable environmental laws and regulations, and include a list of required protective measures to avoid "take." A fact sheet summarizing this information, along with photographs or illustrations of sensitive species with potential to occur on the project site, will also be prepared for distribution to all contractors, their employees, and all other personnel involved with construction of the project. All trainees will sign a form documenting that they have attended WEAP training and understand the information presented to them. | Prior to the start of any construction activities | As needed for any new construction personnel during construction activities | SLWD with assistance of a qualified biological subconsultant | Report | |
| **BIO-2** | **(*BMPs*):** The project proponent will require that all workers employ the following best management practices (BMPs) in order to avoid and minimize potential impacts to special status species: | During Construction Activities | Daily | SLWD with assistance of a qualified biological subconsultant | Report | |

| Mitigation, Monitoring, and Reporting Program | | | | | | |
|---|---|---|---|---|---|---|
| Item | Mitigation Measure | When Monitoring is to Occur | Frequency of Monitoring | Agency Responsible for Monitoring | Method to Verify Compliance | Verification of Compliance |
| | • Vehicle will observe a 15-mph speed limit while on unpaved access routes.<br>• All open trenches, holes, sumps, and other excavations greater than 12-inches with sidewalls steeper than a 1:1 (45 degree) slope will have an escape ramp of earth or a non-slip material with a less than 1:1 slope or these will be covered with barrier material such that animals are unable to dig or squeeze under the barrier and become entrapped.<br>• Workers will inspect areas beneath parked vehicles, equipment, and materials prior to mobilization. If special status species are detected, the individual will either be allowed to leave of its own volition or will be captured by the qualified biologist (must possess appropriate collecting/handling permits) and relocated out of harm's way to the nearest suitable habitat beyond the influence of the project work area. "Take" of a state or federal special status (rare, California Species of Special Concern, threatened, or endangered) species is prohibited without the necessary federal or state take permit(s).<br>• The presence of any special status species will be reported to the project's qualified biologist, who will submit the occurrence to the CNDDB. If necessary, the biologist will report the occurrence to CDFW and/or USFWS. | | | | | |
| Project-Related Mortality and/or Nest Abandonment of Migratory Birds, Raptors, and Special Status Birds | | | | | | |
| **BIO-3** | **(*Avoidance*):** The project's construction activities will occur, if feasible, between September 16 and | Prior to construction activities | Prior to construction activities | SLWD with assistance of a | Report | |

| Mitigation, Monitoring, and Reporting Program | | | | | | |
|---|---|---|---|---|---|---|
| Item | Mitigation Measure | When Monitoring is to Occur | Frequency of Monitoring | Agency Responsible for Monitoring | Method to Verify Compliance | Verification of Compliance |
| | January 31 (outside of the nesting bird season) to avoid impacts to nesting birds. | | | qualified biological subconsultant | | |
| **BIO-4** | **(*Pre-construction Surveys*):** If activities must occur within nesting bird season (February 1 to September 15), a qualified biologist will conduct a one time take avoidance pre-construction survey for Swainson's hawk nests onsite and within a 0.5-mile radius within ten calendar days prior to the start of construction. This survey will be conducted in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000), or current guidance. The survey would also include inspecting for nesting migratory birds within up to 100 feet outside of the project site and for other nesting raptors within up to 500 feet outside of the project site. All raptor nests would be considered "active" upon the nest-building stage. If no active nests are observed, no further mitigation is required. | Prior to construction activities | Prior to construction activities | SLWD with assistance of a qualified biological subconsultant | Report | |
| **BIO-5** | **(*Avoidance Buffers*):** On discovery of any active nests or breeding colonies near work areas, a qualified biologist will determine appropriate avoidance buffer distances based on applicable CDFW and/or USFWS guidelines, the biology of the species, conditions of the nest(s), and the level of project disturbance. If necessary, avoidance buffers will be identified with flagging, fencing, or other easily visible means, and will be maintained until the biologist has determined that the nestlings have fledged. | Prior to construction activities | Prior to construction activities | SLWD with assistance of a qualified biological subconsultant | Report | |
| Project-Related Mortality and/or Disturbance of Burrowing Owl | | | | | | |
| **BIO-6** | **(*Pre-construction Take Avoidance Survey*):** A qualified biologist will conduct a pre-construction take avoidance survey for BUOW and suitable burrows, in accordance with CDFW's *Staff Report on Burrowing Owl Mitigation* (2012) within seven (7) | Prior to construction activities | Prior to construction activities | SLWD with assistance of a qualified biological subconsultant | Report | |

<table>
<tr><th colspan="7">Mitigation, Monitoring, and Reporting Program</th></tr>
<tr><th>Item</th><th>Mitigation Measure</th><th>When Monitoring is to Occur</th><th>Frequency of Monitoring</th><th>Agency Responsible for Monitoring</th><th>Method to Verify Compliance</th><th>Verification of Compliance</th></tr>
<tr><td></td><td>days prior to the start of construction activities in each section of the Project area. The survey will include the proposed work area and surrounding lands up to 500 feet, where accessible. If no BUOW individuals or active burrows are observed, no further mitigation is required.</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>BIO-7</td><td>(Avoidance Buffers): If an active BUOW burrow is detected avoidance buffers will be implemented. A qualified biologist will determine appropriate avoidance buffer distances based on CDFW's 2012 Staff Report on Burrowing Owl Mitigation, the biology of BUOW, conditions of the burrow(s), and the level of project disturbance which can be found in the table below. If necessary, avoidance buffers will be identified with flagging, fencing, visual screens, or other easily visible means, and will be maintained until the biologist has determined that the nestlings have fledged and all BUOW have left the Project area.<br><br>
<table>
<tr><th></th><th></th><th colspan="3">Level of Disturbance</th></tr>
<tr><th>Location</th><th>Time of Year</th><th>Low</th><th>Med</th><th>High</th></tr>
<tr><td>Nesting sites</td><td>April 1-Aug 15</td><td>200 meters</td><td>500 meters</td><td>500 meters</td></tr>
<tr><td>Nesting sites</td><td>Aug 16-Oct 15</td><td>200 meters</td><td>200 meters</td><td>500 meters</td></tr>
<tr><td>Nesting sites</td><td>Oct 16-Mar 31</td><td>50 meters</td><td>100 meters</td><td>500 meters</td></tr>
</table></td><td>Prior to construction activities</td><td>Prior to construction activities</td><td>SLWD with assistance of a qualified biological subconsultant</td><td>Report</td><td></td></tr>
<tr><td>BIO-8</td><td>(Passive Relocation): If avoidance of an active BUOW burrow is not feasible, passive relocation could be utilized through the development of a Burrowing Owl Passive Relocation Plan (Plan). A qualified biologist will prepare a draft Burrowing Owl Passive Relocation Plan for review and approval by the Bureau of Land Management and CDFW prior to the start of any ground-disturbing activities. No passive relocation of burrowing owls will be permitted during breeding season (February 1 – August 31),</td><td>Prior to construction activities</td><td>Prior to construction activities</td><td>SLWD with assistance of a qualified biological subconsultant</td><td>Report</td><td></td></tr>
</table>

| Mitigation, Monitoring, and Reporting Program | | | | | | |
|---|---|---|---|---|---|---|
| Item | Mitigation Measure | When Monitoring is to Occur | Frequency of Monitoring | Agency Responsible for Monitoring | Method to Verify Compliance | Verification of Compliance |
| | unless a qualified biologist verifies through noninvasive methods that an occupied burrow is not occupied by a mated pair, and only upon authorization by CDFW. | | | | | |
| Project-Related Mortality and/or Disturbance San Joaquin Kit Fox | | | | | | |
| **BIO-9** | **(*Pre-Construction Survey*):** Within seven (7) days prior to the start of construction a qualified biologist (someone familiar with the identification and sign of this species) will conduct a pre-construction survey for SJKF potential dens. The survey will be conducted on and within 200 feet of proposed work areas. If potential SJKF dens are detected during the pre-construction survey, each potential den will be monitored with a remote camera for a period of three consecutive nights. If there is no activity recorded at the den location, the den can be deemed "inactive" or "unoccupied" and closed or excavated the same day as determining the den inactive. | Prior to construction activities | Prior to construction activities | SLWD with assistance of a qualified biological subconsultant | Report | |
| **BIO-10** | **(*Establish Buffers*):** On discovery of any active SJKF dens near the project site a qualified biologist will determine appropriate construction setback distances (buffer zones) based on applicable CDFW and/or USFWS guidelines (see below). If needed, construction buffers will be identified with flagging, fencing, or other easily visible means. They will be maintained until the biologist has determined that the den will no longer be impacted by construction.<br><br>1. At least 100 feet around den(s)<br>2. At least 200 feet around natal dens (which SJKF young are reared); and<br>3. At least (500 feet around any natal dens with pups (except for any portions of the buffer zone that is already fully developed). | Prior to construction activities | Prior to construction activities | SLWD with assistance of a qualified biological subconsultant | Report | |

| Mitigation, Monitoring, and Reporting Program | | | | | | |
|---|---|---|---|---|---|---|
| Item | Mitigation Measure | When Monitoring is to Occur | Frequency of Monitoring | Agency Responsible for Monitoring | Method to Verify Compliance | Verification of Compliance |
| **BIO-11** | **(*ITP* and *Passive Relocation*):** If an active BUOW burrow is detected within the proposed work area and cannot be avoided, it is recommended the project obtain an Incidental Take Permit (ITP) in order to implement protection plans and/or relocation plans in consultation with CDFW and/or USFWS and protect the project from "take" of this species. | Upon discovery of an active BUOW burrow within the proposed work area | Daily | SLWD with assistance of a qualified biological subconsultant | Report | |
| Project-Related Impacts to Regulated Waters, Wetlands, and Water Quality | | | | | | |
| **BIO-12** | **(*Permits*):** If the project intends to impact jurisdictional waters, permits with USACE, RWQCB, and/or CDFW will be obtained to comply with state and federal regulations, if necessary. These permits, certifications, and agreements would ensure impacts to waters are minimized to the extent possible and permanent impacts would be offset by compensatory mitigation. | Prior to construction activities | Prior to construction activities | SLWD with assistance of a qualified biological subconsultant | Report | |
| Project-Related Impacts to Wildlife Movement Corridors and Native Wildlife Nursery Sites | | | | | | |
| **BIO-13** | **(*Operational Hours*):** When possible, construction activities within the Los Banos Creek riverine habitat and the DMC canal habitat should be limited to a half hour after sunrise through a half hour before sunset to reduce potential impacts to wildlife movement corridors. | During construction activities | During construction activities | SLWD with assistance of a qualified biological subconsultant | Report | |
| **BIO-14** | **(*Wildlife Access*):** Access within these areas should not be blocked outside of construction hours or during overnight hours or weekends. If construction must block both sides of a wildlife access route, an alternative route through the construction area should be identified by a qualified biologist and maintained throughout the construction schedule timeframe. | During construction activities | During construction activities | SLWD with assistance of a qualified biological subconsultant | Report | |
| **Cultural Resources** | | | | | | |
| **CUL-1** | A qualified archaeologist shall provide an archaeological tailboard to any construction crew working on site during ground-disturbing activities. | During Construction Activities | Daily | SLWD | Report | |

| Mitigation, Monitoring, and Reporting Program | | | | | | |
|---|---|---|---|---|---|---|
| Item | Mitigation Measure | When Monitoring is to Occur | Frequency of Monitoring | Agency Responsible for Monitoring | Method to Verify Compliance | Verification of Compliance |
| **CUL-2** | A qualified archaeologist monitor shall conduct spot-check monitoring as needed during ground-disturbing activity as determined by a qualified archaeologist. | During Construction Activities | Daily | SLWD | Report | |
| **CUL-3** | If archaeological components are encountered during ground-disturbing activities, all ground-disturbing work within 100 feet of the discovery location should cease until a qualified archaeologist can assess the significance of the finding and provide (if needed) avoidance and/or a data recovery plan. | During Construction Activities | Daily | SLWD | Report | |
| **CUL-4** | If human remains are uncovered during construction, the Merced County Coroner is to be notified to investigate the remains and arrange proper treatment and disposition. If the remains are identified on the basis of archaeological context, age, cultural associations, or biological traits to be those of a Native American, California Health and Safety Code 7050.5 and PRC 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent who will be afforded an opportunity to make recommendations regarding the treatment and disposition of the remains. | During Construction Activities | Daily | SLWD | Report | |
| **Tribal Cultural Resources** | | | | | | |
| See **CUL-1**, **CUL-2**, **CUL-3**, and **CUL-4** in Section 4.5.3. | | | | | | |
| *Table Notes* | | | | | | |

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# Appendix A: CalEEMod Output Files

# SLWD Central and South Basins Custom Report

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# 1. Basic Project Information

## 1.1. Basic Project Information

| Data Field | Value |
|---|---|
| Project Name | SLWD Central and South Basins |
| Construction Start Date | 1/1/2026 |
| Lead Agency | — |
| Land Use Scale | Project/site |
| Analysis Level for Defaults | County |
| Windspeed (m/s) | 2.80 |
| Precipitation (days) | 21.4 |
| Location | 37.01573186583363, -120.89670092925662 |
| County | Merced |
| City | Unincorporated |
| Air District | San Joaquin Valley APCD |
| Air Basin | San Joaquin Valley |
| TAZ | 2312 |
| EDFZ | 5 |
| Electric Utility | Pacific Gas & Electric Company |
| Gas Utility | Pacific Gas & Electric |
| App Version | 2022.1.1.29 |

## 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 | 293 | Acre | 293 | 0.00 | 0.00 | 0.00 | — | — |

### 1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

# 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. | TOG | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | R | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 3.84 | 3.24 | 29.2 | 29.8 | 0.06 | 1.24 | 19.8 | 21.0 | 1.14 | 10.1 | 11.3 | — | 6,765 | 6,765 | 0.28 | 0.06 | 0.63 | 6,791 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 3.83 | 3.22 | 29.2 | 29.6 | 0.06 | 1.24 | 19.8 | 21.0 | 1.14 | 10.1 | 11.3 | — | 6,748 | 6,748 | 0.28 | 0.06 | 0.02 | 6,772 |
| Average Daily (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 2.68 | 2.26 | 19.9 | 20.6 | 0.04 | 0.82 | 8.55 | 9.37 | 0.76 | 3.79 | 4.54 | — | 4,593 | 4,593 | 0.19 | 0.04 | 0.19 | 4,610 |
| Annual (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 0.49 | 0.41 | 3.63 | 3.75 | 0.01 | 0.15 | 1.56 | 1.71 | 0.14 | 0.69 | 0.83 | — | 760 | 760 | 0.03 | 0.01 | 0.03 | 763 |

## 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 | TOG | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | R | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily - Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2026 | 3.84 | 3.24 | 29.2 | 29.8 | 0.06 | 1.24 | 19.8 | 21.0 | 1.14 | 10.1 | 11.3 | — | 6,765 | 6,765 | 0.28 | 0.06 | 0.63 | 6,791 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily - Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2026 | 3.83 | 3.22 | 29.2 | 29.6 | 0.06 | 1.24 | 19.8 | 21.0 | 1.14 | 10.1 | 11.3 | — | 6,748 | 6,748 | 0.28 | 0.06 | 0.02 | 6,772 |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2026 | 2.68 | 2.26 | 19.9 | 20.6 | 0.04 | 0.82 | 8.55 | 9.37 | 0.76 | 3.79 | 4.54 | — | 4,593 | 4,593 | 0.19 | 0.04 | 0.19 | 4,610 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2026 | 0.49 | 0.41 | 3.63 | 3.75 | 0.01 | 0.15 | 1.56 | 1.71 | 0.14 | 0.69 | 0.83 | — | 760 | 760 | 0.03 | 0.01 | 0.03 | 763 |

# 3. Construction Emissions Details

## 3.1. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Location | TOG | 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 | 3.74 | 3.14 | 29.2 | 28.8 | 0.05 | 1.24 | — | 1.24 | 1.14 | — | 1.14 | — | 5,298 | 5,298 | 0.21 | 0.04 | — | 5,316 |
| Dust From Material Movement | — | — | — | — | — | — | 19.7 | 19.7 | — | 10.1 | 10.1 | — | — | — | — | — | — | — |
| 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 | 0.00 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road Equipm | 3.74 | 3.14 | 29.2 | 28.8 | 0.05 | 1.24 | — | 1.24 | 1.14 | — | 1.14 | — | 5,298 | 5,298 | 0.21 | 0.04 | — | 5,316 |
| Dust From Material Movement | — | — | — | — | — | — | 19.7 | 19.7 | — | 10.1 | 10.1 | — | — | — | — | — | — | — |
| 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 | 0.00 |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.67 | 0.56 | 5.19 | 5.13 | 0.01 | 0.22 | — | 0.22 | 0.20 | — | 0.20 | — | 943 | 943 | 0.04 | 0.01 | — | 947 |
| Dust From Material Movement | — | — | — | — | — | — | 3.50 | 3.50 | — | 1.80 | 1.80 | — | — | — | — | — | — | — |
| 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 | 0.00 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.12 | 0.10 | 0.95 | 0.94 | < 0.005 | 0.04 | — | 0.04 | 0.04 | — | 0.04 | — | 156 | 156 | 0.01 | < 0.005 | — | 157 |
| Dust From Material Movement | — | — | — | — | — | — | 0.64 | 0.64 | — | 0.33 | 0.33 | — | — | — | — | — | — | — |
| 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 | 0.00 |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.10 | 0.09 | 0.06 | 1.02 | 0.00 | 0.00 | 0.13 | 0.13 | 0.00 | 0.03 | 0.03 | — | 146 | 146 | 0.01 | 0.01 | 0.55 | 149 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 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 | 0.00 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.08 | 0.08 | 0.08 | 0.77 | 0.00 | 0.00 | 0.13 | 0.13 | 0.00 | 0.03 | 0.03 | — | 130 | 130 | 0.01 | 0.01 | 0.01 | 132 |
| 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 | 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 | 0.00 |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.02 | 0.01 | 0.01 | 0.14 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.01 | 0.01 | — | 23.9 | 23.9 | < 0.005 | < 0.005 | 0.04 | 24.3 |
| 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 | 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 | 0.00 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 3.96 | 3.96 | < 0.005 | < 0.005 | 0.01 | 4.03 |
| 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 | 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 | 0.00 |

## 3.3. Grading (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Location | TOG | 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 | 3.62 | 3.04 | 27.2 | 27.6 | 0.06 | 1.12 | — | 1.12 | 1.03 | — | 1.03 | — | 6,599 | 6,599 | 0.27 | 0.05 | — | 6,621 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dust From Material Movement | — | — | — | — | — | — | 9.20 | 9.20 | — | 3.65 | 3.65 | — | — | — | — | — | — | — |
| 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 | 0.00 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 3.62 | 3.04 | 27.2 | 27.6 | 0.06 | 1.12 | — | 1.12 | 1.03 | — | 1.03 | — | 6,599 | 6,599 | 0.27 | 0.05 | — | 6,621 |
| Dust From Material Movement | — | — | — | — | — | — | 9.20 | 9.20 | — | 3.65 | 3.65 | — | — | — | — | — | — | — |
| 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 | 0.00 |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.95 | 1.63 | 14.6 | 14.8 | 0.03 | 0.60 | — | 0.60 | 0.55 | — | 0.55 | — | 3,543 | 3,543 | 0.14 | 0.03 | — | 3,556 |
| Dust From Material Movement | — | — | — | — | — | — | 4.94 | 4.94 | — | 1.96 | 1.96 | — | — | — | — | — | — | — |
| 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 | 0.00 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.36 | 0.30 | 2.67 | 2.70 | 0.01 | 0.11 | — | 0.11 | 0.10 | — | 0.10 | — | 587 | 587 | 0.02 | < 0.005 | — | 589 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dust From Material Movement | — | — | — | — | — | — | 0.90 | 0.90 | — | 0.36 | 0.36 | — | — | — | — | — | — | — |
| 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 | 0.00 |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.11 | 0.11 | 0.07 | 1.16 | 0.00 | 0.00 | 0.15 | 0.15 | 0.00 | 0.04 | 0.04 | — | 167 | 167 | 0.01 | 0.01 | 0.63 | 170 |
| 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 | 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 | 0.00 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.10 | 0.09 | 0.09 | 0.89 | 0.00 | 0.00 | 0.15 | 0.15 | 0.00 | 0.04 | 0.04 | — | 149 | 149 | 0.01 | 0.01 | 0.02 | 151 |
| 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 | 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 | 0.00 |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.06 | 0.05 | 0.04 | 0.49 | 0.00 | 0.00 | 0.08 | 0.08 | 0.00 | 0.02 | 0.02 | — | 82.5 | 82.5 | 0.01 | < 0.005 | 0.15 | 83.8 |
| 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 | 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 | 0.00 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.01 | 0.01 | 0.01 | 0.09 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 13.7 | 13.7 | < 0.005 | < 0.005 | 0.02 | 13.9 |
| 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 | 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 | 0.00 |

# 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 | 1/1/2026 | 4/1/2026 | 5.00 | 65.0 | — |
| Grading | Grading | 4/2/2026 | 12/31/2026 | 5.00 | 196 | — |

## 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 | 3.00 | 8.00 | 367 | 0.40 |
| Site Preparation | Tractors/Loaders/Backhoes | Diesel | Average | 4.00 | 8.00 | 84.0 | 0.37 |
| Grading | Excavators | Diesel | Average | 2.00 | 8.00 | 36.0 | 0.38 |
| Grading | Graders | Diesel | Average | 1.00 | 8.00 | 148 | 0.41 |
| Grading | Rubber Tired Dozers | Diesel | Average | 1.00 | 8.00 | 367 | 0.40 |
| Grading | Scrapers | Diesel | Average | 2.00 | 8.00 | 423 | 0.48 |
| Grading | Tractors/Loaders/Backhoes | Diesel | Average | 2.00 | 8.00 | 84.0 | 0.37 |

## 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 | 17.5 | 10.9 | LDA,LDT1,LDT2 |
| Site Preparation | Vendor | — | 8.27 | HHDT,MHDT |
| Site Preparation | Hauling | 0.00 | 20.0 | HHDT |
| Site Preparation | Onsite truck | — | — | HHDT |

| | | | | |
|---|---|---|---|---|
| Grading | — | — | — | — |
| Grading | Worker | 20.0 | 10.9 | LDA,LDT1,LDT2 |
| Grading | Vendor | — | 8.27 | HHDT,MHDT |
| Grading | Hauling | 0.00 | 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 (Ton of Debris) | Material Exported (Ton of Debris) | Acres Graded (acres) | Material Demolished (sq. ft.) | Acres Paved (acres) |
|---|---|---|---|---|---|
| Site Preparation | 0.00 | 0.00 | 97.5 | 0.00 | — |
| Grading | 0.00 | 0.00 | 588 | 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 | 293 | 0% |

### 5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

| Year | kWh per Year | CO2 | CH4 | N2O |
|---|---|---|---|---|
| 2026 | 0.00 | 204 | 0.03 | < 0.005 |

## 8. User Changes to Default Data

| Screen | Justification |
|---|---|
| Construction: Construction Phases | basin construction |

# Appendix B: Biological Evaluation

SAN LUIS WATER DISTRICT

# LOS BANOS CREEK RECHARGE AND RECOVERY PROJECT BIOLOGICAL EVALUATION

LOS BANOS, CALIFORNIA
MAY 2025

**PREPARED FOR:**
San Luis Water District
LOS BANOS, CALIFORNIA

**PREPARED BY:**
PROVOST & PRITCHARD CONSULTING GROUP
455 W. FIR AVE, CLOVIS, CALIFORNIA 93612

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# ACRONYMS AND ABBREVIATIONS

BMP ..... Best Management Practices
CDFW..... California Department of Fish and Wildlife
CEQA ..... California Environmental Quality Act
CNDDB..... California Natural Diversity Database
CNPS..... California Native Plant Society
County ..... Merced
DMC ..... Delta-Mendota Canal
EPA ..... Environmental Protection Agency
°F..... degrees Fahrenheit
HCP ..... Habitat Conservation Plan
IPaC ..... United States Fish and Wildlife Service's Information for Planning and Consultation system
MBTA..... Migratory Bird Treaty Act
NCCP..... Natural Community Conservation Plan
NEPA..... National Environmental Policy Act
NMFS..... National Marine Fisheries Service
NPDES..... National Pollutant Discharge Elimination System
NRCS..... Natural Resources Conservation Service
NWI ..... National Wetlands Inventory
Project ..... Los Banos Creek Recharge and Recovery Project
Provost & Pritchard..... Provost & Pritchard Consulting Group
RWQCB..... Regional Water Quality Control Board
SJKF..... San Joaquin Kit Fox
SLWD ..... San Luis Water District
SWPPP ..... Storm Water Pollution Prevention Plan
SWRCB..... State Water Resources Control Board
USACE..... United States Army Corps of Engineers
USC ..... United States Code
USDA ..... United States Department of Agriculture
USFWS..... United States Fish and Wildlife Service
USGS..... United States Geological Survey

# 1 INTRODUCTION

This Biological Evaluation, prepared by Provost & Pritchard Consulting Group (Provost & Pritchard) in compliance with the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA), includes descriptions of the biological resources present or with potential to occur within the San Luis Water District (SLWD) Los Banos Creek Recharge and Recovery Project (or "Project"), potential project-related impacts or effects to those resources, and mitigation measures to reduce these impacts and effects to a less-than-significant level under CEQA and NEPA.

## 1.1 PROJECT DESCRIPTION

The project site (or "site") is located in the west of the San Joaquin Valley, east of the City of Los Banos and south/southwest of the City of Santa Nella in the western portion of Merced County (County), California (see Figure 1). The project site includes approximately 85 acres on the Central Basin and Southern Basin which is approximately 51 acres. The site includes ruderal roads, two gravel pits, the Delta-Mendota Canal (DMC), and Los Banos Creek, for a total of approximately 293.3 acres. The surrounding lands of the project site include agricultural, industrial, and paved roads.

The project site is primarily located on private property owned by Vulcan Materials; a mining operations company that specializes in extracting and producing construction aggregates (crushed stone, sand, and gravel). The project has received funding through the State of California Department of Water Resources Sustainable Groundwater Management Act Implementation Grant. The Project is located within the boundaries of SLWD service area and predominantly on properties owned by Vulcan Materials Company surrounding the intersection of Los Banos Creek and the DMC, generally within existing quarry pits located on the properties that are adjacent to the aforementioned waterways. SLWD and Vulcan have entered into a 20-year License Agreement (License Agreement) that automatically renews for five years periods unless a notice of termination is issued by either party. The License Agreement facilitates SLWD the ability to construct, operate and maintain all infrastructure necessary to conduct storage, recharge, and banking operations in the Los Banos Creek Recharge and Recovery Project. The License Agreement provides for the addition of basins to be used for water supply projects as they become available.

The project involves using existing gravel pits (Central and Southern Basin) for flood capture, recharge, storage, and recovery. The project proposes to develop approximately 140-acres of recharge area through these two gravel pits/ basins. The project includes one flow control weir in Los Banos Creek near the existing road crossing to convey water into the Central Basin from Los Banos Creek and to construct two 30 to 50 cfs water transfer facilities: one between the Central Basin and the DMC, another between the Southern Basin and the DMC.

## 1.2 REPORT OBJECTIVES

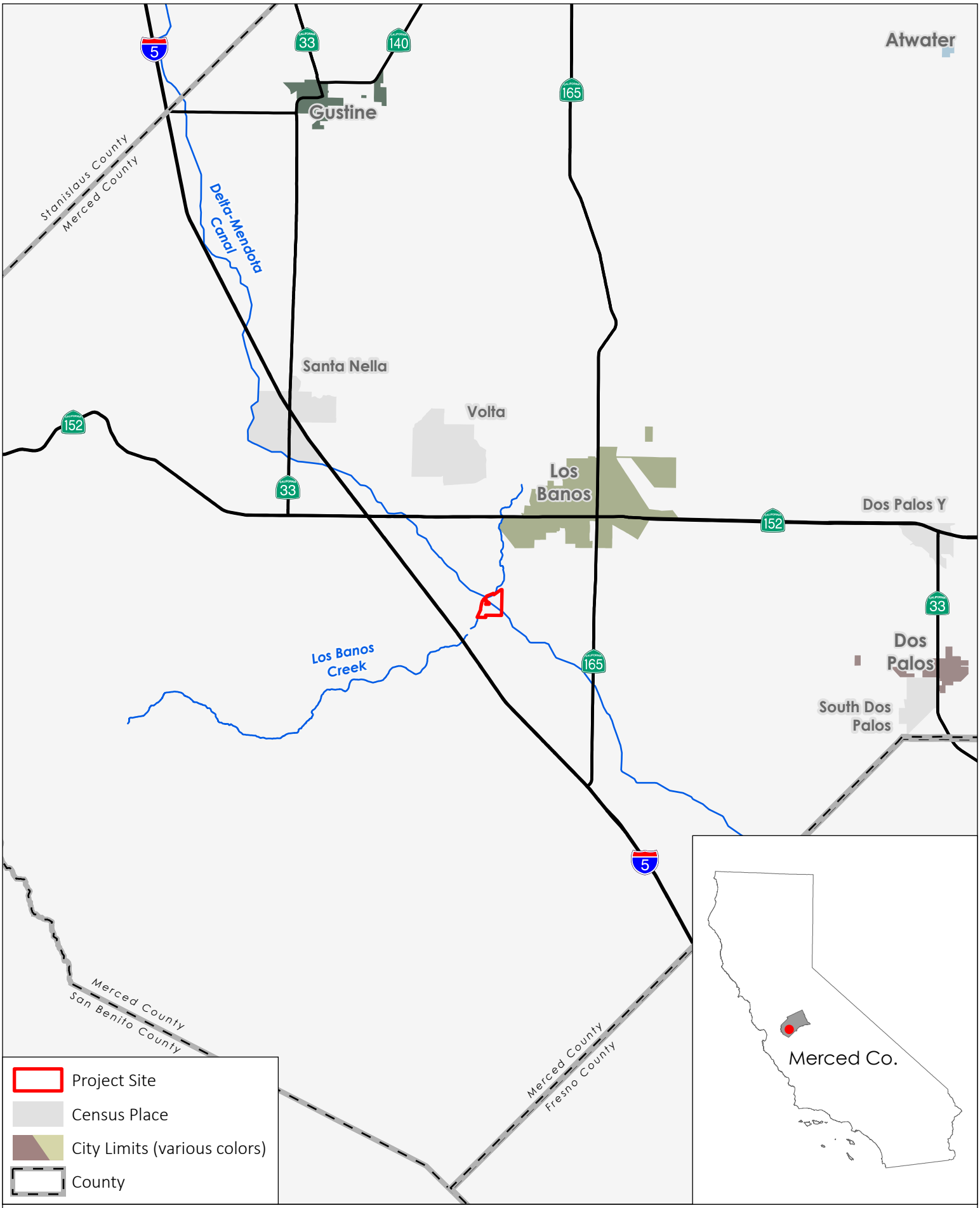
Construction activities such as those proposed by the project could potentially change biological resources or habitats that are critical for sensitive plant and wildlife species. In cases such as these, development may be regulated by state or federal agencies, and/or addressed by local regulatory agencies.

This report addresses issues related to the following:

- The presence of sensitive biological resources within the site, or those with the potential to occur within the site.
- The federal, state, and local regulations regarding these resources.
- Mitigation measures that may be required to reduce the magnitude of anticipated impacts and/or comply with permit requirements of state and federal resource agencies.

Therefore, the objectives of this report are to:

- Summarize all site-specific information related to existing biological resources.
- Make reasonable inferences about the biological resources that could occur on the site based on habitat suitability and the proximity of the site to a species' known range.
- Summarize all state and federal natural resource protection laws that may be relevant to implementation of the project.
- Identify and discuss project impacts and effects to biological resources likely to occur onsite within the context of CEQA, NEPA, and/or state or federal laws.
- Identify and prescribe a set of avoidance and minimization measures that would reduce impacts to a less-than-significant level (as identified by CEQA) or avoid and minimize effects (as identified by NEPA) and are generally consistent with recommendations of the resource agencies for affected biological resources.




# Regional Vicinity Map

Los Banos Creek Recharge and Recovery Project

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*Fig. 1 Page 1-3*




0 500 1,000
Feet

# Aerial Map

Los Banos Creek Recharge and Recovery Project

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*Fig. 2 Page 1-4*

## 1.3 STUDY METHODOLOGY

A reconnaissance-level field survey of the site was conducted on January 29, 2024, by a past Provost & Pritchard biologist, and March 18, 2025, by Provost & Pritchard biologist, Olivia Arredondo. The survey consisted of walking and driving throughout the project site while identifying and noting land uses, biological habitats and communities, and plant and animal species encountered. Habitats were also assessed to help with determining if they could be suitable for various rare or protected plant and animal species. Representative photographs of the site were taken and are presented in Appendix A.

Ms. Arredondo then utilized the results of the field survey to analyze potential project-related impacts to biological resources based on the resources known to occur or with the potential to occur within the site. Sources of information used in preparation of this analysis included: California Department of Fish and Wildlife's California Natural Diversity Database (CNDDB; see Appendix B for the species list) and California Wildlife Habitat Relationships (CWHR) database; California Native Plant Society's (CNPS) Online Inventory of Rare and Endangered Vascular Plants of California; CalFlora's online database of California native plants; Jepson Herbarium's online database (i.e., Jepson eFlora); United States Fish and Wildlife Service's (USFWS) Environmental Conservation Online System, Information for Planning and Consultation (IPaC; see Appendix C for the species list) system, and National Wetlands Inventory (NWI); iNaturalist; NatureServe Explorer's online database; United States Department of Agriculture (USDA) Natural Resources Conservation Service's (NRCS) Web Soil Survey (see Appendix D for the Web Soil Survey Report); California Herps website; and various manuals, reports, and references related to plants and animals of the San Joaquin Valley region.

The field survey did not include focused surveys for special status species. The field survey conducted included the appropriate level of detail to assess the significance of potential impacts to sensitive biological resources resulting from implementing the project. Furthermore, the field survey was sufficient to generally describe aquatic features of the project site that could be claimed as jurisdictional by federal and/or state agencies, such as the United States Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), Regional Water Quality Control Board (RWQCB), and the State Water Resources Control Board (SWRCB). If project activities resulted in impacts to aquatic resources and aquatic habitats, this report would be sufficient to support required permit applications, if needed, for the project.

# 2 EXISTING CONDITIONS

## 2.1 REGIONAL SETTINGS

### 2.1.1 TOPOGRAPHY

The site is located within the *Volta* United States Geological Survey (USGS) 7.5-minute quadrangle within the southeast quadrat of Section 32, Township 10 South, Range 10 East, and northwest quadrat of Section 05, Township 11 South, Range 10 East. The topography of the site is approximately 105-205 feet above mean sea level (see Figure 3).

### 2.1.2 CLIMATE

Like most of California, the site experiences a Mediterranean climate. Warm, dry summers are followed by cool, moist winters. In the summer, average high temperatures range between 80- and 95-degrees Fahrenheit (°F), but do not often exceed 100 °F, and the humidity is generally low. Winter temperatures are often below 40 °F during the day and rarely exceed 65 °F. On average, Los Banos, CA receives approximately 9 inches of precipitation in the form of rain yearly, most of which occurs between October and April (Centers n.d.), and the site would be expected to receive similar amounts of precipitation.

### 2.1.3 HYDROLOGY

The nearest surface waters to the project site are Los Banos Creek which runs northeast along the north portion of the project site and the DMC which bisects the project site.

Stormwater runoff from upland areas flows into Carrisalito Creek and numerous unnamed tributaries, which flow into the North Fork Los Banos Creek. The North Fork Los Banos Creek then flows into Los Banos Creek which also receives water from other unnamed tributaries. The Los Banos Creek then enters Los Banos Creek reservoir and exits again after passing through a water diversion system as the Los Banos Creek northeast of the reservoir. Los Banos Creek continues flowing north of the site and eventually into irrigation canals and the San Joaquin River.

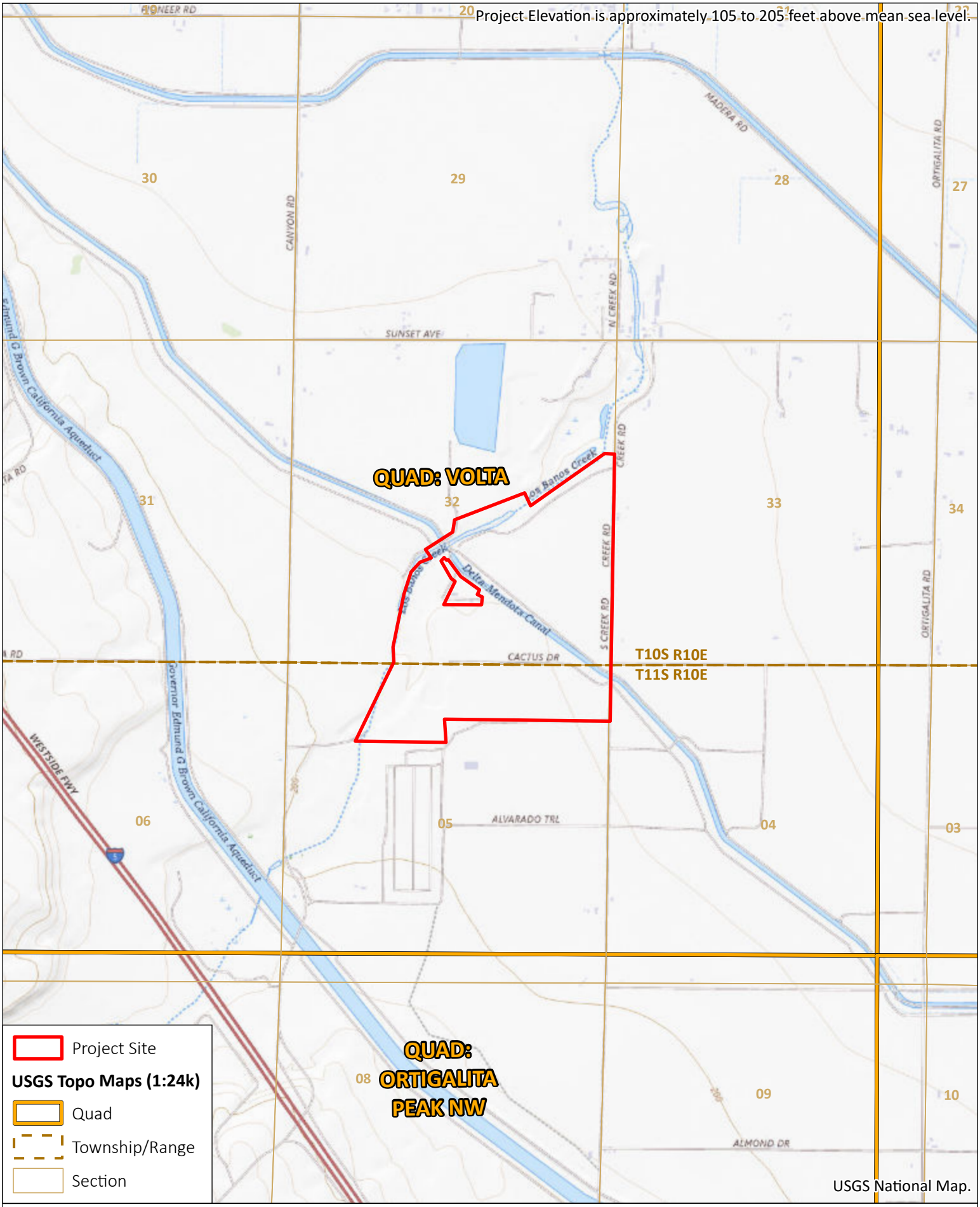
### 2.1.4 SOILS

Three soil mapping units representing two soil types were identified within the project site and are listed in Table 1 (see Appendix D for the Web Soil Survey Report). The soils are displayed with their core properties in the table below, according to the Major Land Resource Area of California. Xerofluvents are found on floodplains along rivers and streams and Caranza-Woo is primarily used for crop irrigation, grazing, and wildlife habitat.

Table 1: List of Soils Located on the Project Site and Their Basic Properties

| Soil | Soil Map Unit | Percent of Site | Hydric Soil Category | Drainage | Permeability | Runoff |
|---|---|---|---|---|---|---|
| *Carranza-Woo* | 0 to 2 percent slopes | 50.0% | Predominantly Nonhydric | Well drained | Moderate over slow permeability or moderate over rapid permeability depending on the kind of substratum | Low to high runoff |
| *Xerofluvents* | Extremely gravelly | 47.6% | Predominantly hydric | Poorly drained | Moderately rapid | Low |
| *Water* | - | 2.3% | - | - | - | - |

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions such that under sufficiently wet conditions, hydrophytic vegetation can be supported. Hydric soil ratings are derived from specific soil properties as well as climate, parent material, vegetation, landform type, and biological activity of a certain location. One of the major soil mapping units are predominately hydric and make up 47.6% of the site. The other of the major soil mapping units is predominantly nonhydric and make up 50.0% of the site. Water identified on the site is within DMC.




# Topographic Map

Los Banos Creek Recharge and Recovery Project

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*Fig. 3 Page 2-3*

## 2.2 BIOTIC HABITATS

Four biotic habitats were observed within the project site and included ruderal, canal, riverine, and non-native grassland (see Figure 4). These habitats and their constituent plant and animal species are described in more detail in the following sections.

### 2.2.1 RUDERAL

The project site mainly consisted of gravelly clay loam ruderal habitat. The central portion of this habitat was disturbed by ongoing general mining practices. The edges of this habitat contained invasive grasses and herbaceous vegetation while the center was mostly bare. Within the central portion of this habitat were two separate gravel pits areas that collected water due to topography and became detention ponds that contained stagnant water during the 2024 survey.

Vegetation observed within this habitat included tamarisk (*Tamarix* sp.) eucalyptus (*Eucalyptus* sp.) trees, non-native grasses, bermuda grass (*Cynodon dactylon*), bromegrass (*Bromus diandrus*), bur clover (*Medicago polymorpha*), bristly oxtongue (*Helminthotheca echioides*), California oatgrass (*Danthonia californica*), common groundsel (*Senecio vulgaris*), curly dock (Rumex crispus), gumweed (*Grindelia* sp.), horehound (*Marrubium vulgare*), hollowleaf annual lupine (*Lupinus succulentus*), hairy gumweed (*Grindelia hirsutula*), nightshade (*Datura wrightii*), needle spikerush (*Eleocharis acicularis*), poison-hemlock (*Conium maculatum*), prickly lettuce (*Lactuca serriola*), redstem filaree (*Erodium cicutarium*), rigid fiddleneck (*Amsinckia menziesii*), Russian thistle (*Salsola gobicola*), seep willow (*Baccharis salicifolia*), southern cattail (*Typha domingensis*), shortpod mustard (*Hirschfeldia incana*), stinkwort (*Dittrichia graveolens*), unidentified bryum moss (*Bryum* sp.), Spanish clover (*Acmispon americanus*), velvet grass (*Holcus lanatus*), and willow herb (*Epilobium brachycarpum*).

The survey of the project site resulted in the identification of numerus bird species including American pipit (*Anthus rubescens*), American crow (*Corvus brachyrhynchos*), black phoebe (*Sayornis nigricans*), greater yellowlegs (*Tringa melanoleuca*), hermit thrush (*Catharus guttatus*), house finch (*Haemorhous mexicanus*), killdeer (*Charadrius vociferus*), mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), red-tailed hawk (*Buteo jamaicensis*), Say's phoebe (*Sayornis saya*), savannah sparrow (*Passerculus sandwichensis*), yellow-rumped warbler (*Setophaga coronate*), and western meadowlark (*Sturnella neglecta*). Other terrestrial species observed included California ground squirrel (*Otospermophilus beecheyi*), coyote (*Canis latrans*), common side-blotched lizard (*Uta stansburiana elegans*), and western fenced lizard (*Sceloporus occidentalis*). Several potential fox dens were observed near the edge habitat of the embankments within the Central Basin project site adjacent to South Creek Road. The crest along the edge of the ruderal habitat contained several Botta's pocket gopher (*Thomomys bottae*) burrows. Coyote, domestic dog (*Canis lupus familiaris*), and racoon (*Procyon lotor*) tracks were also observed within the project site. A domestic dog carcass was observed along an access road in the central portion of the project site. The cause of death was unknown. Staff from the Vulcan Materials Company mentioned that they have seen garter snakes (*Thamnophis* sp.). No snakes were observed during the 2024 or 2025 field survey. The areas that held water were scanned for aquatic species and only mosquito (*Culicidae*) larvae and mosquito fish (*Gambusia affinis*) were observed within the southern basin/ gravel pit. One juvenile American bullfrog (*Rana catesbeiana*) was observed and calls from this species were heard from a distance during the January 2024 survey.

### 2.2.2 CANAL

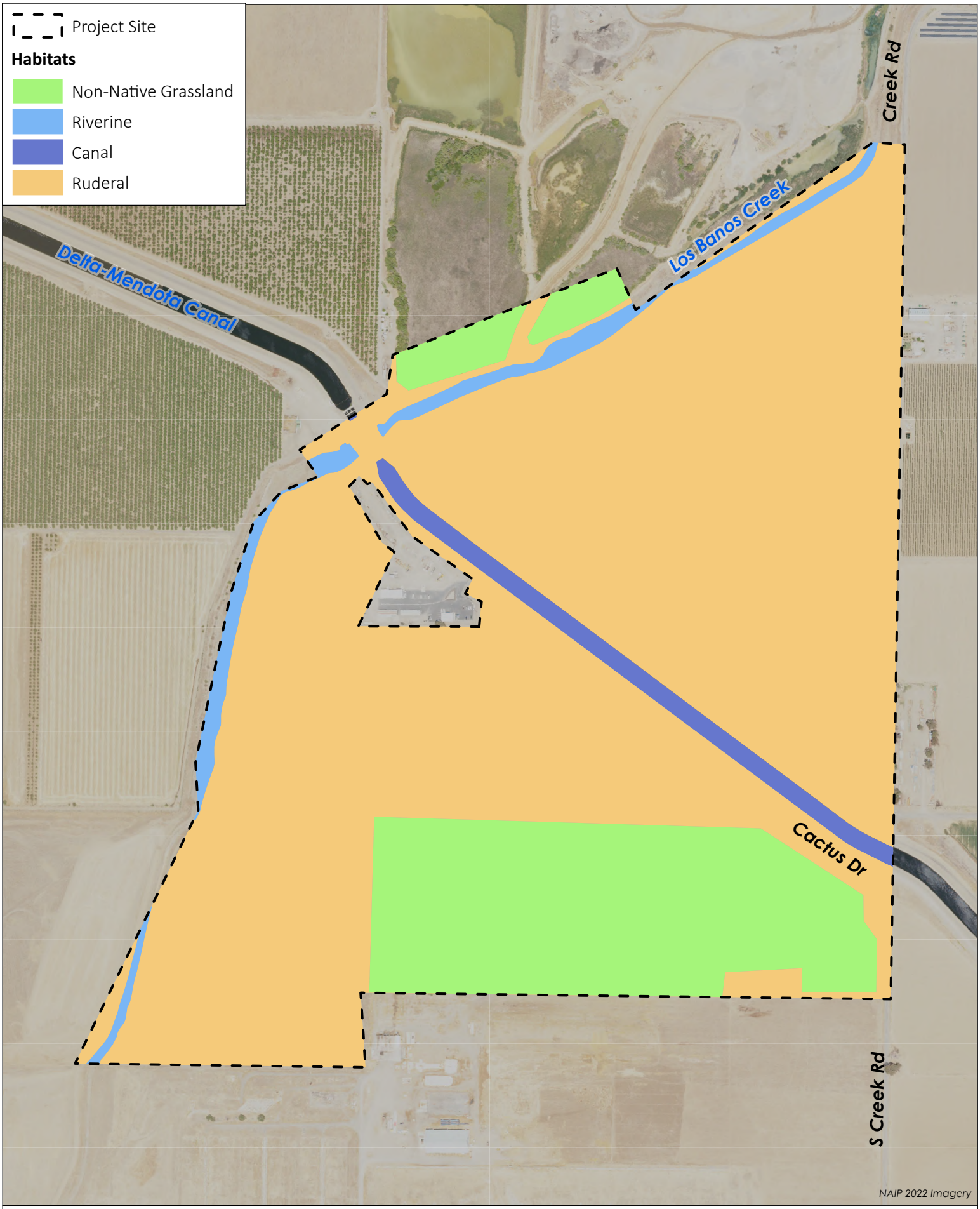
The DMC bisects the project site, with an approximate 6.9-acre section of the DMC. The embankments of the canal were made of concrete. The surrounding edges of the canal contained gravel roads that were well maintained and clear of vegetation. The bridge along DMC located near the southeastern corner of the project site had unoccupied swallow (*Hirundinidae*) nests.

### 2.2.3 RIVERINE

The riverine habitat includes an approximate 7.8 acre section of Los Banos Creek. The river was flowing at the time of the March 2025 biological survey. This habitat was visually scanned for aquatic species, and none were visually observed within the creek. Vegetation within the Los Banos Creek was sparse and included mule fat (*Baccharis salicifolia*), willows (*Salix* sp.), giant reed (*Arundo donax*), California poppy (*Eschscholzia californica*), California oatgrass, Spanish clover, and wire lettuce species (*Stephanomeria* sp.). The survey of the riverine habitat resulted in the observation of two pairs of mallards (*Anas platyrhynchos*) flying along Los Banos Creek. A northern harrier (*Circus hudsonius*) was observed flying overhead near Los Banos Creek along the western edge of the project site. Calls from an unidentified frog (possibly Pacific tree frog [*Pseudacris regilla*]) were heard from Los Banos Creek.

### 2.2.4 NON-NATIVE GRASSLAND

Three areas of non-native grassland habitat was observed within the project site along the northern and southern boundaries. The two northern non-native grassland areas are north of Los Banos Creek. Killdeer were observed around these areas exhibiting nest-protecting behavior. The non-native grassland habitat in the south was previously used as an agricultural field and entirely composed of non-native grasses. At the southern non-native grassland, the wildlife observed included red-tailed hawks, turkey vultures (*Cathartes aura*), California ground squirrels, and common side-blotched lizards. Numerous dens were observed throughout the area, some with a noticeable runway and suspected San Joaquin kit fox (SJKF), but no other signs (scat, tracks, sightings) were observed. Within two of these dens, individual California whiptails (*Aspidoscelis tigris munda*) were seen taking refuge.




0 250 500
Feet

# Habitats Map

Los Banos Creek Recharge and Recovery Project

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*Fig. 4 Page 2-6*

## 2.3 NATURAL COMMUNITIES OF SPECIAL CONCERN AND RIPARIAN HABITAT

Natural communities of special concern are those that are of limited distribution, distinguished by significant biological diversity, or home to special status species. CDFW has classified and mapped all natural communities in California. Just as the special status plant and animal species (see Section 3.6), these natural communities of special concern can be found within the CNDDB. There are no recorded observations of a natural community of special concern mapped within the site and no natural communities of special concern were observed during the field survey.

Riparian habitat is composed of plant communities that occur along the banks, and sometimes over the banks, of most waterways and is an important habitat for numerous wildlife species. CDFW has jurisdiction over most riparian habitat in California. Riparian vegetation was observed within the project site along Los Banos Creek, which has a length of approximately 0.8 miles within the project site, however, the vegetation did not constitute a contiguous area of riparian habitat. Another waterway within the project site is DMC which flows 0.7 miles from the northeast to the southeast corner. This canal is manmade/ concrete-lined and is unlikely to be impacted by project activities. This canal is manmade and composed of concrete, and does not contain riparian habitat. Impacts to the canal would only be related to facilitation of water transfer.

## 2.4 DESIGNATED CRITICAL HABITAT

The USFWS often designates areas of “critical habitat” when it lists species as threatened or endangered. Critical habitat is a specific geographic area that contains features essential for the conservation of a threatened or endangered species, which may require special management and protection. According to the IPaC, designated critical habitat is absent from the project site and vicinity.

## 2.5 WILDLIFE MOVEMENT CORRIDORS AND NATIVE WILDLIFE NURSERY SITES

Wildlife movement corridors are routes that animals regularly and predictably follow during seasonal migration, dispersal from native ranges, daily travel within home ranges, and inter-population movements. Movement corridors in California are typically associated with valleys, ridgelines, rivers, and creeks supporting riparian vegetation. Los Banos Creek and the DMC within the site likely act as a corridor for terrestrial wildlife during the dry season.

Native wildlife nursery sites are areas where a species or group of similar species raise their young in a concentrated place, such as maternity bat roosts. The unoccupied swallow nests underneath the bridge along DMC could function as native wildlife nursery sites for birds.

## 2.6 SPECIAL STATUS PLANTS AND ANIMALS

California contains several rare plant and animal species. In this context, “rare” is defined as a species known to have low populations or limited distributions. Conversion of habitats to accommodate human population growth in turn reduces the already-limited suitable habitat for rare species. This results in rare and sensitive species becoming increasingly more vulnerable to extirpation. State and federal regulations have provided the CDFW and USFWS with mechanisms for conserving and protecting the diversity of plant and animal species native to California. Numerous native plants and animals have been formally designated as “threatened” or “endangered” under state and federal endangered species legislation. Other formal designations include “candidate” for listing or “species of special concern” by CDFW. The CNPS has its list of native plants considered rare, threatened, or endangered. Collectively these animals and plants are referred to as “special status species.”

A query of the CNDDB for occurrences of special status plant and animal species was conducted for the *Volta* USGS 7.5-minute quadrangle that contains the site, and for the eight surrounding USGS quadrangles: *Howard Ranch, Ingomar, San Luis Ranch, San Luis Dam, Los Banos, Los Banos Valley, Ortigalita Peak NW,* and *Charleston School*. A query of the IPaC was also completed for the site. These species, and their potential to occur within the site, are listed in Table 2 and Table 3, below. Other special status species that did not show up in the CNDDB query, but have the potential to occur in the vicinity, are also included in Table 3. Species lists obtained from CNDDB and IPaC are available in Appendix B and Appendix C, respectively. All relevant sources of information, as discussed in the Study Methodology section of this report, as well as field observations, were used to determine if any special status species have the potential to occur within the site.

Table 2: List of Special Status Plants with Potential to Occur on the Site and/or in the Vicinity

| Species | Status* | Habitat | Occurrence within the Site |
|---|---|---|---|
| Arburua Ranch jewelflower (*Streptanthus insignis ssp. lyonia*) | CNPS 1B | Found in the inner south coast ranges, in serpentine, grassland, oak woodland habitat. Found at elevations between 650 feet and 2,950 feet. Blooms April – June. | **Absent.** Suitable habitat for this species was absent from the project site and the site is outside of the elevational range for this species. |
| Alkali milk-vetch (*Astragalus tener* var. *tener*) | CNPS 1B | Found growing in alkali soils in the San Joaquin Valley and throughout the Delta-Bay region of California in low and flooded areas at elevations below 200 feet. Blooms March – June. | **Absent.** Suitable habitat and soils for this species were absent from the project site. |
| Alkali-sink goldfields (*Lasthenia chrysantha*) | CNPS 1B | Found in vernal pool and wet saline flat habitats in the San Joaquin Valley region at elevations below 700 feet. Blooms February – April. | **Absent.** Suitable habitat for this species was absent from the project site. |
| California alkali grass (*Puccinellia simplex*) | CNPS 1B | Found in the San Joaquin Valley and other parts of California in saline flats and mineral springs within valley grassland and wetland-riparian communities at elevations below 3,000 feet. Blooms March – May. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Chaparral ragwort (*Senecio aphanactis*) | CNPS 2B | Found in chaparral, cismontane woodland, and coastal scrub, typically within drying alkaline flats at elevations between 50 and 2,800 feet. Blooms February – May. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*) | CNPS 1B | Found on alkaline and saline soils in vernal pools and playas in grassland at elevations below 4,500 feet. Blooms April – May. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Delta button-celery (*Eryngium racemosum*) | CE, CNPS 1B | Found in riparian scrublands in floodplains near the California Delta at elevations below 100 feet. Blooms June – August. | **Absent.** Suitable habitat for this species was absent from the project site. |

| Species | Status* | Habitat | Occurrence within the Site |
|---|---|---|---|
| Hall's bush-mallow (*Malacothamnus hallii*) | CNPS 1B | Generally found in chaparral and coastal scrub habitats throughout northern coastal California, the San Joaquin Valley, and the Sierra Nevada foothills. Some populations of this species have been found to grow in serpentine soils. Occurs at elevations below 2,500 feet. Blooms May – July. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Heartscale (*Atriplex cordulata* var. *cordulata*) | CNPS 1B | Found in the Central Valley in saline or alkaline soils within shadscale scrub, valley grassland, and wetland-riparian communities at elevations below 250 feet. Blooms June – July. | **Absent.** Suitable habitat for this species was absent from the project site and possibly extirpated. |
| Hispid salty bird's-beak (*Chloropyron molle* ssp. *hispidum*) | CNPS 1B | Grows in the damp, alkali soils of meadows, playas, and sinks in the San Joaquin Valley and Delta-Bay region of California. Found at elevations below 450 feet. Blooms June – July. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Lemmon's jewelflower (*Caulanthus lemmonii*) | CNPS 1B | Grows in the California Coast Ranges and Mojave Desert woodlands and grasslands at elevations between 250 and 3,700 feet. Often associated with pinyon pines and junipers. Blooms March – May. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Lesser saltscale (*Atriplex minuscula*) | CNPS 1B | Found in the San Joaquin Valley in sandy, alkaline soils in alkali scrub, valley and foothill grassland, and alkali sink communities at elevations below 750 feet. Blooms April – October. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Lost Hills crownscale (*Atriplex coronata* var. *vallicola*) | CNPS 1B | Found in the San Joaquin Valley in dried ponds and vernal pools with alkaline soils in alkali scrub, and valley and foothill grasslands at elevations below 2,900 feet. Blooms April – September. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Northern slender pondweed (*Stuckenia filiformis ssp. alpina*) | CNPS 2B | Found in marshes and swamps with calcareous to brackish water. Blooming occurs from June through early-July. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Prostrate vernal pool navarretia (*Navarretia prostrata*) | CNPS 1B | Found in the San Joaquin Valley as well as areas along the central and southern coast of California. Grows in a variety of grassland and wetland habitats in mesic, alkaline soils at elevations below 2,300 feet. Blooms April – July. | **Absent.** Suitable habitat for this species was absent from the project site. |

| Species | Status* | Habitat | Occurrence within the Site |
|---|---|---|---|
| Recurved larkspur (*Delphinium recurvatum*) | CNPS 1B | Occurs in chenopod scrub, cismontane woodland, and grassland habitats on poorly drained, fine, alkaline soils; often in valley saltbush or valley chenopod scrub communities at elevations between 100 and 2,600 feet. Blooms March – June. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Sanford's arrowhead (*Sagittaria sanfordii*) | CNPS 1B | This species is an aquatic plant and is found in the San Joaquin Valley and other parts of California in freshwater marshes, ponds, canals, and ditches at elevations below 1,000 feet. Blooms May – October. | **Unlikely.** While Los Banos Creek could offer possible habitat for this species, surrounding areas are highly disturbed with mining activities in the north and nearby agricultural activity in the south. The nearest recorded observation of this species was approximately 7 miles northeast of the project site in 1948. |
| Shining navarretia (*Navarretia nigelliformis* ssp. *radians*) | CNPS 1B | Found in cismontane woodland and valley and foothill grassland communities, sometimes in vernal pools. Occurs at elevations between 200 and 3,200 feet. Blooms May – July. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Spiny-sepaled button-celery (*Eryngium spinosepalum*) | CNPS 1B | Found in the Sierra Nevada foothills and the San Joaquin Valley. Occurs in vernal pools, swales, and roadside ditches. Often associated with clay soils in vernal pools within grassland communities. Occurs at elevations between 50 and 4,200 feet. Blooms April – July. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Vernal pool smallscale (*Atriplex persistens*) | CNPS 1B | Occurs in the Central Valley in alkaline vernal pools at elevations below 400 feet. Blooms June – September. | **Absent.** Suitable habitat for this species was absent from the project site. |
| Wright's trichocoronis (*Trichocoronis wrightii var. wrightii*) | CNPS 2B | Found in wetland riparian meadows, and vernal pools at elevations below 65 feet. Blooms May – September | **Absent.** Suitable habitat for this species was absent from the project site. |

Table 3: List of Special Status Animals with Potential to Occur on the Site and/or in the Vicinity

| Species | Status* | Habitat | Occurrence within the Site |
|---|---|---|---|
| American badger (*Taxidea taxus*) | CSSC | Prefers drier open stages of shrub, forest, and herbaceous habitats with friable soils to burrow, but can be found within numerous habitats throughout California, including the margins | **Unlikely.** The project site and surrounding areas are frequently disturbed. An American badger could potentially pass through the project site, but it is unlikely they would forage or live within the |

| Species | Status* | Habitat | Occurrence within the Site |
|---|---|---|---|
| | | of agricultural lands. Needs a sufficient prey base of burrowing rodents. | project site. While there were mammal burrows present at the site, the size was not suitable for this species and lacked the key features common in badger burrows (entrance shape and clawmarks). The nearest recorded observation of this species within the vicinity was approximately 7.3 miles northwest of the project site in 2006. |
| Bald eagle (*Haliaeetus leucocephalus*) | CE, CFP | Resides in old growth forests as well as lower montane coniferous forests. Can also be found in open uplands in the winter. Nests are generally found in large trees within a mile of water. Nests and winters along ocean shores, lake margins, and rivers. | **Unlikely**. This species could potentially pass through the project site, but it is unlikely they would forage or nest within the project site with constant machinery disturbance. The nearest recorded observation of this species was approximately 1.3 miles northwest of the project site in 1987. |
| Blunt-nosed leopard lizard (*Gambelia sila*) | FE, CE, CFP | Occurs in the San Joaquin Valley region in expansive, arid areas with scattered vegetation. Today they inhabit non-native grassland and alkali sink scrub communities of the valley floor marked by poorly drained, alkaline, and saline soils. They can be found at elevations ranging from 98 to 2,600 feet. They are absent from areas with steep slopes and dense vegetation, and areas subject to seasonal flooding. Adults may excavate shallow burrows but rely on deeper pre-existing rodent burrows for hibernation and reproduction. | **Unlikely.** While there are areas of non-native grasslands this species could utilize within the project site, surrounding areas are highly disturbed with mining activities in the north and agricultural activity in the south. The nearest recorded observation was approximately 4.8 miles east of the project site in the 1970's. |
| Burrowing owl (*Athene cunicularia*) | CSSC | Resides in open, dry grasslands, deserts, scrublands, and other areas with low growing vegetation. Nests and roosts underground in existing burrows created by mammals, most often by ground squirrels, and human-made structures. | **Possible**. The project site had mammal burrows of the appropriate size to be utilized by this species. However, no signs of this species (whitewash, feathers, or owl pellets) were observed during the field surveys. Foraging habitat and prey species were both observed throughout the site. The nearest recorded observation was approximately 5 miles northwest of the project site in 2002. |
| California condor (*Gymnogyps californianus*) | FE, CE, CFP | Typically nests in cavities in canyon or cliff faces but has also been recorded nesting in giant | **Absent**. Suitable nesting and foraging habitats were absent within the site and surrounding |

| Species | Status* | Habitat | Occurrence within the Site |
|---|---|---|---|
| | | sequoias in Tulare County. Requires vast expanses of open savannah, grassland, and/or foothill chaparral in mountain ranges of moderate altitude. Forages for carrion up to 100 miles from their roost/nest sites. | areas. This species could fly over the site but would not be expected to nest or forage within the site. The CNDDB query resulted in no observations of this species within the regional vicinity of the project site. |
| California red-legged frog (*Rana draytonii*) | FT, CSSC | Inhabits perennial rivers, creeks, and stock ponds with vegetative cover within the Coast Range and northern foothills of the Sierra Nevada. | **Unlikely.** The project site was highly disturbed by heavy machinery. Los Banos Creek and adjacent pools lacked dense vegetative cover. The nearest CNDDB record for this species is 6 miles southwest from the project site along Los Banos Creek, but a water diversion structure in Los Banos Creek Reservoir obstructs habitat connectivity. |
| California tiger salamander – central California DPS (*Ambystoma californiense*) | FT, CT | Requires vernal pools or seasonal ponds for breeding and small mammal burrows for aestivation. Generally found in grassland and oak savannah plant communities in central California from sea level to 1,500 feet in elevation. Can migrate up to 1.3 miles to breed. | **Unlikely**. The project site was highly disturbed by heavy machinery and lacked vernal pools for breeding. In addition, there are bullfrogs on the site that predate on this species, which would likely preclude them from breeding on the site. The nearest recorded observation at a stock pond approximately 6 miles southwest of the project site in 1985. |
| Conservancy fairy shrimp (*Branchinecta conservatio*) | FE | Found in large, turbid freshwater vernal pools in the Central Valley, from Tehama County in the north to Merced County in the south, with one outlying population in Ventura County's Interior Coast Ranges. | **Absent.** Suitable vernal pool habitats required by this species were absent from the project site and surrounding areas. |
| Foothill yellow-legged frog – south Sierra DPS (*Rana boylii*) | FC, CE | Frequents rocky streams and rivers with rocky substrate and open, sunny banks in forests, chaparral, and woodlands. Occasionally found in isolated pools, vegetated backwaters, and deep, shaded, spring-fed pools. | **Unlikely.** Open banks with pooling habitat were present within the project site and along Los Banos Creek. However, the project site lacks adjacent woodland and chaparral habitat, and the surrounding areas are frequently disturbed by heavy machinery. The nearest recorded observation was near the San Luis State Recreational Area approximately 5.2 miles. southwest of the project site in 1985. |
| Fresno kangaroo rat (*Dipodomys nitratoides exilis*) | FE, CE | An inhabitant of alkali sinks and open grassland habitats in Merced, Kings, Fresno, and Madera counties. Prefers bare, | **Absent.** Alkaline sinks are absent from the project site. The project site and surrounding areas are frequently disturbed by heavy |

| Species | Status* | Habitat | Occurrence within the Site |
|---|---|---|---|
| | | alkaline, clay-based soils subject to seasonal inundation with more friable soil mounds around shrubs and grasses. | machinery and no signs of this species (tail drags, etc.) were observed during the field surveys. |
| Giant gartersnake (*Thamnophis gigas*) | FT, CT | Occurs in marshes, sloughs, canals, ditches, rice fields, and adjacent uplands. Prefers locations with emergent vegetation for cover and open areas for basking. This species uses small mammal burrows adjacent to aquatic habitats for hibernation in the winter and to escape from excessive heat in the summer. | **Unlikely.** Nearby observations of this species have all occurred in areas with wetland habitats which are absent from the project site. While Los Banos Creek does contain small mammal burrows along the bank, open areas for basking, and some emergent aquatic vegetation that could be used as cover from predators within the project site, the nearby habitats are highly disturbed, and these species would not be expected to utilize the creek when higher quality habitat is regionally abundant. Additionally, the creek flows intermittently and ephemerally rather than perennially, which are less than marginal conditions for this species. The nearest recorded observation of this species within the vicinity of the project site was near the Santa Fe Grade Road, between intersections with Britto Road and Pacheco Boulevard, approximately 7.6 miles northwest of the project site in 1976. |
| Giant kangaroo rat (*Dipodomys ingens*) | FE, CE | Inhabits annual grassland communities with few or no shrubs and well-drained, sandy-loam soils on gentle slopes on the western side of the San Joaquin Valley. | **Unlikely.** The project site and surrounding areas are frequently disturbed by heavy machinery and no signs of this species (tail drags, etc.) were observed during the field surveys. The last recorded observation from CNDDB was approximately 9.6 miles south of the project site in 1932. |
| Golden eagle (*Aquila chrysaetod*) | CFP | This species typically nests on cliff ledges or large trees, rarely on the ground. They prefer an expanse of open terrain and are found over tundra, prairie, rangeland, desert, and grassland habitats. | **Unlikely.** Suitable foraging habitat for this species was absent from the project site. While there were eucalyptus trees present along the southern edge of the project site, the size of the trees could not support a golden eagle nest. The last recorded CNDDB observation was about one mile south of the intersection of I-5 and Arburua Rd. Approximately 1.8 miles north of the project site in 1987. |

| Species | Status* | Habitat | Occurrence within the Site |
|---|---|---|---|
| Loggerhead shrike (*Lanius ludovicianus*) | CSSC | Frequents open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low herbaceous cover. In the Central Valley, this species nests in riparian areas, desert scrub, and agricultural hedgerows. | **Possible.** The non-native grassland and open terrain within the project site offered possible foraging habitat. While sparse, the willows and thickets along Los Banos Creek could provide nesting opportunity for this species. The last recorded observation from CNDDB was approximately 14.5 miles north of the project site in 2014 and from iNaturalist 0.5 miles south in 2018. |
| Longhorn fairy shrimp (*Branchinecta longiantenna*) | FE | Inhabits clear to turbid vernal pools or seasonally ponded areas. | **Absent.** Suitable vernal pool habitats required by this species were absent from the project site and surrounding areas. |
| Monarch butterfly (*Danaus plexippus*) | FC | Roosts in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby. Larval host plants consist of milkweeds. Winter roost sites extend along the Pacific coast from northern Mendocino to Baja California, Mexico. | **Absent.** The project site had minimum vegetation and lacked appropriate tree groves. No milkweed was observed within the project site or along Los Banos Creek. |
| Nelson's antelope squirrel (*Ammospermophilus nelsoni*) | CT | Found in the western San Joaquin Valley on dry, sparsely vegetated, loamy soils. Relies heavily on existing small mammal burrows. | **Unlikely.** While suitable soil and minimum vegetation were present within some areas of the project site, the site and surrounding areas are primarily composed of disturbed habitats. Small mammal burrows were observed onsite, however California ground squirrels were observed throughout the site and appeared to be utilizing the observed burrows. The site is located several miles north of the current known range of this species. The last recorded observation from CNDDB was approximately 8.8 miles southeast of the project site in 1920. |
| Northern California legless lizard (*Anniella pulchra*) | CSSC | Found primarily underground, burrowing in loose, sandy soil. Forages in loose soil and leaf litter during the day. Occasionally observed on the surface at dusk and night. | **Absent.** Suitable soil and leaf litter required by this species were absent from the project site. |
| Northern harrier (*Circus hudsonius*) | CSSC | Nests and forges in various grasslands, including salt grass in desert sinks, riparian scrub, and wetland edges. Nests are constructed on the ground from | **Present.** While this species was observed flying eastern edge of the project site near Los Banos Creek, suitable nesting habitat was absent. Since this species is a ground nesting bird, eggs and offspring |

| Species | Status* | Habitat | Occurrence within the Site |
|---|---|---|---|
| | | sticks in wet areas, usually on the edge of marshes. | would potentially be preyed upon by transient coyotes or other nocturnal mammals. Frequent disturbance from heavy machinery would also decrease the possibility of this species nesting within the project site and surrounding area. |
| Northwestern pond turtle (*Actinemys marmorata*) | FPT, CSSC | An aquatic turtle of ponds, marshes, slow-moving rivers, streams, and irrigation ditches with riparian vegetation. Requires adequate basking sites and sandy banks or grassy open fields to deposit eggs. | **Unlikely.** There were ponded areas within the project site along Los Banos Creek with nearby grassy open fields at the time of the second field survey. However, the creek was entirely dry during the first survey. While there are several regional recorded observations of this species, these observations are concentrated around reservoirs and areas with wetlands and riparian habitat. While this species may pass through the project site, the habitat within the site is marginal compared to regionally available habitat. The nearest recorded observation was in Los Banos reservoir and detention dam and Los Banos recreation area approximately 3 miles southwest of the project site in 1985. |
| San Joaquin coachwhip (*Masticophis flagellum ruddocki*) | CSSC | Found in open dry habitats with little or no tree cover in valley grassland and saltbush scrub communities in the San Joaquin Valley. Relies on mammal burrows for refuge and oviposition sites. | **Unlikely.** Mammal burrows and grassland habitat were present within the project site and surrounding areas. However, all regional recorded observations of this species have occurred west of Interstate 5, primarily in the coast range foothills. CDFW's California Wildlife Habitat Relationships does not have this region of the valley floor mapped as predicted habitat for this species. The last recorded observation was in Los Banos detention dam, at the east end of Los Banos reservoir approximately 2.2 miles southwest of the project site. |
| San Joaquin kit fox (*Vulpes macrotis mutica*) | FE, CT | Opportunistically forages in a variety of habitats. Dens in burrows within alkali sink, valley grassland, and woodland habitats in valleys and adjacent foothills and in human-made structures in cities, rangeland, and agricultural areas. | **Possible.** The project site contained suitable dens along South Creek Road and throughout the southern non-native grassland habitat. The nearest recorded observation was near Salt Creek approximately 4.5 miles southwest of the project site in 2003. |

| Species | Status* | Habitat | Occurrence within the Site |
|---|---|---|---|
| Steelhead – Central Valley DPS (*Oncorhynchus mykiss irideus* pop.11) | FT | This winter-run fish begins migration to fresh water during peak flows during December through February. The spawning season is typically from February to April. After hatching, this species will move to deeper, mid-channel habitats in late summer and fall. In general, both juveniles and adults prefer complex habitat with boulders, submerged clay, undercut banks, and large woody debris. | **Absent.** The project site does not contain the appropriate aquatic habitat used for the migration of this species. |
| Swainson's hawk (*Buteo swainsoni*) | CT | Nests in large trees in open areas adjacent to grasslands, grain or alfalfa fields, or livestock pastures suitable for supporting rodent populations. | **Possible.** This species can potentially nest within the eucalyptus trees and use the non-native grassland for foraging habitat along the southern edge of the project site. The nearest recorded observation was approximately 1.6 miles south of the project site in 2005. |
| Tricolored blackbird (*Agelaius tricolor*) | CT, CSSC | Nests colonially near fresh water in dense cattails or tules, or in thickets of riparian shrubs. Forages in grassland and cropland. Large colonies are often found foraging in dairy farm feed fields. | **Unlikely.** Suitable habitat for this species was absent from the project site. The project site lacked dense vegetation for this species to take cover or nest. The last recorded observation from CNDDB was at the Los Banos recreation area approximately 1.6 miles southwest of the project site in 1992. |
| Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) | FT | Lives in mature elderberry shrubs in the Central Valley and adjacent foothills from Tehama County south through Merced and Mariposa Counties with two scattered populations in Madera and Fresno Counties. Adults are active from March to June. | **Absent.** The project site lacked required elderberry shrubs for this species to live on. |
| Vernal pool fairy shrimp (*Branchinecta lynchi*) | FT | Occupies vernal and seasonal pools, with clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools. | **Absent.** Suitable vernal pool habitats required by this species were absent from the project site and surrounding areas. |
| Vernal pool tadpole shrimp (*Lepidurus packardi*) | FE | Occurs in vernal pools, clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools. | **Absent.** Suitable vernal pool habitats required by this species were absent from the project site and surrounding areas. |
| Western mastiff bat (*Eumops perotis californicus*) | CSSC | Found in open, arid to semi-arid habitats, including dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas, where it feeds | **Unlikely.** The project site lacked high buildings, cliff crevices and tunnels for this species to roost but this species could use the project site to forage. The nearest recorded observation was approximately 7 |

| Species | Status* | Habitat | Occurrence within the Site |
|---|---|---|---|
| | | on insects in flight. Roosts most commonly in crevices in cliff faces but may also use high buildings and tunnels. | miles southwest of the project site in 1994. |
| Western spadefoot (*Spea hammondii*) | FPT, CSSC | The majority of the time this species is terrestrial and occurs in small mammal burrows and soil cracks, sometimes in the bottom of dried pools. Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Vernal or seasonal pools, that hold water for a minimum of three weeks, are necessary for breeding. | **Unlikely.** The project site contained aquatic pools along Los Banos Creek, but the vegetation cover was minimum. The area is frequently disturbed by aggregate mining activities. Predators such as American bullfrogs could predate on this species. The nearest recorded observation was approximately 7.8 miles east of the project site in 1992. |
| Yellow rail (*Coturnicops noveboracensis*) | CSSC | Found in marshes, and large meadows or shallow marshes dominated by sedges and grasses. Typically in fresh or brackish marsh with water no more than a foot deep. | **Unlikely.** The project site lacked suitable habitat for this species. The project is regularly disturbed by mining activities. The nearest recorded observation was approximately 3.5 miles northeast of the project site in 1911. |

***EXPLANATION OF OCCURRENCE DESIGNATIONS AND STATUS CODES**

| | |
|---|---|
| Present: | Species observed on the project site at time of field surveys or during recent past. |
| Likely: | Species not observed on the project site, but it may reasonably be expected to occur there on a regular basis. |
| Possible: | Species not observed on the project site, but it could occur there from time to time. |
| Unlikely: | Species not observed on the project site, and would not be expected to occur there except, perhaps, as a transient. |
| Absent: | Species not observed on the project site and precluded from occurring there due to absence of suitable habitat. |

**STATUS CODES**

| | | | |
|---|---|---|---|
| FE | Federally Endangered | CE | California Endangered |
| FT | Federally Threatened | CCE | California Endangered (Candidate) |
| FPE | Federally Endangered (Proposed) | CT | California Threatened |
| FPT | Federally Threatened (Proposed) | CCT | California Threatened (Candidate) |
| FC | Federal Candidate | CFP | California Fully Protected |
| | | CSSC | California Species of Special Concern |

**CNPS LISTING**

| | | | |
|---|---|---|---|
| 1A | Plants presumed extinct in California. | 2A | Plants presumed extirpated in California, but more common elsewhere. |
| 1B | Plants rare, threatened, or endangered in California and elsewhere. | 2B | Plants rare, threatened, or endangered in California, but more common elsewhere. |

# 3 IMPACTS AND MITIGATION

## 3.1 SIGNIFICANCE CRITERIA

### 3.1.1 CEQA

General plans, area plans, and specific projects are subject to the provisions of CEQA. The purpose of CEQA is to assess the impacts of proposed projects on the environment prior to project implementation. Impacts to biological resources are just one type of environmental impact assessed under CEQA and vary from project to project in terms of scope and magnitude. Projects requiring removal of vegetation may result in the mortality or displacement of animals associated with this vegetation. Animals adapted to humans, roads, buildings, and pets may replace those species formerly occurring on a site. Plants and animals that are rare may be destroyed or displaced. Sensitive habitats such as wetlands and riparian woodlands may be altered or destroyed. Such impacts may be considered either "significant" or "less than significant" under CEQA. According to *CEQA Statute and Guidelines* (AEP 2023), "significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest. Specific project impacts to biological resources may be considered "significant" if they would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (CWA) (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state HCP.

Furthermore, CEQA Guidelines Section 15065(a) states that a project may trigger the requirement to make a "mandatory finding of significance" if the project has the potential to:

> "Substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory."

### 3.1.2 NEPA

Federal projects are subject to the provisions of NEPA. The purpose of NEPA is to assess the effects of a proposed action on the human environment, assess the significance of those effects, and recommend measures that if implemented would mitigate those effects. As used in NEPA, a determination that certain

effects on the human environment are "significant" requires considerations of both context and intensity (40 Code of Federal Regulations (CFR) 1508.27).

For the purposes of assessing effects of an action on biological resources, the relevant context is often local. The analysis may, however, require a comparison of the action area's biological resources with the biological resources of an entire region. Project activities must have a federal nexus and discuss federally listed species, and/or designated critical habitat that may be affected in the action area.

Federal agencies are required to determine whether their actions may affect listed or proposed species and designated critical habitat. The primary role of this document is to provide agencies conclusion and the rationale to support those conclusions regarding the effects of any proposed actions of the project on protected resources. Document content and recommended elements are identified in 50 CFR 402.12(f).

Under section 7 of the Endangered Species Act, federal agencies must consult with NOAA Fisheries or the USFWS, depending on the species, through an informal or formal consultation when any action the agency carries out, funds, or authorizes may affect either a species listed as threatened or endangered under the Act, or any critical habitat designated for it.

Once resources are assessed an Endangered Species Act Section 7 finding needs to be made regarding proposed or listed species and/or designated critical habitat that may be present in the project site. This report will provide the necessary information for the lead federal agency to make a determination on affects. This finding may result in one of the following determinations:

- *"*No effect*"* - means there will be no impacts, positive or negative, to listed or proposed resources. Generally, this means no listed resources will be exposed to action and its environmental consequences. Concurrence from the Service is not required.

- *"*May affect, but not likely to adversely affect" means that all effects are beneficial, insignificant, or discountable. Beneficial effects have contemporaneous positive effects without any adverse effects to the species or habitat. Insignificant effects relate to the size of the impact and include those effects that are undetectable, not measurable, or cannot be evaluated. Discountable effects are those extremely unlikely to occur. These determinations require written concurrence from the Service.

- *"*May affect, likely to adversely affect" means that listed resources are likely to be exposed to the action or its environmental consequences and will respond in a negative manner to the exposure.

## 3.2 RELEVANT GOALS, POLICIES, AND LAWS

### 3.2.1 MERCED COUNTY ORDINANCE

The Merced County General Plan contains the following goals and policies related to the project:

#### 3.2.1.1.1 BIOLOGICAL RESOURCES

**Policy NR-1.1:** The County shall identify areas that have significant long-term habitat and wetland values including riparian corridors, wetlands, grasslands, rivers and waterways, oak woodlands, vernal pools, and wildlife movement and migration corridors, and provide information to landowners.

**Policy NR-1.2:** The County shall identify and support methods to increase the acreage of protected natural lands and special habitats, including but not limited to, wetlands, grasslands, vernal pools, and wildlife movement and migration corridors, potentially through the use of conservation easements.

**Policy NR-1.10:** The County shall cooperate with local, State, and Federal water agencies in their efforts to protect significant aquatic and waterfowl habitats against excessive water withdrawals or other activities that would endanger or interrupt normal migratory patterns or aquatic habitats.

**Policy NR-1.11:** The County shall cooperate with local, State, and Federal agencies to ensure that adequate on-going protection and monitoring occurs adjacent to rare and endangered species habitats or within identified significant wetlands.

**Policy NR-1.21:** The County shall incorporate the survey standards and mitigation requirements of state and federal resource management agencies for use in the County's review processes for both private and public projects

#### 3.2.1.1.2 AGRICULTURE

**Policy AG-2.4:** The County shall encourage property owner participation in programs that preserve farmland, including the Williamson Act, conservation easements, and USDA-funded conservation practices.

#### 3.2.1.1.3 WATER QUALITY

**Policy W-2.1:** The County shall ensure that land uses and development on or near water resources will not impair the quality or productive capacity of these water resources.

**Policy W-2.2:** The County shall prepare updated development regulations, such as best management practices, that prevent adverse effects on water resources from construction and development activities.

**Policy W-2.3:** The County shall encourage the use of natural channels for drainage and flood control to benefit water quality and other natural resource values.

### 3.2.2 THREATENED AND ENDANGERED SPECIES

Permits may be required from CDFW and/or USFWS if activities associated with a project have the potential to result in the "take" of a species listed as threatened or endangered under the California Endangered Species Act (CESA) and/or Endangered Species Act (ESA), respectively. Take is defined by CESA as, "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill" (California Fish and Game Code, Section 86). Take is more broadly defined by the ESA to include "harm" (16 USC, Section 1532(19), 50 CFR, Section 17.3). CDFW and USFWS are responsible agencies under CEQA and NEPA. Both agencies review CEQA and NEPA documents in order to determine the adequacy of the treatment of endangered species issues and to make project-specific recommendations for their conservation.

### 3.2.3 DESIGNATED CRITICAL HABITAT

When species are listed as threatened or endangered, the USFWS often designates areas of "critical habitat" as defined by section 3(5)(A) of the ESA. Critical habitat is a term defined in the ESA as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat is a tool that supports the continued conservation of imperiled species by guiding cooperation with the federal government. Designations only affect federal agency actions or federally funded or permitted activities. Critical habitat does not prevent activities that occur within the designated area. Only activities that involve a federal permit, license, or funding and are likely to destroy or adversely modify critical habitat will be affected.

### 3.2.4 MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA: 16 USC 703-712) prohibits killing, possessing, or trading in any bird species covered in one of four international conventions to which the United States is a party, except in accordance with regulations prescribed by the Secretary of the Interior. The name of the act is misleading, as it covers almost all bird's native to the United States, even those that are non-migratory. The MBTA encompasses whole birds, parts of birds, and bird nests and eggs. Additionally, California Fish and Game

Code makes it unlawful to take or possess any non-game birds covered by the MBTA (Section 3513), as well as any other native non-game birds (Section 3800).

### 3.2.5 BIRDS OF PREY

Birds of prey are protected in California under provisions of California Fish and Game Code (Section 3503.5), which states that it is unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks and eagles) or Strigiformes (owls), as well as their nests and eggs. The bald eagle and golden eagle are afforded additional protection under the Bald and Golden Eagle Protection Act (16 USC 668), which makes it unlawful to kill birds or their eggs, or take feathers or nests, without a permit issued by the U.S. Secretary of the Interior.

### 3.2.6 NESTING BIRDS

In California, protection is afforded for the nests and eggs of all birds. California Fish and Game Code (Section 3503) states that it is "unlawful to take, possess, or needlessly destroy the nest or eggs of any bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Breeding-season disturbance that causes nest abandonment and/or loss of reproductive effort is considered a form of "take" by the CDFW.

### 3.2.7 WETLANDS AND OTHER "JURISDICTIONAL WATERS"

Aquatic resources, including wetlands, streams, rivers, and lakes, are among the important biological resources that are protected by local, state, and federal laws and regulations. Activities that impact these "jurisdictional waters" may be regulated and require permits which aim to avoid or minimize adverse impacts to "jurisdictional waters" to the greatest extent possible. The definition of a jurisdictional water may vary depending on the regulatory agency, and the limits of jurisdiction for each agency are described below.

The USACE, pursuant to Section 404 of the Clean Water Act (CWA), upholds a set of guidelines to regulate activities that could result in the discharge of pollutants into "waters of the United States" ("WOTUS"). The legal definition of WOTUS has significantly evolved since the passage of the CWA in 1972 as a result of administrative rulings and litigation involving federal jurisdiction over water resources. Thus, the reach and extent of USACE and United States Environmental Protection Agency (EPA) jurisdiction over aquatic features has continually been subject to revision.

The current administrative definition of WOTUS is described in the Biden Administration's 2023 "Conforming Rule." The extent of jurisdiction has been defined in the Code of Federal Regulations (CFR) but is also subject to interpretation by the federal courts. Jurisdictional waters generally include the following categories defined by section 328.3, subdivision (a) of title 33 of the CFR:

1) *Traditional Navigable Waters, the territorial seas, or interstate waters (not including interstate wetlands);*
2) *Impoundments of waters of the United States;*
3) *Tributaries of:*
    a. *Traditional Navigable Waters, territorial seas, or interstate waters (not including interstate wetlands); or*
    b. *Impoundments of water of the United States when the tributaries meet the relatively permanent standard.*
4) *Wetlands:*
    a. *Adjacent to Traditional Navigable Waters, the territorial seas, or interstate waters;*
    b. *Adjacent to and with a continuous surface connection to relatively permanent impoundments of waters of the United States*

*c. Adjacent to and with a continuous surface connection to relatively permanent jurisdictional tributaries.*

5) *Intrastate lakes and ponds not identified in items 1 through 4 of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in items 1 or 3 above.*

Exclusions under the new definition include the following:

1) *Waste treatment systems, including treatment ponds or lagoons, designed to meet the requirements of the CWA;*
2) *Prior converted cropland designated by the Secretary of Agriculture. The exclusion would cease upon a change of use, which means that the area is no longer available for the production of agricultural commodities. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with USEPA;*
3) *Ditches (including roadside ditches) excavated wholly in and draining only dry land and that do not carry a relatively permanent flow of water;*
4) *Artificially irrigated areas that would revert to dry land if the irrigation ceased;*
5) *Artificial lakes or ponds created by excavating or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing;*
6) *Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating or diking dry land to retain water for primarily aesthetic reasons;*
7) *Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States; and*
8) *Swales and erosional features (e.g., gullies, small washes) characterized by low volume, infrequent, or short duration flow.*

The Department of the Army, acting through the USACE, regulates the filling or excavation of jurisdictional waters and is authorized to issue permits for activities within WOTUS under the authority of Section 404 of the CWA. The extent of jurisdiction is defined by an “ordinary high-water mark” on opposing channel banks.

The State of California also asserts jurisdiction over drainages, wetlands, and other aquatic features. The limits of State jurisdiction differ from those of the EPA and USACE, often being more inclusive of water resources. CDFW has jurisdiction over the bed and bank of rivers, natural drainages, streams, and lakes and regulates alteration to these features pursuant to the provisions of Section 1601 and 1602 of the California Fish and Game Code. Activities to alter these features would require a Lake or Streambed Alteration Agreement from CDFW, which could include mitigation measures for aquatic and biological resources that could be affected by project activities.

The SWRCB, under the Porter-Cologne Water Quality Control Act of 1969, holds regulatory authority over activities affecting water quality of all surface water and groundwater in California, collectively known as “waters of the state.” Discharges into waters of the state that are also WOTUS require a CWA Section 401 Water Quality Certification from the appropriate regional office as a prerequisite to obtaining certain federal permits, such as a CWA Section 404 permit. Discharges into all Waters of the State, even those that are not also WOTUS, require waste discharge requirements (WDRs), or waivers of WDRs, from the RWQCB. The RWQCB also administers the Construction Storm Water Program and the federal National Pollutant Discharge Elimination System (NPDES) program. Projects that disturb one acre or more of soil must obtain a Construction General Permit under the Construction Storm Water Program. A prerequisite for this permit

is the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Projects that discharge wastewater, storm water, or other pollutants into a WOTUS may require an NPDES permit.

## 3.3 POTENTIALLY SIGNIFICANT PROJECT-RELATED IMPACTS AND MITIGATION

Species protected by California Fish and Game Code, CDFW, USFWS, CEQA, or NEPA that have the potential to be impacted by project activities include Swainson's hawk, burrowing owl, loggerhead shrike, SJKF, and northern harrier. Other sensitive resources that have the potential to be impacted by the project include jurisdictional waters, wildlife movement corridors, and native wildlife nursery sites. Corresponding mitigation measures can be found below.

### 3.3.1 GENERAL PROJECT-RELATED IMPACTS

The project has the potential to impact a number of sensitive resources, as described in more detail in the following sections. Impacts to these resources would be a violation of state and federal laws or considered a potentially significant impact under CEQA and NEPA. Implementation of the following measures will help reduce potential impacts to these resources to a less than significant level under CEQA and NEPA and will help with complying with state and federal laws protecting these resources:

> Mitigation Measure BIO-1a (*WEAP Training*): Prior to initiating construction activities (including staging and mobilization), all personnel associated with project construction will attend a mandatory Worker Environmental Awareness Program (WEAP) training, conducted by a qualified biologist (someone familiar with the identification and habitats of these species), to aid workers in identifying special status resources that may occur in the project site. The specifics of this program will include identification of the sensitive species and suitable habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction and mitigation measures required to reduce impacts to biological resources within the work area. This training will discuss special status species, describe the laws and regulations in place to provide protection of these species, identify the penalties for violation of applicable environmental laws and regulations, and include a list of required protective measures to avoid "take." A fact sheet summarizing this information, along with photographs or illustrations of sensitive species with potential to occur on the project site, will also be prepared for distribution to all contractors, their employees, and all other personnel involved with construction of the project. All trainees will sign a form documenting that they have attended WEAP training and understand the information presented to them.
>
> Mitigation Measure BIO-1b (*BMPs*): The project proponent will require that all workers employ the following best management practices (BMPs) in order to avoid and minimize potential impacts to special status species:
>
> - Vehicles will observe a 15-mph speed limit while on unpaved access routes.
> - All open trenches, holes, sumps, and other excavations greater than 12-inches with sidewalls steeper than a 1:1 (45 degree) slope will have an escape ramp of earth or a non-slip material with a less than 1:1 slope or these will be covered with barrier material such that animals are unable to dig or squeeze under the barrier and become entrapped.
> - Workers will inspect areas beneath parked vehicles, equipment, and materials prior to mobilization. If special status species are detected, the individual will either be allowed to leave of its own volition or will be captured by the qualified biologist (must possess appropriate

collecting/handling permits) and relocated out of harm's way to the nearest suitable habitat beyond the influence of the project work area. "Take" of a state or federal special status (rare, California Species of Special Concern, threatened, or endangered) species is prohibited without the necessary federal or state take permit(s).

- The presence of any special status species will be reported to the project's qualified biologist, who will submit the occurrence to the CNDDB. If necessary, the biologist will report the occurrence to CDFW and/or USFWS.

### 3.3.2 PROJECT-RELATED MORTALITY AND/OR NEST ABANDONMENT OF MIGRATORY BIRDS, RAPTORS, AND SPECIAL STATUS BIRDS

The site and adjacent areas contain suitable foraging habitat for a variety of protected bird species, such as migratory birds, raptors, and special status birds including northern harrier, Swainson's hawk, and loggerhead shrike. It is anticipated that during the nesting bird season, protected birds could nest on the ground or in shrubs and trees within, and adjacent to, the site and forage within the site. Protected birds located within or adjacent to the site during construction have the potential to be injured or killed by project-related activities. In addition to the direct "take" of protected birds within the site and adjacent areas, these birds nesting in these areas could be disturbed by project-related activities resulting in nest abandonment. Projects that adversely affect the nesting success of protected birds or result in the mortality of these birds would be a violation of state and federal laws and considered a potentially significant impact under CEQA and NEPA.

While foraging habitat for protected birds, such as northern harriers, Swainson's hawks, and loggerhead shrikes, is present on the site, suitable foraging habitat is located adjacent to the site and within the vicinity of the site. Loss of the foraging habitat from implementation of the project is not considered a significant impact.

Implementation of the following measures will reduce potential impacts to protected nesting birds to a less than significant level under CEQA and NEPA and will help the project comply with state and federal laws protecting these bird species.

Mitigation Measure BIO-2a (*Avoidance*): The project's construction activities will occur, if feasible, between September 16 and January 31 (outside of the nesting bird season) to avoid impacts to nesting birds.

Mitigation Measure BIO-2b (*Pre-construction Surveys*): If activities must occur within nesting bird season (February 1 to September 15), a qualified biologist will conduct a one time take avoidance pre-construction survey for Swainson's hawk nests onsite and within a 0.5-mile radius within ten calendar days prior to the start of construction. This survey will be conducted in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000), or current guidance. The survey would also include inspecting for nesting migratory birds within up to 100 feet outside of the project site and for other nesting raptors within up to 500 feet outside of the project site. All raptor nests would be considered "active" upon the nest-building stage. If no active nests are observed, no further mitigation is required.

Mitigation Measure BIO-2c (*Avoidance Buffers*): On discovery of any active nests or breeding colonies near work areas, a qualified biologist will determine appropriate avoidance buffer distances based on applicable CDFW and/or USFWS guidelines, the biology of the species,

conditions of the nest(s), and the level of project disturbance. If necessary, avoidance buffers will be identified with flagging, fencing, or other easily visible means, and will be maintained until the biologist has determined that the nestlings have fledged.

### 3.3.3 PROJECT-RELATED MORTALITY AND/OR DISTURBANCE OF BURROWING OWL

The Project area contains suitable nesting and foraging habitat for burrowing owl (BUOW). Construction activities that adversely impact the nesting success of burrowing owls or result in the mortality of individuals constitute a violation of state and federal laws and would be considered a significant impact under CEQA and NEPA. While the Project area may temporarily remove some potential foraging habitat for BUOW, there is abundant foraging habitat adjacent to the site that could be used and after the project is completed, they may continue to forage over the project site. Therefore, implementation of the Project would not significantly reduce potential foraging habitat for this species and no mitigation measures are warranted for loss of BUOW foraging habitat.

Implementation of the following measures would reduce potential impacts to nesting or roosting BUOW to a less than significant level under CEQA and NEPA.

Mitigation Measure BIO-3a (*Pre-construction Take Avoidance Survey*): A qualified biologist will conduct a pre-construction take avoidance survey for BUOW and suitable burrows, in accordance with CDFW's *Staff Report on Burrowing Owl Mitigation* (2012) within seven (7) days prior to the start of construction activities in each section of the Project area. The survey will include the proposed work area and surrounding lands up to 500 feet, where accessible. If no BUOW individuals or active burrows are observed, no further mitigation is required.

Mitigation Measure BIO-3b (*Avoidance Buffers*): If an active BUOW burrow is detected avoidance buffers will be implemented. A qualified biologist will determine appropriate avoidance buffer distances based on CDFW's 2012 *Staff Report on Burrowing Owl Mitigation*, the biology of BUOW, conditions of the burrow(s), and the level of project disturbance which can be found in the table below. If necessary, avoidance buffers will be identified with flagging, fencing, visual screens, or other easily visible means, and will be maintained until the biologist has determined that the nestlings have fledged and all BUOW have left the Project area.

| | | Level of Disturbance | | |
|---|---|---|---|---|
| Location | Time of Year | Low | Med | High |
| Nesting sites | April 1-Aug 15 | 200 meters | 500 meters | 500 meters |
| Nesting sites | Aug 16-Oct 15 | 200 meters | 200 meters | 500 meters |
| Nesting sites | Oct 16-Mar 31 | 50 meters | 100 meters | 500 meters |

Recommendation BIO-3c (*ITP* and *Passive Relocation*): If an active BUOW burrow is detected within the proposed work area and cannot be avoided, it is recommended the project obtain an Incidental Take Permit (ITP) in order to implement protection plans and/or relocation plans in consultation with CDFW and/or USFWS and protect the project from "take" of this species.

### 3.3.4 PROJECT-RELATED MORTALITY AND/OR DISTURBANCE TO SAN JOAQUIN KIT FOX

The project site contained suitable denning and foraging habitat for SJKF. SJKF denning within the project site during construction have the potential to be injured or killed by project-related activities. Projects that result in the mortality of individuals would be a violation of state and federal laws and considered a potentially significant impact under CEQA and NEPA. While the project site may remove some potential

foraging habitat for SJKF, there is abundant foraging habitat adjacent to the project site that could be used, and implementation of the project would not significantly reduce potential foraging habitat for this species. Therefore, no mitigation measures are warranted for loss of SJKF foraging habitat.

Implementation of the following measures will reduce potential impacts to SJKF to a less than significant level under CEQA and NEPA and help the project comply with state and federal laws protecting this species.

> Mitigation Measure BIO-4a (*Pre-Construction Survey*): Within seven (7) days prior to the start of construction a qualified biologist (someone familiar with the identification and sign of this species) will conduct a pre-construction survey for SJKF potential dens. The survey will be conducted on and within 200 feet of proposed work areas. If potential SJKF dens are detected during the pre-construction survey, each potential den will be monitored with a remote camera for a period of three consecutive nights. If there is no activity recorded at the den location, the den can be deemed "inactive" or "unoccupied" and closed or excavated the same day as determining the den inactive.
>
> Mitigation Measure BIO-4b (*Establish Buffers*): On discovery of any active SJKF dens near the project site a qualified biologist will determine appropriate construction setback distances (buffer zones) based on applicable CDFW and/or USFWS guidelines (see below). If needed, construction buffers will be identified with flagging, fencing, or other easily visible means. They will be maintained until the biologist has determined that the den will no longer be impacted by construction.
>
> 1. At least 100 feet around den(s);
> 2. At least 200 feet around natal dens (which SJKF young are reared); and
> 3. At least 500 feet around any natal dens with pups (except for any portions of the buffer zone that is already fully developed).
>
> Mitigation Measure BIO-4c (*Avoidance and Minimization*): The project will observe all avoidance and minimization measures during construction and on-going operational activities as required by the qualified biologist and the USFWS's *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance* (2011), including, but not limited to: maintaining buffer zones, construction speed limits, covering of pipes, installation of escape structures, restriction of herbicide and rodenticide use, proper disposal of food items and trash, prohibition of pets and firearms, and completion of an employee education program (see BIO-1a).

### 3.3.5 PROJECT-RELATED IMPACTS TO REGULATED WATERS, WETLANDS, AND WATER QUALITY

The project involves the construction one flow control weir in Los Banos Creek and two 30 to 50 cfs water transfer facilities: one between the Central Basin and the DMC, another between the Southern Basin and the DMC. The USFWS NWI Map was consulted for known wetlands in the area and riverine was classified to be within the boundaries of DMC and Los Banos Creek. Freshwater emergent wetlands were mapped adjacent to Los Banos Creek near the western edge of the project area and freshwater ponds south of DMC. Project-related impacts to some or all of these waters would be considered a potentially significant impact under CEQA and NEPA. Impacts to waters of the U.S. are also subject to the permit requirements of Sections 401 and 404 of the Clean Water Act and impacts to waters of the state are subject to the permit requirements of Section 401 of the Clean Water Act and California Fish and Game Code. The placement of fill within any wetlands or other jurisdictional features will require a 401 Water Quality Certification from the RWQCB, 404 permit from the USACE, and a Lake or Streambed Alteration Agreement from CDFW.

There are no designated wild and scenic rivers within the project site; therefore, the project would not result in direct impacts to wild and scenic rivers.

If construction involves ground disturbance over an area greater than one acre, the project would need to obtain a Construction General Permit under the Construction Storm Water Program administered by the RWQCB. A prerequisite for this permit is the development of a Storm Water Pollution Prevention Plan to ensure construction activities do not adversely affect water quality. This plan will need to be prepared in support of the Construction General Permit application.

Implementation of the following measures will reduce potential impacts to waters to a less than significant level under CEQA and NEPA and will ensure compliance with state and federal laws protecting these waters.

> Mitigation Measure BIO-5a (*Permits*): If the project intends to impact jurisdictional waters, permits with USACE, RWQCB, and/or CDFW will be obtained to comply with state and federal regulations, if necessary. These permits, certifications, and agreements would ensure impacts to waters are minimized to the extent possible and permanent impacts would be offset by compensatory mitigation.

### 3.3.6 PROJECT-RELATED IMPACTS TO WILDLIFE MOVEMENT CORRIDORS AND NATIVE WILDLIFE NURSERY SITES

The riverine and canal habitat of the project site and surrounding areas could be used as a wildlife movement corridor, but impacts would be temporary and minimal, and wildlife may be able to continue using these features at night while construction is occurring and would be able to continue utilizing them after construction activities are completed.

The project site has suitable features that could be used as native wildlife nursery sites. The unoccupied swallow nests underneath the bridge along DMC could function as native wildlife nursery sites for birds. Project-related impacts to any native wildlife nursery sites would be considered a significant impact under CEQA.

The potential impacts to species that could use the unoccupied swallow nests along DMC as a wildlife nursery site have been addressed in Mitigation Measures BIO-2a, BIO-2b, and BIO-2c. Implementation of these will reduce potential impacts to native wildlife nursery sites to a less than significant level under CEQA. Implementation of the following mitigation measures would reduce potential impacts to wildlife movement corridors to less than significant.

> Mitigation Measure BIO-6a (*Operational Hours*): When possible, construction activities within the Los Banos Creek riverine habitat and the DMC canal habitat should be limited to a half hour after sunrise through a half hour before sunset to reduce potential impacts to wildlife movement corridors.

> Mitigation Measure BIO-6b (*Wildlife Access*): Access within these areas should not be blocked outside of construction hours or during overnight hours or weekends. If construction must block both sides of a wildlife access route, an alternative route through the construction area should be identified by a qualified biologist and maintained throughout the construction schedule timeframe.

## 3.4 SECTION 7 DETERMINATIONS

In addition to the occurrence analysis performed in Table 2 and Table 3 of this document, Table 4 summarizes project effect determinations for federally-listed species found on the CNDDB list generated on March 6, 2025, and the USFWS IPaC list generated on March 6, 2025 (see Appendix B and Appendix C, respectively), in accordance with Section 7 of the Endangered Species Act.

Table 4: Section 7 Determinations

| Species | Determination | Rationale for Determination |
|---|---|---|
| Blunt-nosed leopard lizard (*Gambelia sila*) | No effect | **Habitat absent.** Grassland and burrows are present in project site; however, disturbance from surrounding mining operations and development decreases the habitat suitability for this species. The nearest recorded observation was approximately 4.8 miles east of the project site in the 1970's. |
| California condor *(Gymnogyps californianus)* | No effect | **Habitat absent.** Habitats required by this species for nesting and foraging are absent from the site. |
| California red-legged frog *(Rana draytonii)* | No effect | **Habitat absent.** Project site contains aquatic habitat along Los Banos Creek. Disturbance from surrounding mining operations and development further decreases the habitat suitability of this species. Habitat connectivity is missing from nearby known populations. |
| California tiger salamander *(Ambystoma californiense)* | No effect | **Habitat absent**. Vernal pool habitat was absent from the project site and surrounding area. |
| Conservancy fairy shrimp *(Branchinecta conservatio)* | No effect | **Habitat absent.** Project site lacks playa pools to support this species. |
| Foothill yellow-legged frog – south Sierra DPS (*Rana boylii*) | No effect | **Habitat absent.** Los Banos Creek within the project site offers pooling waters and but lacks appropriate upland habitat. The surrounding areas are frequently disturbed by heavy machinery. |
| Fresno kangaroo rat (*Dipodomys nitratoides exilis*) | No effect | **Habitat absent.** Project site is outside of the known distribution range of this species. |
| Giant gartersnake *(Thamnophis gigas)* | No effect | **Habitat absent.** Nearby observations of this species have all occurred in areas with wetland habitats which are absent from the project site. While Los Banos Creek does contain small mammal burrows along the bank, open areas for basking, and some emergent aquatic vegetation that could be used as cover from predators within the project site, the nearby habitats are highly disturbed, and these species would not be expected to utilize the creek when higher quality habitat is regionally abundant. Additionally, the creek flows intermittently and ephemerally rather than |

| Species | Determination | Rationale for Determination |
|---|---|---|
| | | perennially, which are less than marginal conditions for this species. The nearest recorded observation of this species within the vicinity of the project site was near the Santa Fe Grade Road, between intersections with Britto Road and Pacheco Boulevard, approximately 7.6 miles northwest of the project site in 1976. |
| Giant kangaroo rat (*Dipodomys ingens*) | No effect | **Habitat absent.** Project site does not contain signs of this species. |
| Monarch butterfly (*Danaus plexippus*) | No effect | **Habitat absent.** Milkweeds absent from the project site and the area experience frequent disturbance from heavy machinery. |
| Northwestern pond turtle (*Actinemys marmorata*) | No effect | **Habitat present**. There were ponded areas within the project site along Los Banos Creek with nearby grassy open fields at the time of the second field survey. However, the creek was entirely dry during the first survey. While there are several regional recorded observations of this species, these observations are concentrated around reservoirs and areas with wetlands and riparian habitat. While this species may pass through the project site, the habitat within the site is marginal compared to regionally available habitat. The nearest recorded observation was in Los Banos reservoir and detention dam and Los Banos recreation area approximately 3 miles southwest of the project site in 1985. |
| San Joaquin kit fox (*Vulpes macrotis mutica*) | May affect, but not likely to adversely affect | **Habitat present.** Project site had disturbed grassland habitat and possible dens present. Implementation of mitigation measure **BIO-4a – 4c** would reduce effects to not likely to adversely affect. |
| Steelhead – Central Valley DPS (*Oncorhynchus mykiss irideus* pop.11) | No effect | **Habitat absent.** Cool temperature streams of suitable substrate size and sufficient canopy cover absent from the project site. |
| Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) | No effect | **Habitat absent.** Required elderberry trees were absent from the project site. |
| Vernal pool fairy shrimp (*Branchinecta lynchi*) | No effect | **Habitat absent**. Vernal pool habitat was absent from the project site and surrounding area |
| Vernal pool tadpole shrimp (*Lepidurus packardi*) | No effect | **Habitat absent.** Vernal pool habitat was absent from the project site and surrounding area |
| Western spadefoot (*Spea hammondii*) | No effect | **Habitat absent.** While temporary ponds were present with small burrows for cover, sandy soil and sufficient submerged vegetation were |

| Species | Determination | Rationale for Determination |
|---|---|---|
| | | absent from the project site. The surrounding habitats consisted of areas maintained for mining and agricultural purposes |

## 3.5 LESS THAN SIGNIFICANT PROJECT-RELATED IMPACTS

### 3.5.1 PROJECT-RELATED IMPACTS TO SPECIAL STATUS PLANT SPECIES ABSENT FROM, OR UNLIKELY TO OCCUR ON, THE PROJECT SITE

Of the 21 regionally occurring special status plant species, all are considered absent from or unlikely to occur within the project site due to past or ongoing disturbance and/or the absence of suitable habitat.

Since it is unlikely that these species would occur onsite, implementation of the project should have no impact on these 21 special status species through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted.

### 3.5.2 PROJECT-RELATED IMPACTS TO SPECIAL STATUS ANIMAL SPECIES ABSENT FROM, OR UNLIKELY TO OCCUR ON, THE PROJECT SITE

Of the 31 regionally occurring special status animal species, 26 are considered absent from or unlikely to occur within the project site due to past or ongoing disturbance and/or the absence of suitable habitat. These species include: American badger, bald eagle, blunt-nosed leopard lizard, California condor, California red-legged frog, California tiger salamander, conservancy fairy shrimp, foothill yellow-legged frog, Fresno kangaroo rat, giant gartersnake, giant kangaroo rat, golden eagle, longhorn fairy shrimp, monarch butterfly, Nelson's antelope squirrel, northern California legless lizard, San Joaquin coachwhip, steelhead, northwestern pond turtle, tricolored blackbird, valley elderberry longhorn beetle, vernal pool fairy shrimp, vernal pool tadpole shrimp, western mastiff bat, western spadefoot, and yellow rail.

Since it is unlikely that these species would occur onsite, implementation of the project should have no impact on these 26 special status species through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted.

### 3.5.3 PROJECT-RELATED IMPACTS TO RIPARIAN HABITAT AND NATURAL COMMUNITIES OF SPECIAL CONCERN

Riparian habitat is absent from the project area. There are no CNDDB-designated "natural communities of special concern"

### 3.5.4 PROJECT-RELATED IMPACTS TO CRITICAL HABITAT

Designated critical habitat is absent from the site and surrounding lands. Therefore, there would be no impact to critical habitat, and mitigation measures are not warranted.

### 3.5.5 LOCAL POLICIES OR HABITAT CONSERVATION PLANS

The project appears to be consistent with the goals and policies of the Merced County General Plan. There are no known HCPs or NCCPs in the project vicinity. Mitigation measures are not warranted.

### 3.5.6 COASTAL ZONE AND COASTAL BARRIERS RESOURCES ACT

The project would not be located within the coastal zone. The project would not impact or be located within or near the Coastal Barrier Resources System or its adjacent wetlands, marshes, estuaries, inlets, and near-shore waters. Mitigation measures are not warranted.

### 3.5.7 PROJECT-RELATED IMPACT TO ESSENTIAL FISH HABITAT

Essential Fish Habitat and Habitat Areas of Particular Concern are absent from the project site and surrounding lands, and consultation with the National Marine Fisheries Service (NMFS) would not be

required. Query results of the NMFS EHF Mapper can be found in Appendix E at the end of this document. Mitigation measures are not warranted.

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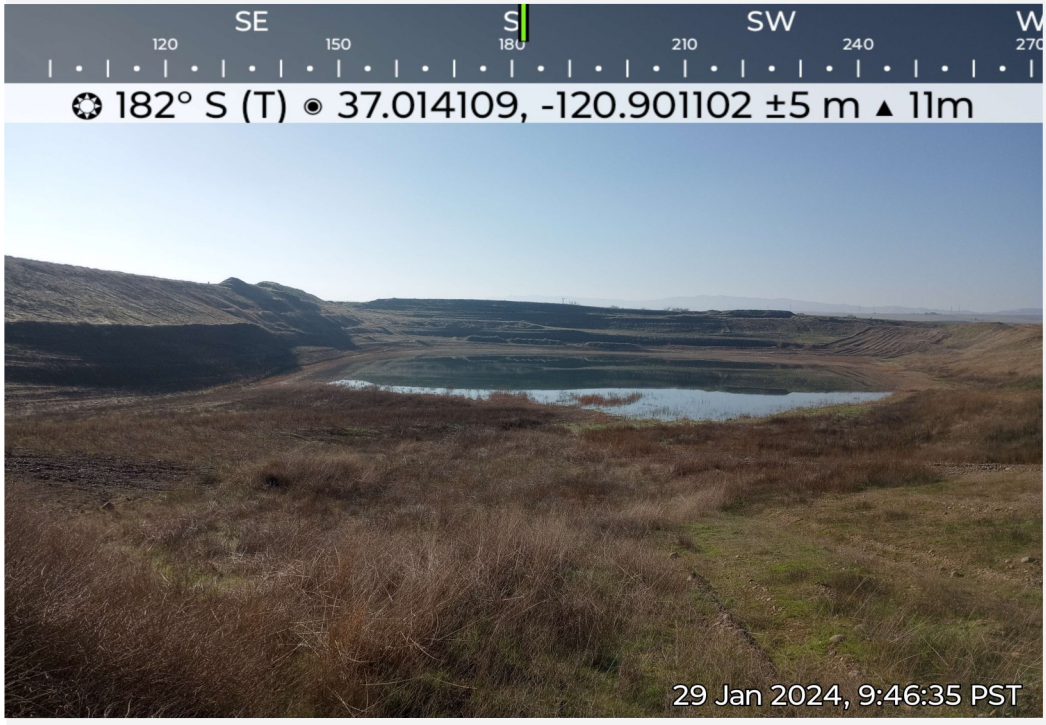
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# APPENDIX A: REPRESENTATIVE PHOTOS OF THE PROJECT SITE




**Photograph 1**

*Overview of the Los Banos Creek which passes through the edge habitat of the project site during the January 2024 survey.*



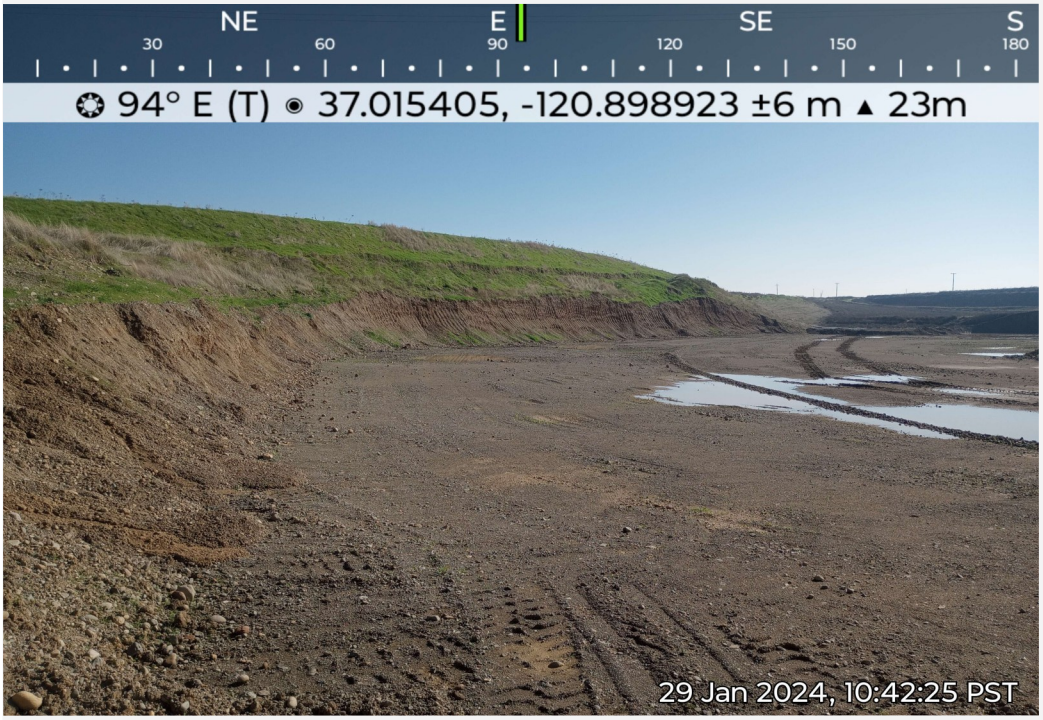

**Photograph 2**

*A wide overview of the south Basin ruderal and pond basin area during the January 2024 survey.*




**Photograph 3**

*Overview of the embankments of the ruderal habitat within the project site containing extremely gravely soil edges.*



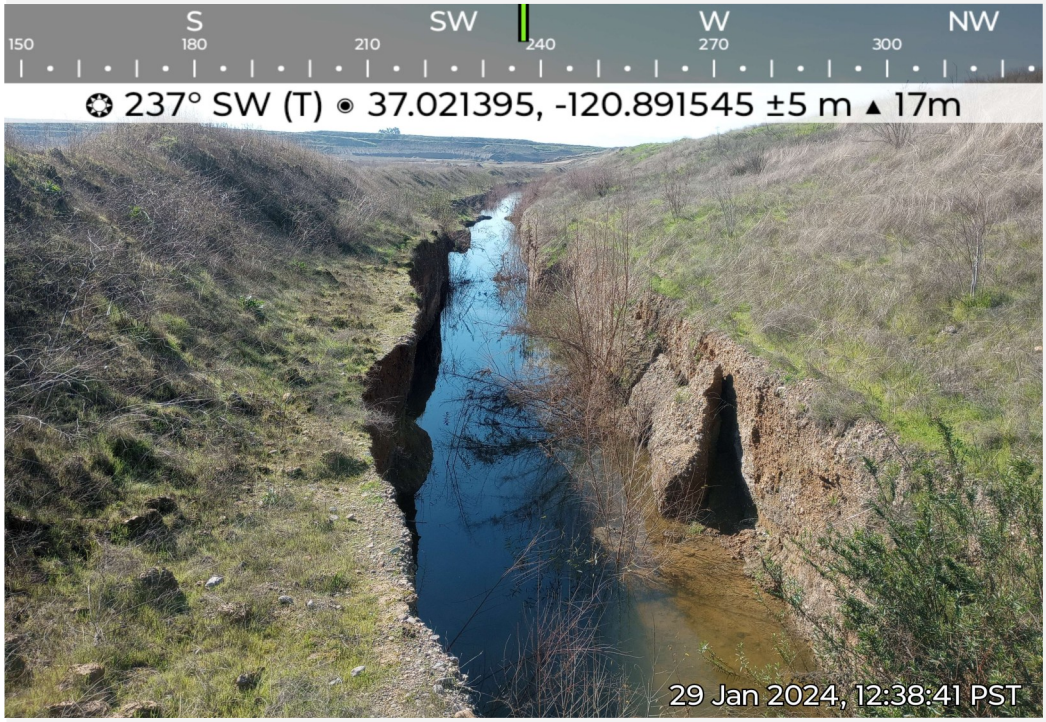

**Photograph 4**

*Overview of the disturbed ruderal habitat and embankments of the project site.*




**Photograph 5**

*Overview of the Delta Mendota Canal which passes through the middle of the Central and South Basins Project.*



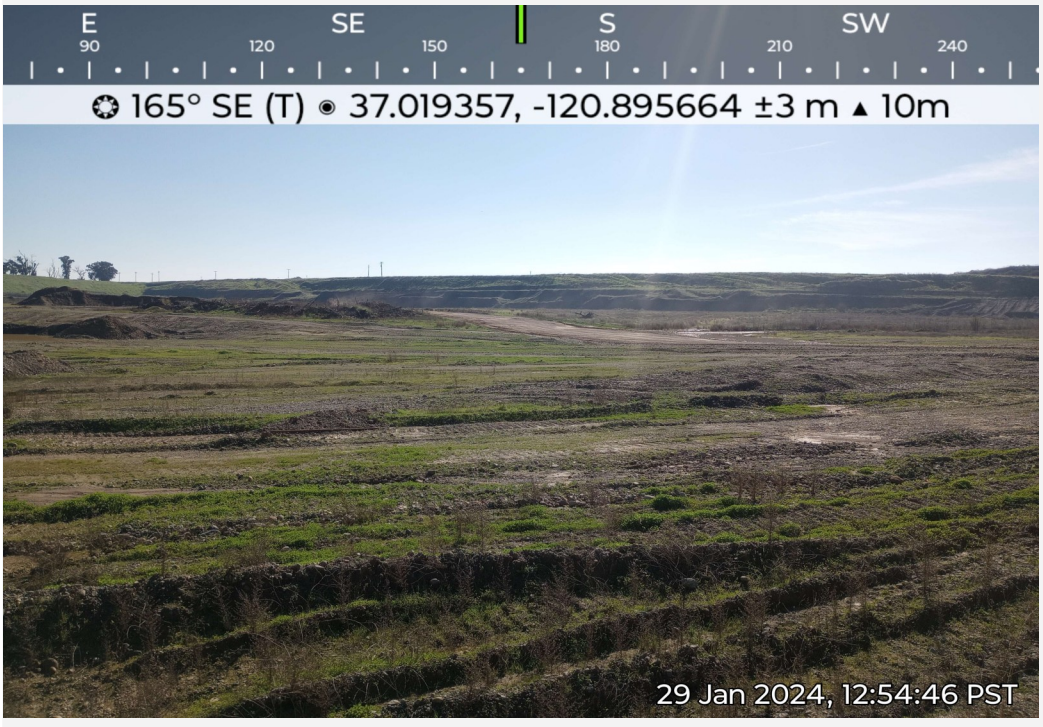

**Photograph 6**

*Overview of one of the open trenches within the Central Basin containing stagnant water during the January 2024 survey.*




**Photograph 7**

*Ongoing soil disturbance within the Central Basins area.*




**Photograph 8**

*Overview of one of the open ruderal habitat within the Central Basins project area.*




**Photograph 9**

*Los Banos Creek near the northeastern corner during the March 2025 survey.*




**Photograph 10**

*Downstream view of Los Banos Creek near planned boring activity during the March 2025 survey.*




**Photograph 11**

*Overgrown access road, non-native grassland/ past agricultural field, and culmination of dirt within the project site.*




**Photograph 12**

*Overview of one of the open ruderal habitat within the central project area.*




**Photograph 13**

*Eucalyptus trees along the southern edge of the project area. No raptor nests were observed during the March 2025 survey.*




**Photograph 14**

*Pools observed along Los Banos Creek near the north-west corner of the project area during the March 2025 survey.*




**Photograph 15**

*Bridge and Delta Mendota Canal in the southeastern area of the project site during the March 2025 survey.*




**Photograph 16**

*In the southeastern side of the project site overlooking the field of non-native grasses with signs of past agricultural use.*




**Photograph 17**

*Potential San Joaquin kit fox den with a noticeable run-way within the southern non -native grassland field.*




**Photograph 18**

*Another potential San Joaquin kit fox den with a noticeable runway within the southern non-native grassland field.*

# APPENDIX B: CNDDB 9-QUAD SPECIES LIST

# Selected Elements by Common Name

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Query Criteria:** Quad IS (Howard Ranch (3712121) OR Ingomar (3712028) OR San Luis Dam (3712111) OR San Luis Ranch (3712027) OR Los Banos (3712017) OR Los Banos Valley (3612181) OR Ortigalita Peak NW (3612088) OR Charleston School (3612087))

| Species | Element Code | Federal Status | State Status | Global Rank | State Rank | Rare Plant Rank/CDFW SSC or FP |
|---|---|---|---|---|---|---|
| **alkali milk-vetch**<br>*Astragalus tener var. tener* | PDFAB0F8R1 | None | None | G2T1 | S1 | 1B.2 |
| **Alkali Seep**<br>*Alkali Seep* | CTT45320CA | None | None | G3 | S2.1 | |
| **alkali-sink goldfields**<br>*Lasthenia chrysantha* | PDAST5L030 | None | None | G2 | S2 | 1B.1 |
| **American badger**<br>*Taxidea taxus* | AMAJF04010 | None | None | G5 | S3 | SSC |
| **American bumble bee**<br>*Bombus pensylvanicus* | IIHYM24260 | None | None | G3G4 | S2 | |
| **Arburua Ranch jewelflower**<br>*Streptanthus insignis ssp. lyonii* | PDBRA2G0Q1 | None | None | G3G4T2 | S2 | 1B.2 |
| **blunt-nosed leopard lizard**<br>*Gambelia sila* | ARACF07010 | Endangered | Endangered | G1 | S2 | FP |
| **burrowing owl**<br>*Athene cunicularia* | ABNSB10010 | None | Candidate Endangered | G4 | S2 | SSC |
| **cackling (=Aleutian Canada) goose**<br>*Branta hutchinsii leucopareia* | ABNJB05035 | Delisted | None | G5T3 | S3 | WL |
| **California alkali grass**<br>*Puccinellia simplex* | PMPOA53110 | None | None | G2 | S2 | 1B.2 |
| **California horned lark**<br>*Eremophila alpestris actia* | ABPAT02011 | None | None | G5T4Q | S4 | WL |
| **California linderiella**<br>*Linderiella occidentalis* | ICBRA06010 | None | None | G2G3 | S2S3 | |
| **California red-legged frog**<br>*Rana draytonii* | AAABH01022 | Threatened | None | G2G3 | S2S3 | SSC |
| **California tiger salamander - central California DPS**<br>*Ambystoma californiense pop. 1* | AAAAA01181 | Threatened | Threatened | G2G3T3 | S3 | WL |
| **chaparral ragwort**<br>*Senecio aphanactis* | PDAST8H060 | None | None | G3 | S2 | 1B.2 |
| **Cismontane Alkali Marsh**<br>*Cismontane Alkali Marsh* | CTT52310CA | None | None | G1 | S1.1 | |
| **Coastal and Valley Freshwater Marsh**<br>*Coastal and Valley Freshwater Marsh* | CTT52410CA | None | None | G3 | S2.1 | |
| **Conservancy fairy shrimp**<br>*Branchinecta conservatio* | ICBRA03010 | Endangered | None | G2 | S2 | |
| **Coulter's goldfields**<br>*Lasthenia glabrata ssp. coulteri* | PDAST5L0A1 | None | None | G4T2 | S2 | 1B.1 |

| Species | Element Code | Federal Status | State Status | Global Rank | State Rank | Rare Plant Rank/CDFW SSC or FP |
|---|---|---|---|---|---|---|
| **Delta button-celery**<br>*Eryngium racemosum* | PDAPI0Z0S0 | None | Endangered | G1 | S1 | 1B.1 |
| **ferruginous hawk**<br>*Buteo regalis* | ABNKC19120 | None | None | G4 | S3S4 | WL |
| **foothill yellow-legged frog - central coast DPS**<br>*Rana boylii pop. 4* | AAABH01054 | Threatened | Endangered | G3T2 | S2 | |
| **giant gartersnake**<br>*Thamnophis gigas* | ARADB36150 | Threatened | Threatened | G2 | S2 | |
| **giant kangaroo rat**<br>*Dipodomys ingens* | AMAFD03080 | Endangered | Endangered | G1G2 | S2 | |
| **golden eagle**<br>*Aquila chrysaetos* | ABNKC22010 | None | None | G5 | S3 | FP |
| **Great Valley Cottonwood Riparian Forest**<br>*Great Valley Cottonwood Riparian Forest* | CTT61410CA | None | None | G2 | S2.1 | |
| **Hall's bushmallow**<br>*Malacothamnus hallii* | PDMAL0Q0F0 | None | None | G2 | S2 | 1B.2 |
| **heartscale**<br>*Atriplex cordulata var. cordulata* | PDCHE040B0 | None | None | G3T2 | S2 | 1B.2 |
| **hispid salty bird's-beak**<br>*Chloropyron molle ssp. hispidum* | PDSCR0J0D1 | None | None | G2T1 | S1 | 1B.1 |
| **Lemmon's jewelflower**<br>*Caulanthus lemmonii* | PDBRA0M0E0 | None | None | G3 | S3 | 1B.2 |
| **lesser saltscale**<br>*Atriplex minuscula* | PDCHE042M0 | None | None | G2 | S2 | 1B.1 |
| **loggerhead shrike**<br>*Lanius ludovicianus* | ABPBR01030 | None | None | G4 | S4 | SSC |
| **longhorn fairy shrimp**<br>*Branchinecta longiantenna* | ICBRA03020 | Endangered | None | G2 | S2 | |
| **Lost Hills crownscale**<br>*Atriplex coronata var. vallicola* | PDCHE04371 | None | None | G4T3 | S3 | 1B.2 |
| **Nelson's (=San Joaquin) antelope squirrel**<br>*Ammospermophilus nelsoni* | AMAFB04040 | None | Threatened | G2G3 | S3 | |
| **Northern California legless lizard**<br>*Anniella pulchra* | ARACC01020 | None | None | G3 | S2S3 | SSC |
| **northern harrier**<br>*Circus hudsonius* | ABNKC11011 | None | None | G5 | S3 | SSC |
| **northern slender pondweed**<br>*Stuckenia filiformis ssp. alpina* | PMPOT03091 | None | None | G5T5 | S2S3 | 2B.2 |
| **northwestern pond turtle**<br>*Actinemys marmorata* | ARAAD02031 | Proposed Threatened | None | G2 | SNR | SSC |
| **prairie falcon**<br>*Falco mexicanus* | ABNKD06090 | None | None | G5 | S4 | WL |

| Species | Element Code | Federal Status | State Status | Global Rank | State Rank | Rare Plant Rank/CDFW SSC or FP |
|---|---|---|---|---|---|---|
| **prostrate vernal pool navarretia**<br>*Navarretia prostrata* | PDPLM0C0Q0 | None | None | G2 | S2 | 1B.2 |
| **recurved larkspur**<br>*Delphinium recurvatum* | PDRAN0B1J0 | None | None | G2? | S2 | 1B.2 |
| **San Joaquin coachwhip**<br>*Masticophis flagellum ruddocki* | ARADB21021 | None | None | G5T2T3 | S3 | SSC |
| **San Joaquin kit fox**<br>*Vulpes macrotis mutica* | AMAJA03041 | Endangered | Threatened | G4T2 | S3 | |
| **San Joaquin pocket mouse**<br>*Perognathus inornatus* | AMAFD01060 | None | None | G2G3 | S2S3 | |
| **Sanford's arrowhead**<br>*Sagittaria sanfordii* | PMALI040Q0 | None | None | G3 | S3 | 1B.2 |
| **shining navarretia**<br>*Navarretia nigelliformis ssp. radians* | PDPLM0C0J2 | None | None | G4T2T3 | S2S3 | 1B.2 |
| **spiny-sepaled button-celery**<br>*Eryngium spinosepalum* | PDAPI0Z0Y0 | None | None | G2 | S2 | 1B.2 |
| **steelhead - Central Valley DPS**<br>*Oncorhynchus mykiss irideus pop. 11* | AFCHA0209K | Threatened | None | G5T2Q | S2 | SSC |
| **Swainson's hawk**<br>*Buteo swainsoni* | ABNKC19070 | None | Threatened | G5 | S4 | |
| **Sycamore Alluvial Woodland**<br>*Sycamore Alluvial Woodland* | CTT62100CA | None | None | G1 | S1.1 | |
| **tricolored blackbird**<br>*Agelaius tricolor* | ABPBXB0020 | None | Threatened | G1G2 | S2 | SSC |
| **valley elderberry longhorn beetle**<br>*Desmocerus californicus dimorphus* | IICOL48011 | Threatened | None | G3T3 | S3 | |
| **Valley Sacaton Grassland**<br>*Valley Sacaton Grassland* | CTT42120CA | None | None | G1 | S1.1 | |
| **Valley Sink Scrub**<br>*Valley Sink Scrub* | CTT36210CA | None | None | G1 | S1.1 | |
| **vernal pool fairy shrimp**<br>*Branchinecta lynchi* | ICBRA03030 | Threatened | None | G3 | S3 | |
| **vernal pool smallscale**<br>*Atriplex persistens* | PDCHE042P0 | None | None | G2 | S2 | 1B.2 |
| **vernal pool tadpole shrimp**<br>*Lepidurus packardi* | ICBRA10010 | Endangered | None | G3 | S3 | |
| **western mastiff bat**<br>*Eumops perotis californicus* | AMACD02011 | None | None | G4G5T4 | S3S4 | SSC |
| **western ridged mussel**<br>*Gonidea angulata* | IMBIV19010 | None | None | G3 | S2 | |
| **western spadefoot**<br>*Spea hammondii* | AAABF02020 | Proposed Threatened | None | G2G3 | S3S4 | SSC |

| Species | Element Code | Federal Status | State Status | Global Rank | State Rank | Rare Plant Rank/CDFW SSC or FP |
|---|---|---|---|---|---|---|
| **Wright's trichocoronis** | PDAST9F031 | None | None | G4T3 | S1 | 2B.1 |
| *Trichocoronis wrightii var. wrightii* | | | | | | |
| **yellow rail** | ABNME01010 | None | None | G4 | S2 | SSC |
| *Coturnicops noveboracensis* | | | | | | |
| **Yuma myotis** | AMACC01020 | None | None | G5 | S4 | |
| *Myotis yumanensis* | | | | | | |

**Record Count: 64**

# APPENDIX C: IPAC SPECIES LIST

# United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: 04/07/2025 15:40:03 UTC
Project Code: 2025-0079261
Project Name: Los Banos Creek Recharge and Recovery Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

**Migratory Birds**: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

# OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Sacramento Fish And Wildlife Office**
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

# PROJECT SUMMARY

Project Code: 2025-0079261
Project Name: SLWD Central and South Basin
Project Type: Navigation Channel Improvement
Project Description: The project site includes approximately 85 acres on the Central Basin and Southern Basin which is approximately 51 acres. The site includes ruderal roads, two existing basins, the Delta-Mendota Canal (DMC), and Los Banos Creek, for a total of approximately 136 acres . The surrounding lands of the project site include agricultural, industrial, and paved roads.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.015996200000004,-120.89685291811497,14z




Counties: Merced County, California

# ENDANGERED SPECIES ACT SPECIES

There is a total of 12 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## MAMMALS

| NAME | STATUS |
|---|---|
| Fresno Kangaroo Rat *Dipodomys nitratoides exilis*<br>There is **final** critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/5150 | Endangered |
| San Joaquin Kit Fox *Vulpes macrotis mutica*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/2873 | Endangered |

## BIRDS

| NAME | STATUS |
|---|---|
| California Condor *Gymnogyps californianus*<br>Population: Wherever found, except where listed as an experimental population<br>There is **final** critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/8193 | Endangered |

## REPTILES

| NAME | STATUS |
|---|---|
| Blunt-nosed Leopard Lizard *Gambelia silus*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/625 | Endangered |
| Giant Garter Snake *Thamnophis gigas*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/4482 | Threatened |
| Northwestern Pond Turtle *Actinemys marmorata*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/1111 | Proposed Threatened |

## AMPHIBIANS

| NAME | STATUS |
|---|---|
| California Tiger Salamander *Ambystoma californiense*<br>Population: U.S.A. (Central CA DPS)<br>There is **final** critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/2076 | Threatened |
| Western Spadefoot *Spea hammondii*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/5425 | Proposed Threatened |

## INSECTS

| NAME | STATUS |
|---|---|
| Monarch Butterfly *Danaus plexippus*<br>There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/9743 | Proposed Threatened |
| Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus*<br>There is **final** critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/7850 | Threatened |

## CRUSTACEANS

| NAME | STATUS |
|---|---|
| Vernal Pool Fairy Shrimp *Branchinecta lynchi*<br>There is **final** critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/498 | Threatened |
| Vernal Pool Tadpole Shrimp *Lepidurus packardi*<br>There is **final** critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/2246 | Endangered |

# CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

# IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Olivia Arredondo
Address: 455 W. Fir Ave.
City: Clovis
State: CA
Zip: 93611
Email oarredondo@ppeng.com
Phone: 8312970074

# APPENDIX D: NRCS WEB SOIL SURVEY REPORT

Soil Map—Merced County, California, Western Part
(SLWD Central and South Basin)




Map Scale: 1:9,990 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 100 200 400 600

Feet
0 450 900 1800 2700

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

## MAP LEGEND

**Area of Interest (AOI)**
- Area of Interest (AOI)

**Soils**
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

**Special Point Features**
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

**Water Features**
- Streams and Canals

**Transportation**
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

**Background**
- Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Merced County, California, Western Part
Survey Area Data: Version 20, Aug 30, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 11, 2022—May 30, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| 148 | Carranza-Woo , 0 to 2 percent slopes | 146.7 | 50.0% |
| 284 | Xerofluvents, extremely gravelly | 139.7 | 47.6% |
| 287 | Water | 6.8 | 2.3% |
| **Totals for Area of Interest** | | **293.3** | **100.0%** |

# APPENDIX E: NMFS EFH MAPPER

# EFH Mapper Report

## EFH Data Notice

Essential Fish Habitat (EFH) is defined by textual descriptions contained in the fishery management plans developed by the regional fishery management councils. In most cases mapping data can not fully represent the complexity of the habitats that make up EFH. This report should be used for general interest queries only and should not be interpreted as a definitive evaluation of EFH at this location. A location-specific evaluation of EFH for any official purposes must be performed by a regional expert. Please refer to the following links for the appropriate regional resources.

West Coast Regional Office

## Query Results

Degrees, Minutes, Seconds: Latitude = 37º 0' 55" N, Longitude = 121º 6' 3" W
Decimal Degrees: Latitude = 37.015, Longitude = -120.899

The query location intersects with spatial data representing EFH and/or HAPCs for the following species/management units.

## EFH

No additional Essential Fish Habitats (EFH) were identified at the report location.

## Pacific Salmon EFH

No Pacific Salmon Essential Fish Habitat (EFH) were identified at the report location.

## Atlantic Salmon

No Atlantic Salmon were identified at the report location.

## HAPCs

No Habitat Areas of Particular Concern (HAPC) were identified at the report location.

## EFH Areas Protected from Fishing

No EFH Areas Protected from Fishing (EFHA) were identified at the report location.

**Spatial data does not currently exist for all the managed species in this area. The following is a list of species or management units for which there is no spatial data.**
****For links to all EFH text descriptions see the complete data inventory: open data inventory -->**

**Pacific Coastal Pelagic Species**,
Jack Mackerel,
Pacific (Chub) Mackerel,
Pacific Sardine,
Northern Anchovy - Central Subpopulation,
Northern Anchovy - Northern Subpopulation,
**Pacific Highly Migratory Species**,
Bigeye Thresher Shark - North Pacific,
Bluefin Tuna - Pacific,
Dolphinfish (Dorado or Mahimahi) - Pacific,

| **Spatial data does not currently exist for all the managed species in this area. The following is a list of species or management units for which there is no spatial data.**<br>****For links to all EFH text descriptions see the complete data inventory: open data inventory -->** |
| --- |
| Pelagic Thresher Shark - North Pacific,<br>Swordfish - North Pacific |

# Appendix C: Cultural Resources Identification Report

# Cultural Resources Identification Report for the Los Banos Creek Recharge and Recovery Project Merced County, California

**PREPARED FOR:**

Provost & Pritchard Consulting Group
Amy Wilson
130 North Garden Street
Visalia, CA 93291


**PREPARED BY:**

Hope Schear, M.A., R.P. A.
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Kaitlyn Stiles PhD, D-ABFA, RPA

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Kleinfelder
3130 Kilgore Rd., Suite 200
Rancho Cordova, CA 95670





**March 2025**

# Acronyms and Abbreviations

| | |
|---|---|
| AB | Assembly Bill |
| ACHP | Advisory Council on Historic Preservation |
| A.D. | anno domini |
| AF | acre-feet |
| APE | area of potential effect(s) |
| ARPA | Archaeological Resources Protection Act |
| B.A. | Bachelor of Arts |
| B.C. | before common era |
| BLM | Bureau of Land Management |
| BOR | United States Bureau of Reclamation |
| CA | California |
| Caltrans | California Department of Transportation |
| CCIC | Central California Information Center |
| CCID | Central California Irrigation District |
| CCR | California Code of Regulations |
| CEQA | California Environmental Quality Act |
| CFR | Code of Federal Regulations |
| CFS | cubic feet per second |
| CRHR | California Register of Historical Resources |
| CVP | Central Valley Project |
| DMC | Delta Mendota Canal |
| DPR | California Department of Parks and Recreation |
| EIR | Environmental Impact Report |
| GLO | Bureau of Land Management General Land Office |
| GWD | Grassland Water District |
| LBC | Los Banos Creek |
| LBCDD | Los Banos Creek Detention Dam |
| M.A. | Master of Arts |
| MND | Mitigated Negative Declaration |
| MP | Milepost |
| NAHC | Native American Heritage Commission |
| ND | Negative Declaration |
| NEPA | National Environmental Policy Act |
| NETR | Nationwide Environmental Title Research |
| NHPA | National Historic Preservation Act |
| NOP | Notification of Preparation |
| NRHP | National Register of Historic Places |
| OHP | Office of Historic Preservation |
| PRC | Public Resources Code |
| Project | Los Banos Creek Detention Reservoir Regulation and Storage Project |
| SHPO | California State Historic Preservation Officer |
| SLWD | San Luis Water District |
| SLF | Sacred Lands File |
| TCR | tribal cultural resource(s) |
| USGS | United States Geological Survey |
| WST | Western Stemmed Tradition |

# Statement of Confidentiality

This report identifies the locations of cultural resources that are confidential. As nonrenewable resources, archaeological sites can be significantly impacted by disturbances that can affect their cultural, scientific, and artistic values. Disclosure of this information to the public may be in violation of both federal and state laws. To discourage damage resulting from vandalism and artifact looting, cultural resource locations should be kept confidential and report distribution restricted. Applicable U.S. laws include, but are not limited to, Section 304 of the National Historic Preservation Act (16 United States Code 470w-3) and California state laws that apply include, but are not limited to, Government Code Sections 6250 *et seq.* and 6254 *et seq.*

# Management Summary

The Bureau of Reclamation (BOR) and the San Luis Water District on land owned by Vulcan Materials Company (Project Participants) propose to use two existing gravel pits as water storage basins (Central and South Basins) for the purposes of capturing, storing, and recharging Central Valley Project water, Warren Act water, and/or Los Banos Creek flood waters.

To divert water into the proposed basins, the Project Participants propose to construct the following conveyance components: one flow control weir in Los Banos Creek near the existing creek crossing, a 30-to-50-cubic-foot-per-second (CFS) water transfer facility between the Central Basin and the Delta Mendota Canal (DMC), and a 30-to-50 CFS water transfer facility between the South Basin and the DMC. The BOR is a federal agency and since the Project is an "undertaking" as defined at 36 Code of Federal Regulations (CFR) §800.16(y), and the undertaking has the potential to cause effects on historic properties (36 CFR §800.3[a]), it is necessary to identify cultural resources within the Area of Potential Effects (APE). This report has been prepared in accordance with the National Historic Preservation Act (NHPA), California Environmental Quality Act (CEQA), and the County guidelines as they pertain to the Project and cultural resources.

Prior to fieldwork, background research included a search of previously conducted cultural resources studies and findings at the Central California Information Center, a historic map review, desktop geoarchaeological buried site assessment and a review of previous studies conducted within the vicinity of the Project. The results identified one previously recorded resource within the area of potential effects (APE): a segment of the DMC. Three previously recorded cultural resources were identified within a half-mile radius of the APE.

The Native American Heritage Commission (NAHC) Sacred Lands Files search resulted in negative findings within the search area. The NAHC did provide a list of Native American contacts for additional outreach regarding the Project area. This list has been included in the appendices for use by the lead agency for background information when completing Native American consultation.

An intensive pedestrian survey was conducted between January 27 and January 28, 2025 by Kleinfelder archaeologists, Denise Frazier, M.A., R.P.A. and Alexandru Hajdu, M.A., R.P.A. One previously recorded resource, P-24-001703/Delta Mendota Canal, was observed within the APE. P-24-001703/Delta Mendota Canal is eligible for listing on the National Register of Historic Places (NRHP) under Status Code 2S2 and is eligible for the California Register of Historic Resources (CRHR). P-24-001703/Delta Mendota Canal was observed in the same condition as its previous recordation and no site record update was prepared at this time. No new cultural resources were observed during the pedestrian survey.

Based on the current understanding, the proposed Project will not impact the P-24-001703/Delta Mendota Canal. Although work will be conducted within the vicinity of the canal, no Project work will alter the structure of the Canal itself, a pipe will be placed up to the canal bank and then dropped down below the water line. The Project will not result in a loss of historic material that would compromise the historic integrity of the historic property or result in a change in the canal's construction or alignment. Kleinfelder recommends a finding of no historic properties affected and, for the purposes of California Environmental Quality Act, no significant impact.

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# 1.0 Introduction

The following provides an overview of the Los Banos Creek Recharge and Recovery Project (Project) description, background and objectives, location, and Area of Potential Effects (APE).

## 1.1 Project Description

The Project is located within the boundaries of the San Luis Water District's (SLWD) service area and predominantly lies on properties owned by Vulcan Materials Company (Vulcan), a mining company that produces construction aggregates such as crushed stone, sand, and gravel. The Vulcan-owned property surrounds the intersection of Los Banos Creek and the Delta Mendota Canal (DMC), generally within existing quarry pits located adjacent to the waterways. The Vulcan property has been the site of a pilot project to recharge groundwater.

The SLWD and Vulcan have entered into a 20-year license agreement that automatically renews for 5-year periods unless a notice of termination is issued by either party. The license agreement facilitates SLWD's ability to construct, operate, and maintain all infrastructure necessary to conduct storage and recharge operations in the proposed Central and South Basins. The license agreement provides for the addition of basins to be used for water supply projects as they become available.

The Project would include utilizing two existing gravel pits as water storage basins (Central and South Basins) for the purposes of capturing, storing, and recharging Central Valley Project (CVP) water, Warren Act water, and/or Los Banos Creek flood waters. The Central Basin would have the capacity to store approximately 1,000 acre-feet (AF) of water. The South Basin would be expected to store approximately 800 AF of water. This document analyses the following three uses of the basins:

1. *Surface Water Storage*

CVP and Warren Act water would be conveyed to the Central and South Basins and stored during the winter months and returned to the DMC in the spring to serve agricultural demand. Some of the return water may be exchanged with the Bureau of Reclamation (BOR) to serve agricultural demands from the San Luis Canal. CVP water may be transferred to SLWD from other CVP contractors for short-term storage, and the return transfer would typically take place the next water year. In most cases the transfer(s) would be conducted using the Accelerated Water Transfer Program.

2. *Groundwater Recharge and Recovery*

The Central and South Basins would be operated to achieve both their maximum storage and recharge potential. Assuming a conservative daily infiltration rate of 0.5 inch per day, the Central Basin would be capable of recharging approximately 242 AF over a 90-day period. Using the same assumptions, the South Basin would be capable of recharging approximately 208 AF.

*3. Flood Control*

Los Banos Creek is prone to flooding. During a declaration of flood emergency or when the State of California Governor's office issues Executive Orders, such as N-4-23 and N-7-23, a weir and diversion structure on Los Banos Creek would be used to divert flood water into the Central Basin. This diverted flood water would be beneficially used for recharge.

### *1.1.1 Proposed Facilities*

**Conveyance and Infrastructure**

The DMC would convey water to the Project for diversion at three locations. The existing diversion structure near Check 15 at milepost (MP) 79.60-R (Los Banos Creek) would direct water by gravity from the DMC into Los Banos Creek, where a diversion structure would be constructed to divert flows into the Central Basin. The second and third points of diversion would be constructed approximately at MP 80.03-L and MP 80.03-R, where new storage and recovery pump systems would be installed to lift water from and return water to the DMC from the Central and South Basins. The bottom of each basin would be contoured to facilitate the evacuation of the storage space. There would be no excavation work to create water storage space, as the storage space was effectively created during past mining operations (see Figure 1). However, reshaping and stability improvements to the banks of the basins would be conducted.

To divert water into and/or recover water from the proposed basins (Figure 1), the Project would include constructing the following conveyance components:

- Construct one flow control weir in Los Banos Creek near the existing creek crossing to convey water into the Central Basin from Los Banos Creek to capture water released from the DMC or flood flows.
- Construct a 30-to-50-cubic-foot-per-second (CFS) water transfer facility between the Central Basin and the DMC.
- Construct a 30-to-50 CFS water transfer facility between the South Basin and the DMC.

**Groundwater Recovery**

To recover a portion of previously recharged groundwater, the Project proposes to construct up to four extraction wells. The location of the extraction wells would be within the APE and determined after appropriate hydrogeological investigation and testing. Pipelines from the wells would be constructed and recovered groundwater would be conveyed to water transfer facilities located at the Central and Southern basins.

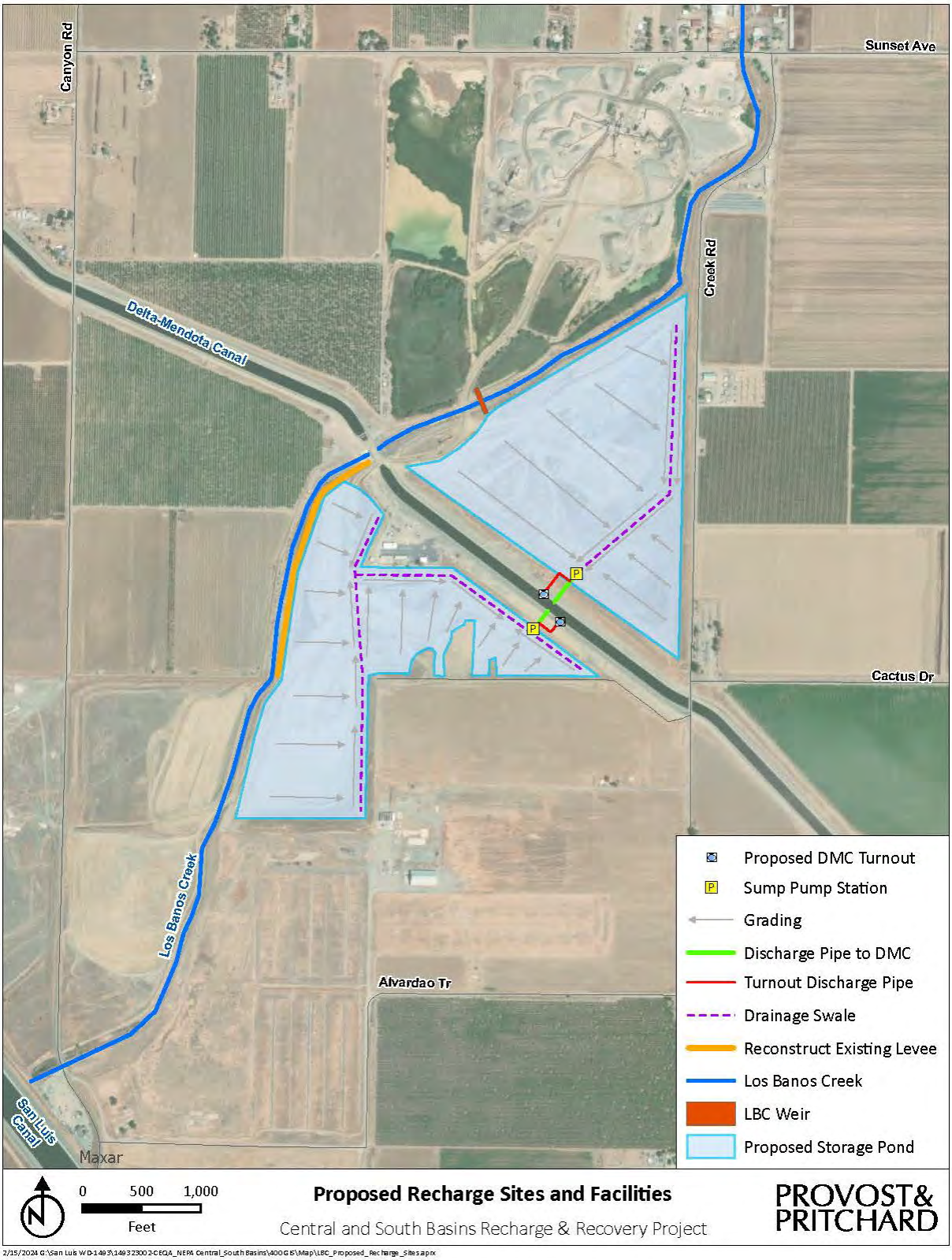



**Figure 1: Proposed Recharge Sites and Facilities**

## 1.2 Project Purpose and Objectives

The purpose of the Project would be to accomplish the following objectives within in the SLWD:

- **Surface Water Storage**: Provide short-term storage of CVP or Warren Act water diverted from the DMC into the basins for storage and later return the water to the DMC for use within SLWD by exchange with BOR.

- **Groundwater Recharge**: Increase groundwater recharge in the upper aquifer to maintain Sustainable Groundwater Management Act obligations.

- **Groundwater Recovery**: Recover a portion of previously recharged groundwater at appropriate times to provide water supply reliability and drought resilience.

- **Flood Control**: Reduce flooding by diverting flows from Los Banos Creek during high flow events.

## 1.3 Area of Potential Effects

The APE is located on the western edge of the Central Valley, at the east extent of the Diablo Range (Appendix A; Figures). The Project is situated approximately 4 miles southwest of the city of Los Banos and 1 mile east of Interstate 5, northeast of the Los Banos Creek Detention Dam and Reservoir. The APE appears on the VOLTA, California 7.5-minute quadrangle (U.S. Geological Survey [USGS] 1971) 1:24,000, Township 10S, Range 10E, Sections 28–29, 31–33 of the Mount Diablo Base Meridian. The APE includes the Project footprint and the full extent of temporary construction and long-term operation ground disturbance.

The APE comprises a total of 295.54 acres and includes the limits of ground disturbance as well temporary staging and access areas for the construction and associated infrastructure. The maximum depth of ground disturbance is anticipated to be 200 feet for well excavation in the APE.

# 2.0 Regulatory Context

The following section provides the federal, State of California (State), and local laws, regulations, and ordinances that are applicable to cultural resources compliance on the Project.

## 2.1 Section 106 of the National Historic Preservation Act

Section 106 of the National Historic Preservation Act (Title 54 of United States Code § 306108 *et seq.* and its implementing regulations located at 36 Code of Federal Regulations [CFR] Part 800) requires that projects undertaken by federal agencies (and/or federally funded projects or projects requiring federal approval) consider the effects of their actions on properties that may be eligible for listing or are listed in the National Register of Historic Places (NRHP). To determine whether an undertaking could affect NRHP-eligible properties, cultural resources (including archaeological and architectural properties) must be inventoried and evaluated for listing in the NRHP. Although compliance with Section 106 is the responsibility of the lead federal agency, consultants in support of the agency or project proponent may execute all or portions of the Section 106 process. The Project is subject to Section 106, because it will require a U.S. Army Corps of Engineers Section 404 permit and will be conducted within federal jurisdiction lands. The Section 106 process includes four primary steps, listed below.

1. Initiate the Process
    - Determining if a project is considered an undertaking per 36 CFR 800.16(y)
    - Coordination of the Section 106 Process with other reviews
    - Initiation of consultation with consulting parties (36 CFR § 800.3)
    - Planning for public involvement
2. Identification and evaluation of historic properties within the APE (36 CFR § 800.4). If there are no historic properties within the APE or historic properties are within the APE but the undertaking will have no effect on them as defined in § 800.16(i), a finding of no historic properties affected (36 CFR § 800.4[d][1]) is appropriate and the agency official shall provide documentation of this finding to consulting parties and the public.
    - Define the Area of Potential Effects
    - Identify properties
    - Evaluate properties for the NRHP
    - Determine effects to historic properties
3. Assessment of effects on historic properties within the APE (36 CFR § 800.4 & 800.5)
    - Apply the criteria of adverse effects
    - Finding of Effect:
        - If there are historic properties that will be affected, consultation is required with the California State Historic Preservation Officer (SHPO) and consulting tribes regarding effects, both direct and indirect, on historic properties.
        - If historic properties will be affected by but through consultation the undertaking is modified or conditions are imposed to avoid adverse

effects, a finding of no adverse effects to historic properties is appropriate (36 CFR § 800.5(b)).

4. Resolve adverse effects on historic properties within the APE (36 CFR § 800.6).
    - Compile documentation for consultation
    - Invite the Advisory Council on Historic Preservation to participate
    - Consult on resolving adverse effects
    - If adverse effects cannot be avoided, a finding of adverse effects to historic properties (§ 800.6(d)(2)) is appropriate, and an agreement document among the consulting parties shall be prepared to mitigate adverse effects.
        - This is achieved through consultation among the federal agency, consulting parties, and the ACHP [Advisory Council on Historic Preservation], if they choose to participate. If the ACHP provides comments to the head of the lead federal agency, the ACHP comments must be considered when the final agency decision on the undertaking is made.

**National Register of Historic Places Criteria for Evaluation**

The significance of cultural resources is determined using the NRHP's four Criteria for Evaluation (Criteria A–D) at 36 CFR § 60.4, which state that a historic property is any site, building, structure, or object that:

A. Is associated with events that made a significant contribution to the broad patterns of our history (Criterion A); and/or

B. Is associated with the lives of persons significant to our past (Criterion B); and/or

C. Embodies the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction (Criterion C); and/or

D. Has yielded, or may be likely to yield, information important in prehistory or history (Criterion D).

If the SHPO concurs with the determination that a cultural resource is eligible for inclusion in the NRHP, then it is automatically eligible for the California Register of Historical Resources (CRHR). If a resource does not have the level of integrity necessitated by the NRHP, it may still be eligible for the CRHR, which allows for a lower level of integrity.

**NRHP Seven Aspects of Integrity**

Cultural resources integrity is determined using the NRHP's seven aspects of integrity at 36 CFR § 60.4, which state that a historic property must not only be shown to be significant under the NRHP criteria, but it also must retain historic integrity. The seven aspects of integrity include location, design, setting, materials, workmanship, feeling, and association. A property must meet one or more of the four Criteria for Evaluation before a determination can be made about its integrity.

## 2.2 California Environmental Quality Act of 1970, as Amended

California Environmental Quality Act (CEQA) requires State and local agencies to identify and reduce, if feasible, the significant, negative environmental impacts of land use decisions.

**CEQA Guidelines: Title 14 California Code of Regulations (CCR) Section 1427**

This section of CEQA recognizes that California's archaeological resources are endangered by urban development; the legislature finds that these resources need preserving; it is a misdemeanor to alter any archaeological evidence found in any cave, or to remove any such materials from a cave.

**CEQA Guidelines: Title 14 CCR Section 15064.4 subsection (b)**

This section of CEQA defines "historical resource," addresses reburial options for Native American remains, and presents the preferred mitigation of historical resources.

**CEQA Guidelines: Title 14 CCR Section 15064.5**

This section of CEQA identifies which resources are considered cultural resources, as stated below.

- Resource(s) listed or eligible for listing on the CRHR (Title 14 CCR Section 15064.5(a)(1).
- Resource(s) either listed in the NRHP or in a "local register of historical resources" unless "the preponderance of evidence demonstrates that it is not historically or culturally significant" (Title 14 CCR Section 15064.5(a)(2)).
- Resources identified as significant in a historical resource survey meeting the requirements in Section 5024.1(g) of the Public Resources Code (PRC) [Title 14 CCR Section 15065.5(a)(2)].

In addition, Subdivision (g) provides the guidelines referenced below regarding historical surveys.

A resource identified as significant in a historical survey may be listed in the CRHR if the survey meets all the following criteria:

- The survey has been or will be included in the State Historic Resources Inventory;
- The survey and the survey documents were prepared in accordance with procedures and requirements of the California Office of Historic Preservation (OHP);
- The resource is evaluated and determined by OHP to have a significance rating of Category 1 to 5 on the DPR [California Department of Parks and Recreation] Historic Resources Inventory Form;
- If the survey is five years or older at the time of its nomination for inclusion in the CRHR, the survey is updated to identify historic resources that have become eligible or ineligible due to changed circumstances or further documentation and those which have been demolished or altered in a manner that substantially diminished the significance of the resource;
- Resources identified during such surveys are presumed to be historically or culturally significant unless the preponderance of evidence demonstrates otherwise; and

- A final category of "historical resources" may be determined at the discretion of the lead agency when: Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, education, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record [Title 14 CCR Section 15064.5(a)(3)].

When an Initial Study identifies the existence of, or the probable likelihood of, Native American human remains within a project, the lead agency shall work with the appropriate Native Americans as identified by Native American Heritage Commission (NAHC). An applicant may develop an agreement for treating or disposing of, with appropriate dignity; the human remains and any items associated with Native American burials with the appropriate Native Americans as identified by NAHC (Title 14 CCR Section 15064.5(d)).

**CEQA Guidelines: Title 14 CCR Section 15064.5(b)**
Section 15124(b) addresses mitigation and states that the preferred mitigation for historical resources is treatment in a manner consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings. The preferred mitigation for archaeological sites is preservation in place.

**CEQA Guidelines: Title 14 CCR Section 15064.7 "Thresholds of Significance"**
This section encourages agencies to develop thresholds of significance to be used in determining potential impacts and defines the term "cumulatively significant."

**CEQA Guidelines: Title 14 CCR Section 15126.4 "Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects" sub-section (b) "Mitigation Measures Related to Impacts on Historical Resources"**
Subsection (b) discusses:

- Impacts of maintenance, repair, stabilization, restoration, conservation, or reconstruction of a historical resource;
- Documentation as a mitigation measure; and
- Mitigation through avoidance of damaging effects on any historical resource of an archaeological nature, preferably by preservation in place, or by data recovery through excavation if avoidance or preservation in place is not feasible; data recovery must be conducted in accordance with an adopted data recovery plan.

**CEQA Appendix G Section V**
This appendix is a checklist that identifies potential impacts to historical and archaeological resources, and/or human remains. The checklist includes the following questions, which are used to determine if a potential project would:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5; and

- Disturb any human remains, including those interred outside of formal cemeteries.

Questions on the checklist are answered to assess whether impacts associated with a project would be potentially significant, less than significant with mitigation, less than significant, or have no impact. The final determination of project-related impacts is made by the lead agency on a project.

**CEQA Assembly Bill 52 –Tribal Consultation and Tribal Cultural Resources**

Assembly Bill (AB) 52 amended CEQA to address California Native American tribal concerns regarding how cultural resources of importance to tribes are treated under CEQA. CEQA now specifies that a project that may cause a substantial adverse change in the significance of a "tribal cultural resource" [as defined in PRC 21074(a)] is a project that may have a significant effect on the environment. According to AB 52, tribes may have expertise in tribal history and "tribal knowledge about land and tribal cultural resources (TCR) at issue should be included in environmental assessments for projects that may have a significant impact on those resources."

The AB 52 process entails the following:

- The CEQA lead agency must begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project if the tribe has requested such notification to the lead agency, in writing. The notification request requires that the lead agency inform these tribes of proposed projects in the geographic area provided by the representative tribe; and within set timeframes. Specifically, the lead State agency is required to notify tribe(s) that have requested project notification under AB 52 within 15 days of determining there is a project; the tribe(s) then have 30 days to respond to this notification and request consultation: upon receipt of a request for consultation the lead agency must then initiate consultation with the tribe(s) within 30 days.
- AB 52 applies to the following CEQA documents: Negative Declaration (ND), Mitigated Negative Declaration (MND), or Notification of Preparation (NOP) of an Environmental Impact Report (EIR). Such documents cannot be released for public review before tribal consultation has concluded and shall not contain any confidential information that the Tribe has requested be omitted from public review.

AB 52 further defines the following legislative terms:

Public Resource Code (PRC) 21074: The statute identifies TCR as a separate and distinct category of resource, separate from a historical resource. New PRC Section 21074 further defines a TCR as any of the following under its subsections (a) through (c):

a) Sites, features, places, and objects with cultural value to descendant communities or cultural landscapes that are any of the following:
    - Listed on the CRHR.
    - Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
    - Deemed to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1.

b) Sacred places, including, but not limited to, Native American sanctified cemeteries, places of worship, religious or ceremonial sites, or sacred shrines that meet either of the following criteria:

   - Listed on the California NAHC's SLF [Sacred Lands File] pursuant to Section 5097.94 or 5097.96 and a California Native American tribe has submitted sufficient evidence to the lead agency demonstrating that significance to the California Native American tribe or contain known graves and cemeteries of California Native Americans.
   - Listed or determined pursuant to criteria set forth in subdivision (g) of Section 5024.1 to be eligible for listing in the CRHR.

c) A cultural landscape is a TCR to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

d) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "non-unique archaeological resource" as defined in subdivision (h) of Section 21083.2 also may be a TCR if it conforms with the criteria of subdivision (a).

**CEQA Historical Resources**

CEQA defines historically significant resources as "resources listed or eligible for listing in the California Register of Historical Resources (CRHR)" (PRC Section 5024.1). A cultural resource may be considered historically significant if the resource is 45 years old or older; possesses integrity of location, design, setting, materials, workmanship, feeling, and association; and meets any of the following criteria for listing on the CRHR:

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; or
4. Has yielded, or may be likely to yield, information important in prehistory or history (PRC Section 5024.1).

Cultural resources are buildings, sites, landscapes, traditional cultural properties, structures, or objects that may have historical, architectural, cultural, or scientific importance. CEQA states that if a project will have a significant impact on important cultural resources, deemed "historically significant," then project alternatives and mitigation measures must be considered. Additionally, any proposed project that may affect historically significant cultural resources must be submitted to the SHPO for review and comment prior to project approval by the responsible agency and prior to construction.

**Public Resources Codes**

The following provides a summary of California PRC sections that apply to cultural resources.

<u>PRC Section 5020.1</u>

This section defines several terms, including those provided below.

> "Historical resource" includes, but is not limited to, any object, building, structure, site, area, place, record, or manuscript that is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.
>
> "Substantial adverse change" means demolition, destruction, relocation, or alteration such that the significance of a historical resource would be impaired.

PRC Section 5024.1

This section establishes the CRHR. A resource may be listed as a historical resource in the CRHR if it meets the NRHP criteria or the following State criteria:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Is associated with the lives of persons important in our past;
- Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- Has yielded, or may be likely to yield, information important in prehistory or history.

PRC Section 5097.5

This section states that any unauthorized removal or destruction of archaeological or paleontological resources on sites located on public land is a misdemeanor. As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the State, or any city, county, district, authority or public corporation, or any agency thereof.

PRC Section 5097.98

This section discusses the procedures that need to be followed upon the discovery of Native American human remains. NAHC, upon notification of the discovery of human remains by the County coroner, is required to notify those persons it believes to be most likely descended from the deceased Native American. It enables the descendant to inspect the site of the discovery of the Native American human remains and to recommend to the landowner (or person responsible for the excavation) means of treating, with dignity, the human remains and any associated grave goods.

PRC Sections 5097.99 and 5097.991

These sections establish that it is a felony to obtain or possess Native American artifacts or human remains taken from a grave or cairn and sets penalties for these actions. The sections also mandate that it is the policy of the State to repatriate Native American remains and associated grave goods.

PRC Section 21083.2

This section states that under CEQA, the lead agency is responsible for determining whether a project may have a significant effect on historical and archaeological resources. Section 21083.2 states that if the lead agency determines that the project may have a significant effect on "unique"

archaeological resources, an EIR shall be prepared to address these resources. A unique archaeological resource is an artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that the resource meets one of the following criteria:

- Contains information needed to answer important research questions and that a demonstrable public interest exists in that information;
- Has a special and particular quality, such as being the oldest or best example of its type; and/or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require that reasonable efforts be taken to preserve these resources in place or provide conditions or mitigation measures.

PRC Section 21084.1

This section sets forth that a project that may cause a significant adverse change in a significant historical resource is a project that may be considered to have adverse effects on the environment. Historical resources not listed on the CRHR or other local lists may still be considered historical resources at the discretion of the lead agency on the project.

Senate Concurrent Resolution Number 43

This resolution requires state agencies to cooperate with archaeological survey and excavation programs, and to preserve known archaeological resources whenever reasonable.

Senate Bill 18 (Burton 2004)

This bill requires protection and preservation of Native American traditional cultural places during city and county general plan development.

Health and Safety Code Section 7050.5

This code establishes that any person who knowingly mutilates, disinters, wantonly disturbs, or willfully removes any human remains in or from any location without authority of the law is guilty of a misdemeanor. It further defines procedures for the discovery and treatment of Native American remains.

Health and Safety Code Sections 8010–8011

This code is intended to provide consistent state policy to ensure that all California Native American human remains and cultural materials are treated with dignity and respect. The code extends policy coverage to non-federally recognized tribes, as well as federally recognized groups.

California Penal Code Section 622.5

This code states that anyone who willfully damages an object or thing of archaeological or historic interest can be found guilty of a misdemeanor.

# 3.0 Natural and Cultural Context

This section presents background information pertaining to the natural and cultural context of the APE, as well as an overview of regional prehistory, ethnography, and history.

## 3.1 Natural Context

The project is located in western Merced County, in the San Joaquin Basin of the Central Valley of California. Merced County is approximately 1,934.97 square miles in area and comprises primarily agricultural lands and small- to medium-sized communities. The San Joaquin Basin, a portion of the greater Central Valley of California, stretches north to south from the Sacramento-San Joaquin River Delta to the Tehachapi Mountains and west to east from the California Coast Ranges to the Sierra Nevada foothills; it is known as one of the most notable structural depressions in the world (USGS 2022). The Project is located in foothills of the Diablo Range. The Diablo Formation is composed primarily of sandstone and shale with surrounding valley soils of clay and clay loam. The soils within the Project area are primarily well-drained soils weathered from sandstone and shale overlying shallow bedrock and include Oneil Silt Loam and Oquin Fine Sandy Loam (USDA 2022).

The local climate, classified as semi-arid, is characterized by hot, dry summers and cool, mild winters. The majority of rainfall occurs between November and March, though average monthly precipitation during these months rarely exceeds 3 inches.

## 3.2 Prehistoric Context

The prehistory of the Central Valley has been divided into five periods based on stylistically distinct artifact types and other cultural patterns combined with radiocarbon dates. The periods are Paleo-Indian (11,550 to 8,550 cal B.C.), Lower Archaic (8,550 to 5,550 cal B.C.), Middle Archaic (5,550 to 550 cal B.C.), Upper Archaic (550 cal B.C. to cal A.D. 1100), and Emergent Occupation (cal A.D. 1000 to Historic) (Rosenthal et al. 2007).

### *3.2.1 Paleo-Indian Period (11,550 to 8,550 cal B.C.)*

The Paleo-Indian period spans the terminal Pleistocene and early Holocene. During the terminal Pleistocene, much of the northern hemisphere was covered by large ice sheets, and there were at least 42 glaciated mountain ranges in western North America (Grayson 2011:121). At the end of the Pleistocene, temperatures warmed, glaciers melted, and ice sheets retreated (Meltzer 2009). The end of the Pleistocene also coincides with the extinction of 35 genera of mammals and 20 genera of birds in North America alone (Meltzer 2009:44). The earliest securely dated and widely accepted sites that provide evidence for human occupation in the Americas are Monte Verde, Chile, and the Paisley Caves, Oregon (Grayson 2011). Monte Verde is a habitation site dated to approximately 12,500 cal B.C., and the Paisley Caves are a series of rock shelters that contained stone tools, Pleistocene megafauna, and coprolites containing human deoxyribonucleic acid (DNA) that has been dated to approximately 12,200 cal B.C. (Jenkins et al. 2012). Both these sites suggest that people were in the Americas before the emergence of Clovis technology (Grayson 2011:63).

Clovis points date from approximately 11,550 to 10,800 cal B.C. (Beck and Jones 2010; Haynes 2002; Waters and Stafford 2007) and basally thinned and fluted variants persist until approximately 9,550 cal B.C. (Fiedel 1999). They are lanceolate bifaces approximately 7 to 10

centimeters long that tend to be thinned by overshot flaking and exhibit basal thinning flutes on each face that extend one-third to two-thirds the lengths of the points (Haynes 2002:82). Clovis assemblages are most often associated with hunting large mammals such as mammoth and bison, with plants and small mammals making up minor portions of the subsistence remains at archaeological sites associated with the Clovis period (Haynes and Hutson 2013). Although peoples utilizing Clovis points were the first to colonize some areas, they may not have been first in the western United States (Beck and Jones 2010; Fiedel and Morrow 2012). Western Stemmed Tradition (WST) points date from approximately 11,240 to 7,000 cal B.C. (Beck and Jones 2010 and 2012). They are lanceolate, sometimes shouldered bifaces measuring approximately 4 to 8 centimeters long that tend to exhibit broad collateral flaking terminating at the midline. WST assemblages are most often associated with hunting small-to-medium mammals such as deer, pronghorn, jackrabbits, and aquatic resources such as fish and mollusks (Grayson 2011; Hockett 2007; Pinson 2007). WST points, crescents, and some fluted projectile points all occur in relatively high density at Tulare Lake in Kings County, located approximately 40 miles southeast of the APE.

### *3.2.2 Lower Archaic Period (8,550 to 5,550 cal B.C.)*

Climate change at the end of the Pleistocene and during the Middle Holocene caused a significant amount of sediment deposition in the Central Valley and buried many of the earliest sites. As a result, archaeological deposits from this period are rare and usually restricted to isolated finds (Rosenthal et al. 2007). Temporally diagnostic Lower Archaic artifacts are stemmed and concave base projectile points and crescents. Subsistence remains recovered from CA-KER-113 near Buena Vista Lake in Kern County indicate that freshwater fish and mussels, waterfowl, and large-mammals contributed to the diet of Lower Archaic foragers. Large projectile points also suggest large-mammal hunting was an important economic pursuit, while an abundance of milling equipment found in the Coast Range foothills and Sierra Nevada suggest acorn and pine nuts were important seasonal resources (Rosenthal et al. 2007).

### *3.2.3 Middle Archaic (5,550 to 550 B.C.)*

Climate continued to change during the Middle Archaic period and became warmer and drier. The Valley traditions are characterized by a variety of pounding, scraping, chopping, and milling tools, and archaeobotanical assemblages from foothill sites such as CA-CAL-789 and CA-FRE-61 indicate that these tools were used to process acorn and pine nuts (Rosenthal et al. 2007). A variety of notched, stemmed, leaf, and concave base projectile points are associated with Middle Archaic foothill traditions and exhibit a high degree of regional morphological variability (Rosenthal et al. 2007). Assemblages associated with foothill traditions tend to be entirely comprised of utilitarian flaked and groundstone items manufactured from local materials, valley traditions contain an abundant amount of nonutilitarian artifacts and traded materials from distant sources (Rosenthal et al. 2007). Increased residential stability is evident in assemblages associated with valley traditions such as those at sites CA-SJO-112 and CA-SAC-107 that reflect year-round occupations along rivers and other waterways. Artifacts include contracting-stemmed and leaf-shaped projectile points, mortars and pestles, twisted cordage, twined basketry, simple pottery, stone plummets, and shell beads (Rosenthal et al. 2007). The presence of bone gorges, composite bone hooks, barbed spears, and large quantities of fish remains in archaeological sites suggest fishing was also becoming an increasingly important economic strategy (Rosenthal et al. 2007). Faunal assemblages indicate a continued reliance on elk, mule deer, pronghorn, rabbits, waterfowl and other birds, and rodents (Rosenthal et al. 2007).

### *3.2.4 Upper Archaic (550 cal. B.C to cal. A.D. 1100)*

The climate during the Upper Archaic period became cooler and wetter. Archaeological assemblages from this period are more visible than the preceding periods and reflect a blossoming of cultural diversity and complexity. Emerging specialists manufactured a variety of goods such as *Olivella* beads, *Haliotis* ornaments, obsidian trade bifaces, and stone plummets (Rosenthal et al. 2007). Subsistence remains from sites such as CA-KER-39 and CA-KER-116 reflect the exploitation of both aquatic and terrestrial resources and the occupation of year-round villages with a variety of residential features (Rosenthal et al. 2007). Villages increased in number and size, and large mounded villages begin to develop (Rosenthal et al. 2007).

### *3.2.5 Emergent Occupation (cal. A.D. 1000 to Historic)*

The climate during the Emergent period was relatively stable with occasional drought and flood events. Cultural diversity and complexity continued to intensify, and two broad phases are recognized: the Upper and Lower (Rosenthal et al. 2007). The Lower Emergent is characterized by a variety of unique nonutilitarian items, including banjo-type *Haliotis* ornaments, bird bone whistles, soapstone pipes, and *Olivella* sequin beads (Rosenthal et al. 2007:158). The Upper Emergent is characterized by small corner- and side-notched arrow points, *Olivella* lipped and clam disk beads, and hopper mortars (Rosenthal et al. 2007). Villages from the Upper Emergent phase can often be associated with known ethnographic settlements (Rosenthal et al. 2007). Desert Side-notched and Cottonwood points become relatively widespread throughout California during the Upper Emergent phase. In the western San Joaquin Valley, the Panoche Side-notched arrow point is a regional variant of the Desert Side-notched that was in use approximately 500 years ago (Rosenthal et al. 2007).

The introduction of the bow and arrow approximately cal A.D. 1000 to 1300 (Bennyhoff 1994) caused several significant changes to technological organization, hunting strategies, and social structure. As the bow and arrow replaced the atlatl and dart, projectile points became lighter and smaller to adapt to the new technology. Hunters could produce more arrowheads with less material than dart points, hunt individually instead of in groups, and fire at a faster rate of speed with less chance of spooking game.

## 3.3 Ethnographic Context

The APE falls within territory ethnographically attributed to the Northern Valley Yokuts, which comprised approximately 60 tribelets, each with a few hundred to several thousand members, living throughout the San Joaquin Valley. The Northern Valley Yokuts occupied an area straddling the San Joaquin River, south of the Mokelumne River, east of the Diablo Range, and north of the sharp bend that the San Joaquin River takes to the northeast (Wallace 1978).

The tribelets established permanent villages near perennial waterways and subsisted on the rich and diverse flora and fauna found in the environment through fishing, hunting, fowling, and intensive plant collecting (Moratto 1984). The San Joaquin River, and the myriad sloughs and channels that branch from it, was the center of the Northern Valley Yokuts territory, representing the northern portion of the greater Yokuts territory that encompassed an estimated population of 31,400 at the time of European contact (Wallace 1978: 462). When the Spaniards first arrived in the valley, they found a population that had flourished, many Northern Valley Yokuts villages having been described as well stocked with both food and people. The population, however, was

not evenly distributed across the valley but instead clustered along the San Joaquin River and its many tributaries (Wallace 1978).

The APE is within the ethnographic territory of the Nopchinchi tribelet of the Northern Valley Yokuts (Wallace 1978:462-470). The Nopchinchi triblet lived in the foothills of the western San Joaquin Valley with an estimated population of 250 (Kroeber 1925: 485, 491).

Linguistically, Yokuts is a single Penutian language with a large number of local dialects (Golla 2011). Northern Valley dialects were spoken along the San Joaquin River and in the vicinity of Merced County; three Northern Valley dialects are known including *Chawcilla*, *Ta-kin*, and *Nopthrinthre* (ibid).

As a result of exploration and Spanish colonial expansion into the Delta and lower San Joaquin Valley in the 1770s, Yokuts populations were reduced, and their settlement patterns were disrupted (Moratto 1984; Wallace 1978). At first, the Yokuts reportedly greeted Spanish soldiers or Franciscan padres warmly but, beginning around 1805, as more people were drawn into the mission system and local populations began to diminish, the Franciscan padres began to forcefully proselytize among the Tribes located farther inland, and tensions grew. Spanish soldiers began to pursue runaway neophytes, many of whom were likely forced against their will into the missions, and the Yokuts began to launch raiding parties on Franciscan cattle herds and horses. Several exploration expeditions were launched by the Franciscans to attempt to identify a location for a new inland mission to help quell hostilities in the region, but they were never able to establish a new mission in the Central Valley (Wallace 1978).

An epidemic disease, likely malaria, began to spread in 1833 and had an even more devastating impact on the Yokuts people, reducing the population in some places by as much as 75 percent by 1846 and destroying entire communities. The traditional lifeways of the Yokuts people were destroyed by the influx of Americans in 1848. While there was no gold to be had in the San Joaquin Valley, thousands of prospectors passed through it. The rich soil soon attracted farmers, who forced off or killed many Indigenous peoples who remained on the land (Moratto 1984; Wallace 1978). All these factors contributed to a distinct lack of ethnographic information regarding the Northern Valley Yokuts. By the time that intensive academic study of Indigenous populations began in California, few of the Native groups that made up the Northern Valley Yokuts remained, and those which survived had scant information to share regarding their traditional lifeways (Wallace 1978). Today, descendants of the Northern Valley Yokuts continue to live in and around the San Joaquin Valley and despite more than a century of adversity, they continue to engage in traditional cultural practices and advocate for the preservation of their heritage.

### *3.3.1 Los Banos Creek Travel Routes*

Los Banos Creek was used as a route between the Central Valley and the coast by Native Americans (Gallway 1967). A large Native American village was located at the mouth of Los Banos Creek near the present location of Los Banos Reservoir. During the Mission Period, Padre Arroyo of Mission San Juan Bautista followed the north fork of Los Banos Creek to enter the valley in search of converts (Gallway 1967). His camp spot, known as Los Baños del Padre Arroyo (the pools of Father Arroyo) was located near Native American villages in the vicinity of Los Banos Creek.

## 3.4 Historic Context

The following historic context presents an overview of the regional history of the APE and identifies historical themes by which historical resources within the APE can be evaluated.

### *3.4.1 European and American Exploration and Colonization*

European and American colonizers first began visiting the area that became Merced County in the nineteenth century. Jedediah Smith led a small trapping expedition from Salt Lake City to the San Joaquin Valley in 1827 and 1828, and John Frémont crossed Madera County and Merced County in 1844 (Mintier Harnish et al. 2013).

After Mexico achieved independence from Spain in 1821, the Mexican government seized ownership of church properties through the Secularization Act of 1833, and lands were redistributed to soldiers and influential Mexican citizens as ranchos through a tribute system. California became a territory of the United States with the end of the Mexican–American War and signing of the Treaty of Guadalupe Hidalgo in 1848. Terms of the treaty brought about the creation of the Lands Commission, in response to the Homestead Act of 1851, which was adopted as a means of validating and settling land ownership claims throughout the state. Few Mexican ranchos remained intact because of legal costs and the difficulty of producing sufficient evidence to prove title claims. Much of the land that once constituted rancho holdings became available for settlement by immigrants to California. With the discovery of gold at Sutter's Mill in 1848, the California Gold Rush era resulted in an influx of fortune seekers to California. In 1850, California became a state. The State of California was initially divided into 27 counties, some of which were later subdivided into other counties, including Merced.

### *3.4.2 Merced County*

Merced County was initially formed in 1855 from portions of Fresno County and Mariposa County. Agriculture and ranching attracted settlers to Merced County and formed the basis of the county's economy into the twenty-first century (Mintier Harnish et al. 2013).

The history of Merced County is tied to the productivity of agriculture and the ability for residents of the county to get goods to market. The land that comprises Merced County was largely used for cattle ranching, but in 1872 the Central Pacific Railroad entered Merced County, connecting the San Joaquin Valley with markets in the north, south, and – importantly – the east. By 1874, much of the county was under cultivation, wheat being a major crop, while remaining grasslands were still used for cattle ranching (Mintier Harnish et al. 2013).

As controlled irrigation developed in the late nineteenth century in the Central Valley, most of the former land grants were broken up into numerous small farms, and the valley began to take on its present densely settled, highly productive aspect. The key to intensive agriculture was a means of overcoming seasonal aridity and the equally damaging seasonal floods produced when the valley fields were inundated by melt water from the Sierra Nevada snowpack. Seasonal floods were controlled by constructing reservoirs from which water was gradually released during the growing season. Controlled irrigation in Merced County began in 1888 under the aegis of the Crocker-Huffman Land Company. In its heyday the company had over 400 miles of canals that irrigated 30,000 acres. Their canal system was extended until 1922, when the Merced Irrigation District purchased the system for $2.25 million. Crocker-Huffman was more than a water

company, it was a company of speculation and promotion. Huge tracts of land were purchased and sold off with water contracts for colonization, such as the Winn Ranch (present-day Winton).

U.S. 99 was paved through the county about 1913, and other roads, such as the "Yosemite-to-the-Sea Highway," were constructed in the 1920s. The expanded network of paved roads represents the on-going trend toward increased urbanization, concentration of populations in urban centers, and reduction of agricultural land in favor of sprawling "planned communities" (Mintier Harnish et al. 2013).

### *3.4.3 Irrigation Systems in the San Joaquin Valley*

Unless otherwise noted, the following history of irrigation systems in the San Joaquin Valley is excerpted from "Water Conveyance Systems in California, Historic Context Development and Evaluation Procedures" (Caltrans and JRP 2000) and **"**Historical Resources Inventory and Evaluation Report, Atwater-Merced Expressway Project, Merced County, California" (JRP 2007).

Stimulated largely by the relatively arid conditions of the region, settlers in the San Joaquin Valley were among the first American-era farmers in California to put in works specifically for irrigation. During the late 1850s and 1860s, their ditches were typically earthen, short, roughly made, and diverted water by means of temporary brush dams constructed across the lower courses of the streams running west out of the Sierra Nevada mountains. The earliest of these ditches were built in the vicinity of Visalia in 1852–1853. The great floods of 1862 and 1868 destroyed most early ditch systems, but San Joaquin Valley farmers continued to experiment with irrigation. Like other Californians, most early San Joaquin settlers during the period from 1850 through the 1860s were not particularly interested in investing time and money in irrigation, focusing instead on cattle raising and dry-farm cultivation of small grains to meet the economic opportunities created by the Gold Rush. By 1870 there were only about 60,000 irrigated acres in California (JRP 2007).

Nevertheless, cycles of drought and flooding, an unstable wheat market, soil exhaustion, developing markets for irrigated crops, advancements in irrigation technology, and unreliable precipitation during the 1860s and 1870s led to a growing interest in irrigation. During this period, both private companies and groups of individual farmers attempted to expand and diversify irrigated agriculture. One of the first irrigation companies organized in the San Joaquin Valley was the Fresno Canal and Irrigation Company, which incorporated in 1870, and was providing water by 1872. Many other such companies formed in the 1870s and 1880s (JRP 2007).

As a result of conflicts over water and a desire to expand and diversify irrigation in California, by the 1880s many farmers and landowners became interested in forming irrigation districts. This groundswell culminated in the passage of the landmark Wright Act of 1887, which allowed for the formation of such districts. The Wright Act is significant because it provided the means for local democratic control over water and promoted irrigation as a means for community and regional development. The first irrigation district organized under the Wright Act was the Turlock Irrigation District (JRP 2007).

Forty-nine irrigation districts, mostly in the San Joaquin Valley, were organized under the Wright Act between 1887 and 1897, when the law was repealed in favor of revised irrigation district legislation. By the turn of twentieth century, there were over 2.6 million irrigated acres in California. Despite this apparent success, a combination of unsympathetic large landowners, owners of riparian water rights, inadequate planning, inexperienced directors and opportunists

within districts contributed to the failure of most Wright Act districts. Progressive legislation passed in 1911–1913 increased State supervision over district organization and financing, making investment in irrigation district bonds more attractive. Demand for agriculture products grew around this time and remained high throughout World War I, resulting in a marked increase in district formation beginning in 1915. As a consequence of this resurgence, 94 irrigation districts were active in California by 1930 (JRP 2007). The Merced Irrigation District formed in 1919 through the purchase and consolidation of several previously established privately developed irrigation canals. With the purchase of the Crocker-Huffman Land and Water Company, the Merced Irrigation District became the largest irrigation district in the region (Dice 2010).

Techniques used to construct irrigation canals have varied widely during the various periods of California's history from the relatively short, hand-dug, early masonry and tile ditches to horse-scraped and hand-dug earthen irrigation ditches, and concrete-lined irrigation canals that developed in the mid-twentieth century. Perhaps the most common canal type in California is the irrigation canal. These conduits carry water for pastures, row crops, orchards, and vineyards, and vary widely in size, shape, and construction materials. As with other canals, they are typically part of a larger system. Beginning from a storage dam or diversion weir, water is diverted through a main canal, into laterals, and then through outlet gates or other control structures into individual farm distribution ditches (Caltrans and JRP 2000).

The cross section or profile of open canals varied with the material through which the conduit was constructed and with the method of construction employed. If constructed in rock, the canal tended to be more rectangular with side slopes as steep as 1:0.5; in earth, the canal shape became more trapezoidal with side slopes varying from 1:1 to 1:5, depending on material. Early canals that were built with scrapers in the alluvial soils of the Central Valley had rounded bottoms and long side slopes, with rounded berms mounded up on each side of the cut. In similar locations, irrigation channels cut with modern machinery and blades have a V-shape, with steep side slopes and flat broad berms (Caltrans and JRP 2000).

Concrete linings were first used in canals in southern California in the 1880s when increasing value of water made it necessary to prevent conveyance losses in earth canals. The practice was largely confined to southern California until the early twentieth century. As water became more valuable in the Central Valley, seepage losses became an increasing concern for water companies and irrigation districts. In the first two decades of the twentieth century, the practice of preventing these losses rapidly spread throughout California. Frequently, old canals were improved by changes in alignment to correct hydraulic gradients before lining. Irrigation districts and private water companies in the Central Valley frequently opted for lining canal segments where conveyance losses by seepage were excessive, because conversion of a canal system from an earthen ditch to a concrete canal was expensive (JRP 2007).

Most water delivery systems included water control and cleansing devices. A variety of structures were developed to measure and regulate flow rates, dispose of excess water, and trap sediment and debris. Gates, valves, checks, and gauges could adjust the volume of water passing a particular point in the system and drops and chutes reduced the velocity of the water at abrupt changes in gradient. Gates could be as simple as sliding wood slats, while drop gates of wood, metal, and even concrete were also common. Smaller gates were typically adjusted by hand; large gates were either counterweighted or mechanically assisted. A variety of valves, air vents, and other

specialized equipment was also employed on penstocks and other pipelines subject to high pressure (JRP 2007).

In most systems, provisions had to be made for disposal of excess water to prevent erosion. Spillways, wasteways, and other overflow devices were important at transition points—from diversion structures to conduits, from one type of conduit to another, and particularly at the terminus of the system. The most effective and lasting wasteways were made of durable materials, such as bedrock, masonry, metal, or wood (JRP 2007).

### *3.4.4 Agriculture in the San Joaquin Valley*

The San Joaquin Valley forms the southernmost part of the California's Central Valley and includes the counties of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and Kern. Approximately one third of the state's farmland lies in the San Joaquin Valley covering approximately 5 million acres of land (Hanak et al. 2019).

The San Joaquin Valley is home to a wide variety of farming enterprises, ranging from smaller, intensively cultivated farms to large, extensive, industrial enterprises. Fruit and nuts are important crops, as are many other field crops (e.g., barley, beans, corn, hay, potatoes, sugar beets, and wheat). Cotton has been among the most important field crops in the valley since its introduction in 1871. Livestock is widely distributed throughout the valley. Other products include milk, chickens, turkeys, eggs, and apiary products. Grain sorghum became important in the area after 1870 as a summer grain crop (Caltrans 2007).

Property types associated with agriculture in the San Joaquin Valley include ranches and farms. Agricultural irrigation and water conveyance systems are also associated with agricultural properties but have been addressed as their own category. Ranches comprise buildings and structures for the raising of livestock for domestic and commercial uses. Farm properties comprise buildings and structures associated with the cultivation of food (Caltrans 2007). Certain characteristics and use overlap between the two property types, ranches and farms, and, in some cases, they are not mutually exclusive. These property types can also include residential buildings such as single-family residences and bunkhouses.

### *3.4.5 Historic Period Roads*

With the development of the first affordable, mass-produced automobile by the Ford Motor Company in 1908, the United States quickly entered the era of the automobile. As the popularity of automobiles grew, so did the demand for drivable roads. Existing unpaved farm roads, historically developed for horse and carts, were improved to accommodate automobiles. These developments began in urban areas, but the poor condition of rural roads and the demands that increasingly industrial farming had on the roadways led to improvements in rural roads including grading, widening, and paving of existing roads as well as the development of new roads and highways (Caltrans 2016). Despite advancements in materials, such as concrete and asphalt, many rural roads remained unpaved into the present due to the cost of construction and maintenance.

A framework for the historical evaluation of roads in California was established by the California Department of Transportation (Caltrans). Caltrans suggested three primary themes by which roads and highways in California could be evaluated: (1) roads and highways as reflections of culture, (2) roads and highways as symbols of commerce and trade, and (3) roads and highways as symbols of engineering achievement. The theme associated with reflections of the cultural

theme is associated with events of significance that changed the cultural history of a community, the State, or nation. Properties associated with the theme of commerce and trade are typified by highways and roads that expanded commerce and trade by opening new markets. The theme associated with engineering achievement is associated with roads and highways that represent new advancements in road construction and design (Caltrans 2016).

### *3.4.6 Los Banos Creek Detention Reservoir History*

Following the arrival of CVP water in the 1930s, cultivated acreage in the Central Valley flourished. In Merced County and on lands surrounding the Project area, ranching sustained much of the local economy. After World War II, an increased reliance on irrigation resulted in the need for additional water storage (Baloian et al. 2020). In 1960, the State of California State Water Project and the CVP created the San Luis Unit as an off-stream water storage facility along San Luis Creek to provide additional water to the San Luis Canal (Caltrans and JRP 2000). Construction of the Los Banos Creek Detention Reservoir took place in 1965–1967 as a system, in part, to capture and later release stormwater runoff and prevent flooding in the valley below (California State Parks 2022). The reservoir and surrounding lands are now used for outdoor activities, such as boating, hiking, and fishing. The reservoir and surrounding lands are also used for the regulation of creek flows for flood mitigation and release to downstream users.

# 4.0 Background Research

The methods and results of the records search, historical map review, and NAHC consultation are described in detail below.

## 4.1 Records Search Results

A records search of the APE and a 0.5-mile buffer was requested on March 11, 2024, and processed by the Central California Information Center (CCIC) on March 13, 2024 (Appendix B; I.C. Records Search File No. 12856l). The purpose of the records search was to identify if any prehistoric and/or historic-period cultural resources and/or studies had been previously documented in the APE and/or its 0.5-mile radius to better understand the archaeological sensitivity of the area.

The CCIC records search identified one previously documented historic linear resource segment of the Delta Mendota Canal (P-24-001703 in Merced County, P-50-001904 in Stanislaus County, and P-24-000089 in San Joaquin County) within the APE (Table 1). Three additional previously recorded resources were identified within 0.5-mile of the APE (Table 2). Six previous cultural resources studies were identified within the APE, and three previous cultural studies were identified within a 0.5-mile radius of the APE (Table 3).

**Table 1. Previously Recorded Cultural Resources within the APE**

| Primary No. | Trinomial | Type | Name/Description | Eligibility Status |
|---|---|---|---|---|
| P-24-001703 (Merced County)<br>P-50-001904 (Stanislaus County)<br>P-24-000089 (San Joaquin County) | N/A | Historic | Delta Mendota Canal | 2S2 – Eligible for the NRHP,<br>Eligible for CRHR |

**Table 2. Previously Recorded Cultural Resources within 0.5 Mile of the APE**

| Primary No. | Trinomial | Type | Name/Description |
|---|---|---|---|
| P-24-000102 | CA-MER-000001 | Prehistoric/Historic | Lithic scatter, bedrock milling feature including 170 mortars, burials, habitation debris, and historic-era farm/barn remains. |
| P-24-000156 | CA-MER-000055 | Prehistoric | Two hand metates. |
| P-24-002238 | N/A | Historic | Canyon Road. |

**Table 3. Studies Conducted within the APE and 0.5 Mile of the APE**

| Report No. | Date | Author(s) | Title | Relation to the APE |
|---|---|---|---|---|
| ME-00621 | 1990 | Moratto, Michael J. et al. | *Cultural Resources Assessment Report PGT-PG&E Pipeline Expansion Project in Idaho, Washington, Oregon, and California*. Prepared by Infotech Research, Inc. and BioSystems Analysis, Inc. | Within 0.5 mile of the APE |
| ME-00703 | 1989 | Werner R. H. | *A Cultural Resources Investigation of a 30 Acre Parcel for the Los Banos Gravel Group, Merced County, California.* Prepared by Archaeological Services, Inc. | Intersects the APE |
| ME-02753 | 1994 | Moratto, Michael J. et al. | *Archaeological Investigations PGT-PG&E Pipeline Expansion Project, Idaho, Washington, Oregon, and California, Volumes I–V* (only Vol. I and IV are unbound and available at CCIC; Vol. I is the Project Overview, Research Design and Archaeological Inventory, and Vol. IV is the Synthesis of Findings. Prepared by Infotec Research, Inc. and Far Western Anthropological Research Group, Inc. Prepared for Pacific Gas Transmission Co. | Within 0.5 mile of the APE |
| ME-06312 | 2006 | Holson, J. | *Letter Report: Vulcan Materials Company, Triangle Rock Products Conveyor Belt Crossing, Los Banos, Merced County, California.* Prepared by Pacific Legacy, Inc. | Intersects the APE |
| ME-07164 | 2010 | Guerrero, Marcos L. | *Department of Water Resources Archaeological Survey Report; Vegetation and Sediment Removal Program at Los Banos Detention Dam*. Prepared for the Department of Water Resources. | Within 0.5 mile of the APE |
| ME-07779 | 2009 | Bailey, J. | *California's Central Valley Project: Historic Engineering Features to 1956: Multiple Property Documentation Form.* Prepared by the Bureau of Reclamation. | Intersects the APE |
| ME-08202 | 2014 | Carper, M. | *Los Banos Creek Diversion Project, Merced County, California; Bureau of Reclamation 14-SCAO-241.* Prepared by the Bureau of Reclamation. | Intersects the APE |
| ME-09402 | 2022 | Barrow, E. | *Cultural Resources Study for the Vulcan Materials Company – Los Banos Facility Project, Los Banos, Merced County, California.* Prepared by Tom Origer and Associates. | Intersects the APE |
| ME-09513 | 2022 | Karnowski, J., Barrow, E. | *Cultural Resources Study for the Los Banos Creek Culvert Project, Merced County, California.* Prepared by Tom Origer and Associates for Harrison Temblador Hungerford and Guernsey. | Intersects the APE |

## 4.2 Historical Map Review

Kleinfelder reviewed historical maps depicting features such as towns, roads, buildings, and creeks to provide additional information regarding the potential for the presence of historic-era cultural resources within the APE. Historical maps are available at several online repositories, in particular the USGS repository, and the U.S. Department of the Interior Bureau of Land Management (BLM) General Land Office (GLO) Records. In addition, historical aerial imagery was reviewed online at the Nationwide Environmental Title Research (NETR). The following sources were consulted during the historical map review:

- Volta, Calif. 1:31,680 (USGS 1921)
- Volta, Calif. 1:24,000 (USGS 1947)
- Volta, Calif. 1:24,000 (USGS 1960)
- NETR 1946, 1957, 1998
- Township 10 South, Range 10 East, Mount Diablo Principal Meridian (BLM 1855)

### *4.2.1 Historical Map Review Results*

The following summarizes the results of the historical map review of the APE:

- The 1855 GLO Plat for Township 10 South, Range 10 East depicts the Arroyo de Los Padres in the same general alignment as the modern alignment of Los Banos Creek. The waterway extends in a general southwest-to-northeast direction, from the Coast Range Mountains through the east ½ of section 29 and 32 of the Project APE. No buildings, structures, or other locations of previous historical activities were noted (BLM 1855).
- The 1921 quadrangle depicts several unlabeled light-duty roads in the historical alignment of Alvarado Trail, South Creek Road, and Sunset Avenue along the perimeter of the APE. No additional buildings, structures, or other locations of previous historical activities were noted (USGS 1921).
- The 1946 aerial imagery shows the light-duty roads in their modern alignment and a great deal of ground disturbance resembling flood plain deposits throughout the APE (NETR 1946).
- The 1947 quadrangle depicts one structure within the center of the northeastern portion of the APE, and the gravel pit and one structure in the same location as the extant structures in the southeast portion of the APE. No other locations of previous historical activities were noted (USGS 1947).
- The 1957 imagery depicts the Delta Mendota Canal in its current alignment and similar ground disturbance throughout the APE (NETR 1957).
- The 1960 quadrangle depicts the Delta Mendota Canal in the same alignment as the modern alignment, light-duty roads in their modern alignment, several structures within the APE that are not extant today, and the gravel pits. No other locations of previous historical activities were noted (USGS 1960).
- The 1998, aerial imagery shows the present day infrastructure within the APE (NETR 1998).

## 4.2 Sensitivity for Buried Resources

### *4.2.1 Geoarchaeological Sensitivity*

A desktop geoarchaeological analysis of the APE was conducted to assess the potential for buried archaeological deposits. Assessing the potential for buried cultural resources is possible by analyzing a suite of specific factors that can provide predictive models regarding the presence or absence of archaeological deposits and to assist with the identification and subsequent management of those archaeological deposits.

The factors used to assess the potential for encountering buried cultural resources in the APE pertain directly to known prehistoric settlement patterns, specific environmental conditions, geomorphology, and areas of previous artificial cutting and filling. In their synthesis of research on the San Francisco Bay-Delta region, Byrd et al. (2017) addressed geoarchaeological approaches to identifying the potential for encountering cultural resources, as well as approaches to predictive modeling. This comprehensive analysis of previously conducted archaeological investigations and recorded resources resulted in the identification of seven environmental factors associated with prehistoric settlement patterns: climate, ethnography, latitude, hydrography, lithic sources, topography, and vegetation class. Applying these seven factors to the archaeological record, it was further observed that three specific environmental factors were identified as "effectively classifying the majority of known site locations" (Byrd et al. 2017). These three factors are: (1) proximity to perennial freshwater, (2) proximity to freshwater confluences or shorelines (both fall under the hydrography heading), and (3) slope (which falls under the topography heading).

Buried resource sensitivity factors identified and ranked by Byrd et al. (2017) were adapted for the purposes of the present analysis. Kleinfelder analyzed the same factors addressed by Byrd et al. and grouped them into three categories: (1) hydrography, (2) proximity to known cultural resource, and (3) geomorphology. The soil descriptions and analyses are in part analyzed with the use of Unites States Department of Agriculture Web Soil Survey interactive mapping tool (USDA 2025). Kleinfelder then assigned Low, Moderate, and/or High sensitivity ratings to each factor based on details of the Project. Results of the buried resource sensitivity analysis are presented in Table 4 and specific findings for the APE are detailed below.

**Hydrography:** Access to freshwater provides the greatest positive and negative correlation with known cultural resources. The nearest freshwater source to the APE is the Los Banos Creek, which was historically present along the western edge of the APE. It is now present as a seasonal stream that drains east from the Diablo Range and is a tributary to the San Joaquin River.

**Nearby Cultural Resources:** Two prehistoric resources are within a half mile of the APE. No known prehistoric resources fall within the APE.

**Geomorphology:** The Project is located within the western edge of the central valley at the footslope of the rolling foothills of the Diablo Range at an elevation between 70 and 1,900 feet above mean sea level**.** As noted earlier, Los Banos Creek was historically present on the western edge of the APE. Surface soils in the APE consist primarily of Carranza-Woo and extremely gravelly Xerofluvents. These series consist of gravelly clay loam Alluvium soils derived from sedimentary rock with slopes from 0 to 5 percent (USDA 2025).

**Table 4. Buried Resource Sensitivity Assessment for the Area of Potential Effects**

| Predictive Factors | Relationship to the Study Area | Archaeological Sensitivity Rating |
|---|---|---|
| **HYDROGRAPHY** | | |
| Proximity to perennial water sources:<br>Low = Over 800 feet<br>Moderate = 400–800 feet<br>High = 400 feet or less | Los Banos Creek along the western edge of the APE | High |
| **PROXIMITY TO KNOWN CULTURAL RESOURCES** | | |
| Proximity to Cultural Resources:<br>Low = Over 0.50 mile<br>Moderate = 0.25–0.50 mile<br>High = Less than 0.25 mile | Two prehistoric resources are located within 0.25 mile of the southern portion of the APE | High |
| Results of pedestrian surface survey | No archaeological deposits identified. | Low |
| **GEOMORPHOLOGY** | | |
| Natural landform stability | Located within Alluvial fans at 70–1,900-foot elevation in the APE | Low |
| Soils | Holocene to historic age surface soils | High |
| Slope:<br>Low = Over 10%<br>Moderate = 5%–10%<br>High = Less than 5% | Variable: Average of 0–5% | High |
| Artificial cutting and filling | Natural landform surfaces throughout the APE and nearest to water are heavily disturbed from gravel mining operations and the construction of the Delta Mendota Canal. | Low |
| **Overall Sensitivity for Buried Archaeological Deposits** | | **Moderate** |

**Conclusion:** Given the above factors and the model presented in Table 4, the geomorphology of the APE demonstrates a moderate chance for the presence of buried resources. Given the close proximity of historical water sources, Holocene to Historic-age soils, and proximity of previously recorded prehistoric resources in the Project vicinity, cultural sensitivity within the APE is considered moderate.

### *4.2.2 Sensitivity for Buried Historic-Era Resources*

The APE was historically rural agricultural land. A review of historical maps described in section 4.2.1 depicts some light on the rural development of homes and roads in 1920s–1940s, whereas by the 1960s maps depict the gravel pits and associated development within the APE (USGS 1921, 1947, 1960). The entire APE is highly disturbed and, as such, Kleinfelder considers the APE to have a low sensitivity for intact buried historic-era resources.

## 4.3 Native American Heritage Commission Consultation

On March 8, 2024, Kleinfelder requested from the California NAHC a search of their Sacred Lands File (SLF). The NAHC responded on March 11, 2024, with a list of Native American contacts affiliated with the region to be contacted for additional information (Appendix C). Their SLF files resulted in negative findings within the vicinity of the APE. Kleinfelder completed no further

Native American outreach, as it is the responsibility of the lead federal agency to conduct Section 106 Native American consultation and of the lead State agency to complete CEQA AB 52 Tribal consultation. The NAHC Native American contacts list is provided in Appendix B.

# 5.0 Field Methods and Results

Between January 23 and 24, 2025, Kleinfelder archaeologists Alexandru Hajdu, M.A., and Denise Frazier, M.A., RPA, conducted an archaeological survey on land owned by Vulcan Materials Company, managed by the San Luis Water District, and within the jurisdiction of the Bureau of Reclamation, for Provost and Pritchard Consulting Group. Approximately 283.33 acres were surveyed intensively using 5–10- and 15-meter transects, dependent on topography. Approximately 9.92 acres of the APE were not surveyed due to extensive flooding and the presence of a pond feature.

Archaeologists periodically employed boot scrapes, and any exposed soil was closely examined. The soil was consistent with a yellowish-brown clay loam. Vegetation was not consistent throughout the APE; some patches of vegetation were present, while other parts were bare of any vegetation. When vegetation was present, it was primarily dense grassy ground cover ranging from 1 to 4 feet tall. In the areas near a pond (southwest of the APE) and flooded fields (northwest of the APE), cattails and reeds were observed.

The APE was heavily disturbed from extensive quarrying, tilling, and other land modification. Evidence of mechanical excavation was observed throughout the APE. Excavations and ground disturbance were evident in the extensive berms, pits, trenches, and equipment tracks. In addition, excavator teeth marks were observed along the walls of artificial hill cuts throughout the APE. The extent of ground disturbance within the APE ranged from 20 to 200 feet below ground surface.

Evidence of modern land use, primarily observed in the southeastern portion of the APE, was also observed and includes a concrete path, several concrete pads, a brick pile, and modern debris.

The Delta Mendota Canal (P-24-001703 in Merced County, P-50-001904 in Stanislaus County, and P-24-000089 in San Joaquin County) was revisited and was found to be consistent with a 2019 evaluation (Reese 2019). As P-24-001703/Delta Mendota Canal was found in same condition as its previous recordation and no site record update was prepared at this time. No additional cultural resources were encountered within the APE.

The APE was photographed using a high-resolution digital camera (see Appendix D, Survey Photographs), and field observations were captured in written notes. Locational data were collected with Environmental Systems Research Institute Arc Collector application on Apple devices.

## 5.1 Fieldwork Authorization

Permission from the BOR is required to conduct a cultural resources survey on Bureau of Reclamation land. Kleinfelder prepared and submitted a U.S. Department of the Interior Application for Permit for Archaeological Investigations under the authority of the Archaeological Resources Protection Act (ARPA) of 1979. The Bureau of Reclamation approved the application and granted fieldwork authorization to conduct the pedestrian survey (Reference Number 24-SCAO-128; Appendix E).

# 6.0 Resources

One historic property, P-24-001703/Delta Mendota Canal, was identified within the APE during background research and field survey.

## 6.1 Delta Mendota Canal

A 0.68-mile segment of the Delta Mendota Canal (P-24-001703 in Merced County, P-50-001904 in Stanislaus County, and P-24-000089 in San Joaquin County) falls within the APE. The concrete-lined irrigation canal, built by the U.S. Bureau of Reclamation, is eligible for the NRHP under Status Code 2S2 and was found eligible under Criterion A for properties associated with events that have made a significant contribution to the broad patterns of our history with a period of significance in 1946–1951.

# 7.0 Finding of Effects

One historic property, P-24-001703/Delta Mendota Canal, is eligible for the NRHP under Status Code 2S2 and is eligible for the CRHR. The proposed Project will repurpose existing gravel pits and transform them into water basins. Although work will be conducted within the vicinity of the canal, no Project work will alter the structure of the Canal itself, a pipe will be placed up to the canal bank and then dropped down below the water line. The Project will not result in a loss of historic material that would compromise the historic integrity of the potential resource or result in a change in the canal's construction or alignment. Kleinfelder recommends a finding of no historic resources affected under Section 106 and a finding of no significant impact to the canal under CEQA for the purposes of this undertaking.

## 7.1 Findings

One historic property, P-24-001703/Delta Mendota Canal, is located within the APE and is eligible for the NRHP and eligible for the CRHR. Based on the current understanding of the proposed Project, the historic built environment canal will not be impacted by Project activities. Field survey for this report resulted in negative findings, and there are no known previously recorded archaeological resources within the APE. As such, Kleinfelder recommends a finding of no historic properties affected for the current undertaking pursuant to 36 CFR § 800.4 and no significant impact for the purposes of CEQA.

## 7.2 Recommendations

Although the APE is considered to have a moderate sensitivity for buried prehistoric and historic-era resources and no archaeological resources were identified within the APE, Kleinfelder recommends the following:

- A qualified archaeologist provide an archaeological tailboard to any construction crew working on site during ground-disturbing activities.
- A qualified archaeological monitor conduct spot-check monitoring as needed during ground-disturbing activity as determined by a qualified archaeologist.
- If archaeological components are encountered during ground-disturbing activities, all ground-disturbing work within 100 feet of the discovery location should cease until a qualified archaeologist can assess the significance of the finding and provide (if needed) avoidance and/or a data recovery plan.

# 8.0 Conclusion and Recommendations

The following provides the conclusions of the cultural resource inventory and recommendations for the APE.

## 8.1 Conclusion

The cultural resource inventory of the APE included a review of the natural and cultural environment including prehistory, ethnography, and history; a desktop geoarchaeological analysis, a review of historical maps; record search results from the CCIC; consultation with the NAHC; and a pedestrian survey. As a result of these efforts, Kleinfelder identified one historic property within the APE, P-24-001703/Delta Mendota Canal, which is eligible for the NRHP and eligible for the CRHR. The proposed project activities will not impact this resource.

Although Kleinfelder considers the APE to have a moderate sensitivity for buried historic-era resources and a moderate sensitivity for buried prehistoric resources, the APE has been heavily disturbed by decades of gravel pit operations and there are no known archaeological resources within the APE. Therefore, Kleinfelder recommends a finding of no historic properties affected pursuant to 36 CFR § 800.4 and no significant impact for the purposes of CEQA.

# 9.0 Preparers' Qualifications

Kleinfelder Archaeologists Hope Schear, Jessica Neal, Kaitlyn Stiles, Denise Frazier, and Alexandru Hajdu contributed to this report.

Mrs. Schear has a Bachelor of Science degree in Anthropology from Sacramento State University, California, and a Master of Arts degree in Applied Anthropology – Archaeology and Cultural Resources Management from Humboldt State University, California. She is a registered professional archaeologist (RPA #17582) and a member of the Society of California Archaeology, Society of American Archaeology, Society for Historical Archaeology, and the American Anthropological Association. She meets the Secretary of the Interior's Standards for prehistoric and historical archaeology. Mrs. Schear has 10 years of experience in cultural resources management, including project management, personnel management, field survey, excavation and data recovery, laboratory analysis, collections management, and geographic information system applications in environmental planning. She has experience in consultation with Native American Tribes and State Historic Preservation Officers, experience leading projects involving Native American Graves Protection and Repatriation Act, preparation of archaeological research, built environment and archaeological evaluations for inclusion in the NRHP and CRHR, and survey, testing, excavation, and monitoring reports pursuant to the requirements of CEQA, Section 106 of the National Historic Preservation Act (NHPA), and the National Environmental Policy Act (NEPA).

Ms. Neal has a Bachelor of Science degree in anthropology from Loyola University Chicago and a Master of Arts degree in Maritime Archaeology from the University of Southern Denmark. She is a registered professional archaeologist (RPA) (#17230) and a member of the Society for California Archaeology. She meets the Secretary of the Interior's Standards for prehistoric and historical archaeology. Ms. Neal has 14 years of experience in cultural resources management, including project management, personnel management, field survey, excavation and data recovery, laboratory analysis, collections management, and geographic information system (GIS) applications in environmental planning. She has experience in preparation of archaeological research, built environment, and archaeological evaluations for inclusion in the NRHP and CRHR, and survey, testing, excavation, and monitoring reports pursuant to the requirements of California Environmental Quality Act (CEQA), Section 106 of the NHPA, and the National Environmental Policy Act (NEPA).

Dr. Stiles has a Bachelor of Arts degree in Anthropology and Classics from Texas A&M University, and a PhD degree in Anthropology from University of Tennessee. She is a registered professional archaeologist (RPA #5407). She meets the Secretary of the Interior's Standards for prehistoric and historical archaeology. Dr. Stiles has over 12 years of experience in archaeological, bioarchaeological, and forensic anthropological research, analysis, and cultural resource management in California, Greece, Egypt, Poland, and Morocco. She has experience managing large-scale inventory and evaluation, field directing projects, and leading crews in several types of environments including island, mountain, desert, and coastal settings. Dr. Stiles works as a staff supervisor, project manager, and bioarchaeologist; prepares reports for compliance with Public Resources Code 5024 of CEQA, Sections 106 and 110 of the NHPA, NEPA, and Assembly Bill 52. She meets the Secretary of the Interior Standards in Archaeology and is a Registered Professional Archaeologist and a Diplomate of the American Board of Forensic Anthropology. As a bioarchaeologist, Dr. Stiles has worked in several different contexts within North American and

European archaeology. She is an expert in the identification and analysis of human bone and has provided osteological training for monitors and students for use in the field. As a certified Forensic Anthropologist, Dr. Stiles is able to determine whether human remains are forensically significant as well as estimate ancestry in cases where Native American ancestry is suspected. As a diplomate of the American Board of Forensic Anthropology, Dr. Stiles has attained certification demonstrating expertise in forensic anthropology, which involves specialized knowledge of the human skeleton, the musculoskeletal system, and archaeological methods to assist with medicolegal death investigations.

Ms. Frazier has a Bachelor of Arts degree in Anthropology from San Jose State University and a Master of Arts degree in Anthropology from Colorado State University. She is a registered professional archaeologist (RPA #5137) and a member of the Society of California Archaeology. She meets the Secretary of the Interior's Standards for prehistoric and historical archaeology. Ms. Frazier has 5 years of experience in prehistoric and historical archaeology in California, Colorado, Nevada, and Utah. She has experience in consultation coordination with Native American Tribes; experience leading projects; preparation of archaeological research; archaeological evaluations for inclusion in the NRHP and CRHR; and survey, testing, excavation, and monitoring reports pursuant to the requirements of CEQA, Section 106 of the NHPA, and NEPA.

Mr. Hajdu has a Bachelor of Arts degree in anthropology from West Chester University and a Master of Arts degree in anthropology from the Colorado State University. He is a registered professional archaeologist (RPA #6025) and a member of the Society of California Archaeology. He meets the Secretary of the Interior's Standards for prehistoric and historical archaeology. Mr. Hajdu has 3 years of experience in cultural resources management, personnel management, field survey, excavation and data recovery, and monitoring. He has experience in preparation of archaeological research, survey, and monitoring reports pursuant to the requirements of CEQA, and Section 106 of the NHPA and agency specific reporting for U.S. Forest Service, California Department of Transportation, and BLM.

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**APPENDIX A**

**Figures**







Source: Bing Maps

0 1.5 3 Miles

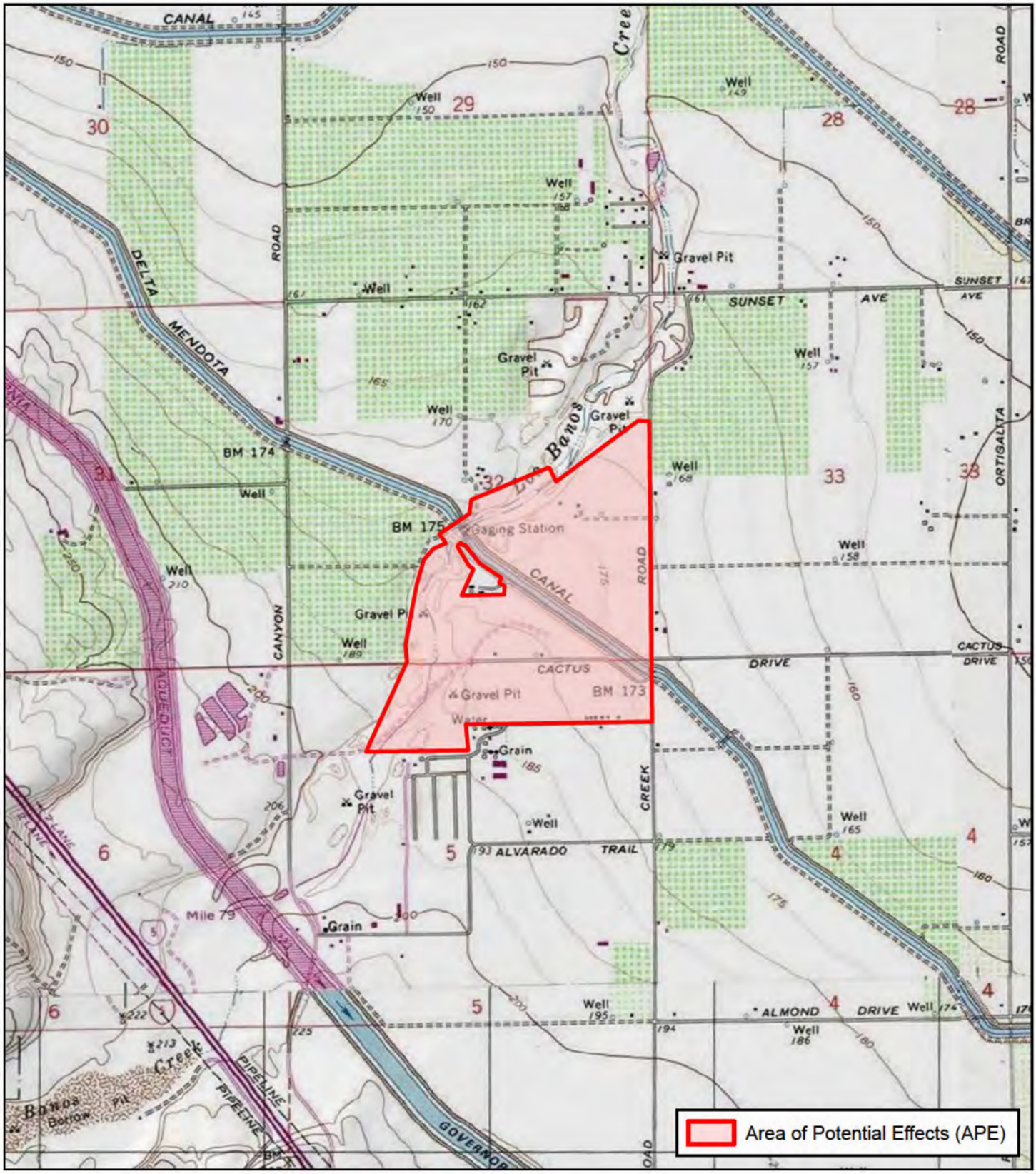
0 2.5 5 Kilometers

N

Scale 1:190,080
1 in = 3 miles

**Regional Vicinity**
Los Banos Creek Recharge & Recovery
Merced County, California

KLEINFELDER
Bright People. Right Solutions.







USGS 7.5' Quad: VOLTA (1971)
Legal Description: T10S, R10E, SEC 32, 33;
T11S, R10E, SEC 4, 5
NAD 1983 UTM Zone 10N

0 1,000 2,000 Feet

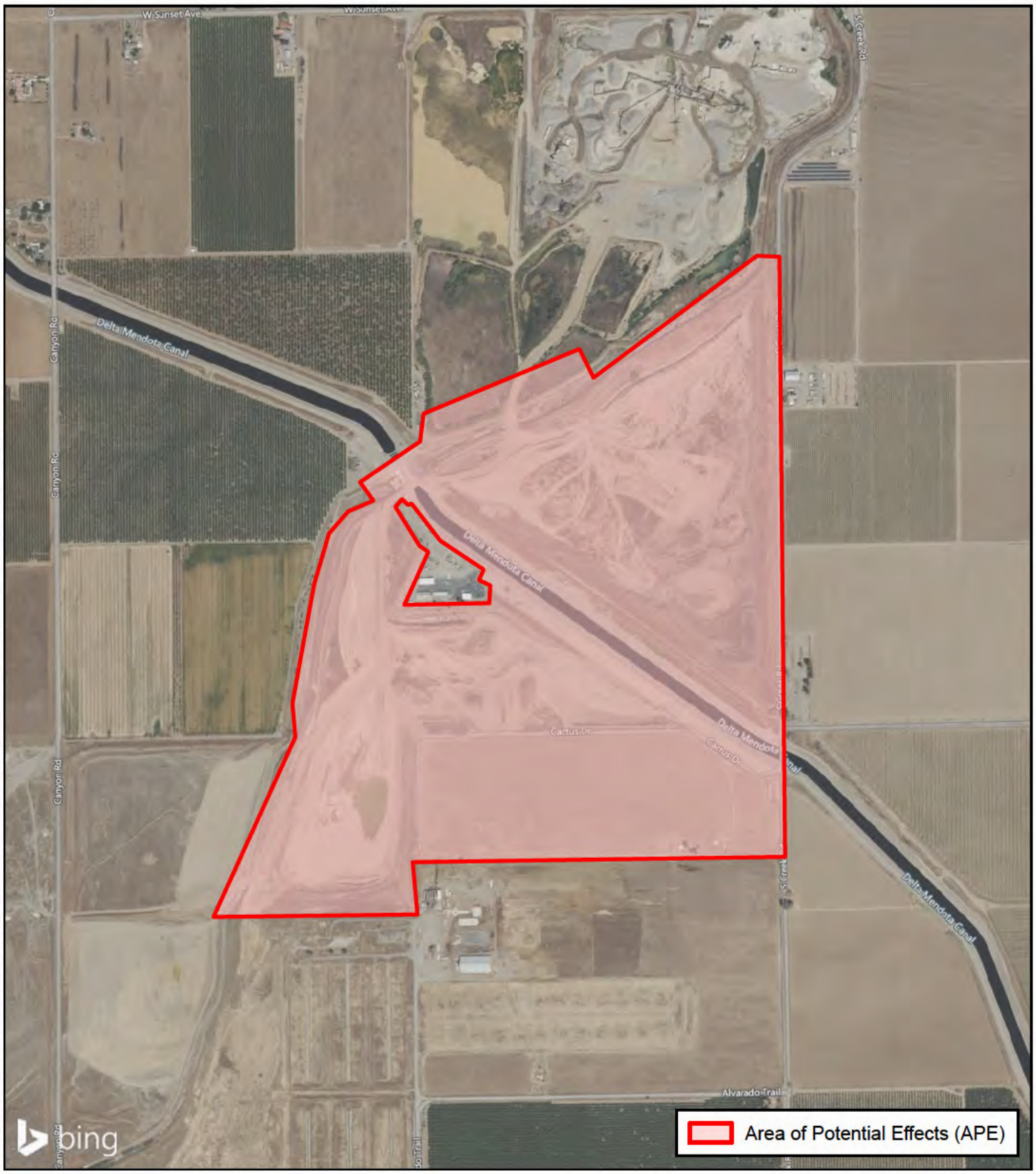
0 300 600 Meters

N

Scale 1:24,000
1 inch = 2,000 feet

**Project Location**
Los Banos Creek Recharge & Recovery
Merced County, California

KLEINFELDER
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Source: Bing Maps

0 500 1,000 Feet

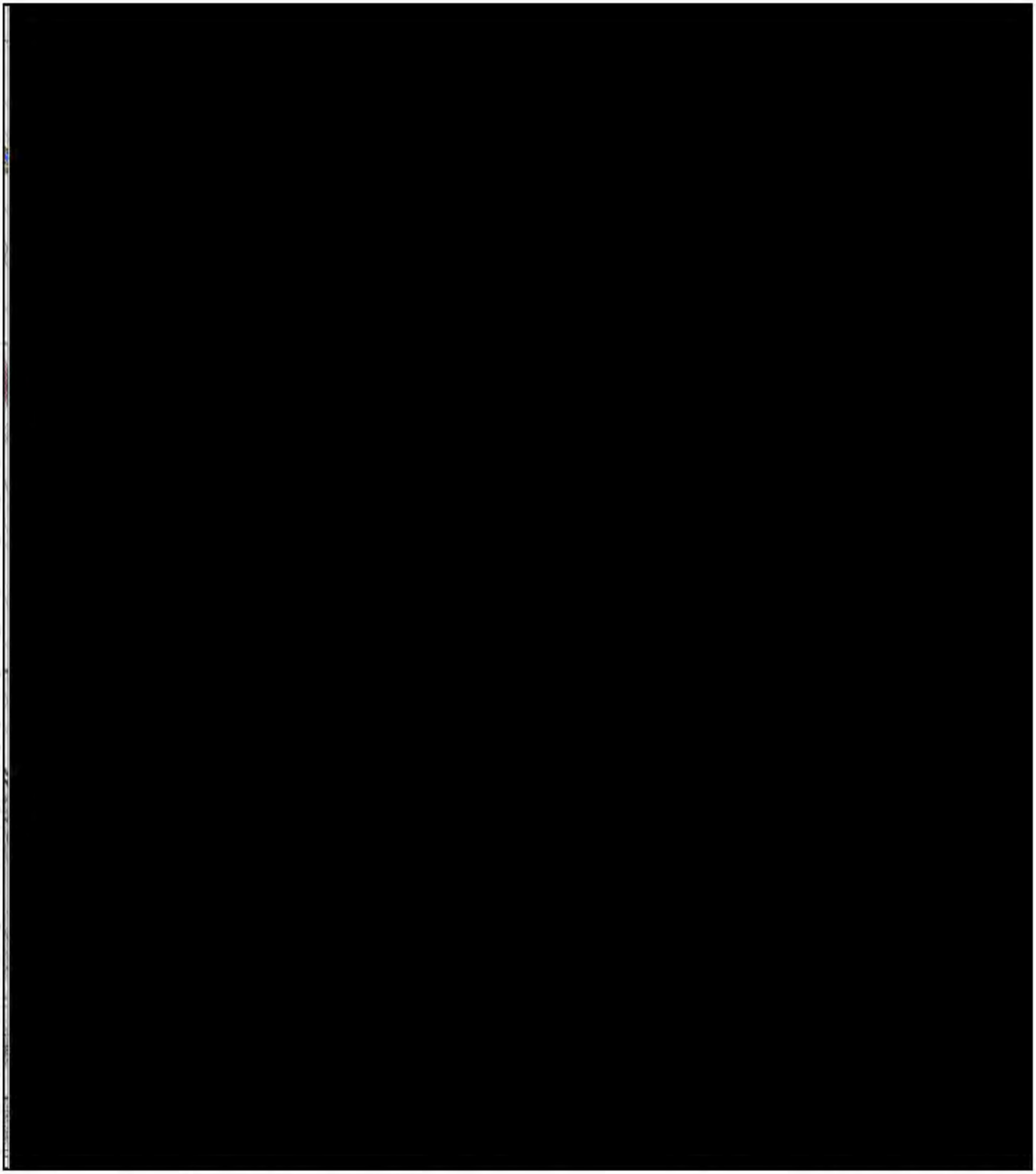
0 150 300 Meters

N

Scale 1:12,000
1 inch = 1,000 feet

**Area of Potential Effects (APE)**
Los Banos Creek Recharge & Recovery
Merced County, California

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USGS 7.5' Quad: VOLTA (1971)
Legal Description: T10S, R10E, SEC 28, 29, 31-33;
T11S, R10E, SEC 4-6
NAD 1983 UTM Zone 10N

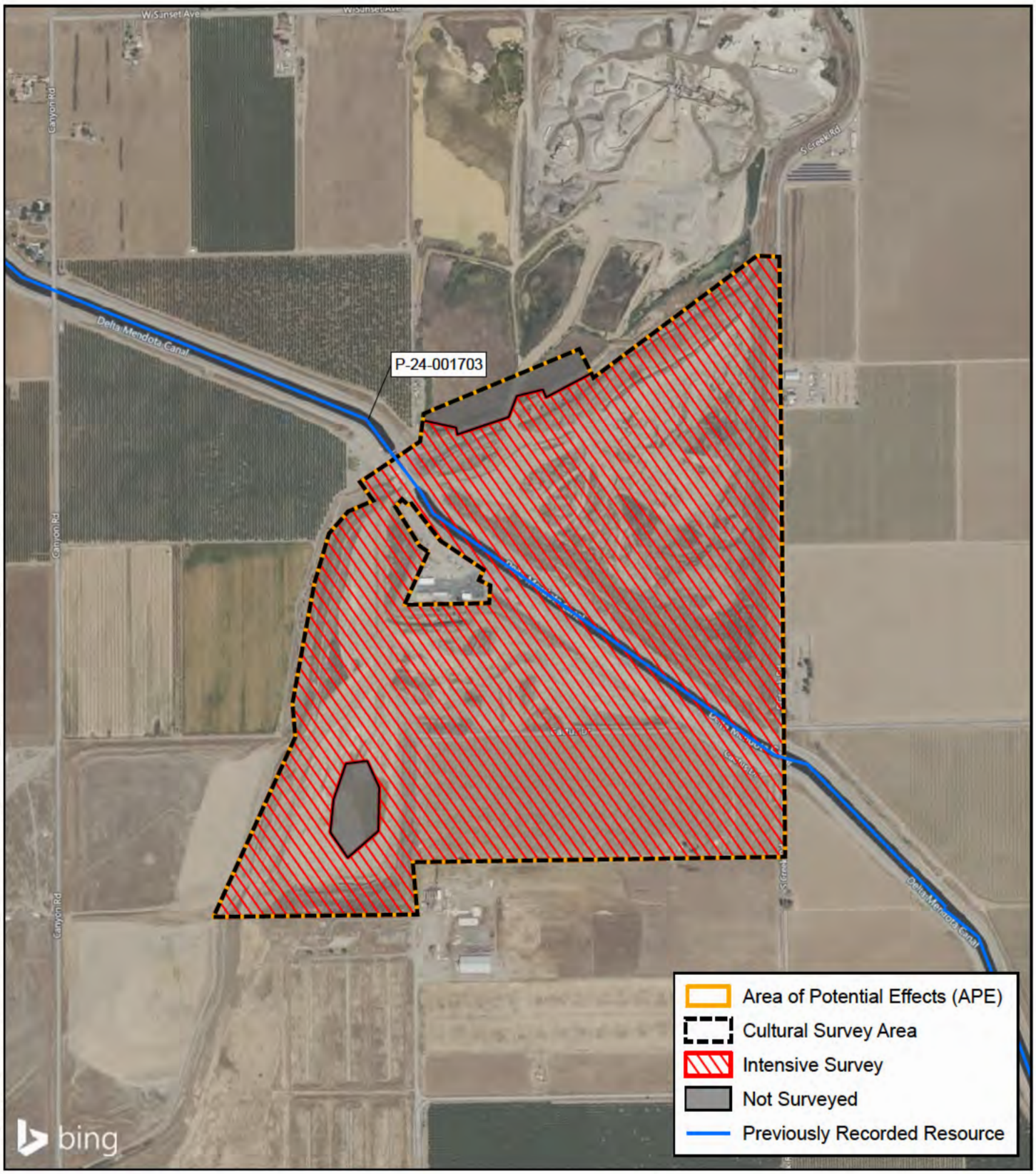
0 1,000 2,000 Feet
0 300 600 Meters

N

Scale 1:24,000
1 inch = 2,000 feet

**Record Search Results**
Los Banos Creek Recharge & Recovery
Merced County, California

KLEINFELDER
Bright People. Right Solutions.







Source: Bing Maps

0 500 1,000 Feet

0 150 300 Meters

N

Scale 1:12,000
1 inch = 1,000 feet

**Survey Coverage Results**
Los Banos Creek Recharge & Recovery
Merced County, California

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## APPENDIX B

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PROVOST&PRITCHARD
CONSULTING GROUP

455 W Fir Ave, Clovis, CA 93611 • (559) 449-2700
www.provostandpritchard.com

September 26, 2025

Amah Mutsun Tribal Band
Ed Ketchum, Vice-Chairperson
P.O. Box 5272
Galt, CA 95632

**Subject: Notification for the Los Banos Creek Recharge and Recovery Project, Merced County, California.**

Dear Ed Ketchum, Vice-Chairperson:

Provost and Pritchard Consulting Group, is providing cultural resources services in support of the Los Banos Creek Recharge and Recovery Project, located in Merced County.

The Project is located within the boundaries of San Luis Water District's (SLWD) service area and predominantly on properties owned by Vulcan Materials Company surrounding the intersection of Los Banos Creek and the Delta-Mendota Canal (DMC), generally within existing quarry pits located on the properties that are adjacent to the aforementioned waterways. The Project area is located southwest of the City of Los Banos within Merced County, more near and along Los Banos Creek between the San Luis Canal and the Central California Irrigation District (CCID) Outside Canal. The property has been the site of a pilot project to recharge groundwater and more recently groundwater recharge operations under the State of California Governor's Executive Orders N-4-23 and N-7-23. The Project has received funding through the State of California Department of Water Resources Sustainable Groundwater Management Act Implementation Grant and through the Consolidated Appropriations Act pursuant to Public Law No. 118-42. The Project is eligible to receive Central Valley Project (CVP) water consistent with SLWD's CVP Contract No. 14-06-200-7773A-IR1-P.

SLWD and Vulcan have entered into a 20-year License Agreement (License Agreement) that automatically renews for five-year periods unless a notice of termination is issued by either party. The License Agreement facilitates SLWD's ability to construct, operate, and maintain all the necessary infrastructure to conduct storage, and recharge operations in the proposed Central and South Basins. The License Agreement provides for the addition of basins to be used for water supply projects as they become available.

**Project Description**
The Project entails using existing gravel pits (basins), designated as the Central Basin and the Southern Basin, to capture, store, recharge, and bank CVP and Warren Act water and/or Los Banos creek flood waters. The Central Basin is approximately 85 acres and has the capacity to store approximately 1,000 acre-feet. The Southern Basin is approximately 51 acres and is expected to store approximately 800 acre-feet upon completion of mining operations. The Basins will serve four purposes: surface water storage, groundwater recharge, groundwater recovery, and flood water capture.

**DMC Diversions**
Under the Project, CVP and/or Warren Act water will be conveyed through the DMC and diverted into the Central Basin or the Southern Basin at three locations. The first point of diversion will be constructed at approximately mile post MP 80.03-L where a new storage and recovery pump system will be installed to lift water from and return water to the DMC from the Central Basin. The second point of diversion will be constructed at approximately mile-post MP 80.03-R where a second new storage and recovery pump system will be installed to lift water from and return water to the DMC from the Southern Basin. The third point of diversion is at the existing diversion structure near Check 15 at mile post MP 79.60-R (Los Banos Creek) which will gravity flow water from the DMC into Los Banos Creek where a weir and diversion structure will be constructed to divert flows into the Central Basin.

**Los Banos Creek Diversions**
Flood water flowing in Los Banos Creek may be diverted downstream of the DMC siphon crossing where the aforementioned weir and diversion structure will be constructed to divert flows into the Central Basin. Flood waters will only be diverted under the previously stated conditions. Under the Project, the weir and diversion structure would be constructed and the capacity to divert flood waters would increase.

**Conveyance and Infrastructure**
The Project would include constructing the following infrastructure and conveyance components:

- Construct a 30 to 50 cfs water transfer facility between the Central Basin and the DMC.
- Construct a 30 to 50 cfs water transfer facility between the Southern Basin and the DMC.
- Construct a weir in Los Banos Creek downstream of the DMC siphon crossing and the existing Vulcan haul road crossing to facilitate convey water into the Central Basin from Los Banos Creek to capture water released from the DMC or flood flows;
- Construct a diversion structure on the right bank of Los Banos Creek immediately upstream of the newly constructed weir to convey water flowing in Los Banos Creek into the Central Basin.

The Project also includes contouring of the of the bottom of the existing pits being used for the Central Basin and the Southern Basin to facilitate the evacuation of the storage space. There will be no excavation work to create water storage space as the storage space was effectively created through past mining operations. Reshaping and stability improvements to the banks of the basins will also be performed.

On behalf of San Luis Water District, Kleinfelder requested a records search of the California Historic Resources Information System from the Central California Information Center to identify any cultural resources within or adjacent to the Project Area. A search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed with negative results. The NAHC provided your name and address as a tribal contact that is culturally affiliated to the project area. If you have any information that you wish to share, or have questions or would like more information about the project, please do not hesitate to contact me by phone (559) 636-1166, email (jlancaster@ppeng.com), or send a letter to my attention. I would appreciate any information you might provide to assist us with our inventory efforts.

Be assured that any locations of archaeological sites, cemeteries, or sacred places will be treated confidentially, as required by law, and not disclosed in any document available to the general public.

Sincerely,

Jackie Lancaster
Provost & Pritchard Consulting Group
Senior Project Administrator

encl.: CHRIS Records Search Results, NAHC Sacred Lands File Search Results, APE Map

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September 26, 2025

Amah Mutsun Tribal Band
Valentin Lopez, Chairperson
P.O. Box 5272
Galt, CA 95632

**Subject: Notification for the Los Banos Creek Recharge and Recovery Project, Merced County, California.**

Dear Valentin Lopez, Chairperson:

Provost and Pritchard Consulting Group, is providing cultural resources services in support of the Los Banos Creek Recharge and Recovery Project, located in Merced County.

The Project is located within the boundaries of San Luis Water District's (SLWD) service area and predominantly on properties owned by Vulcan Materials Company surrounding the intersection of Los Banos Creek and the Delta-Mendota Canal (DMC), generally within existing quarry pits located on the properties that are adjacent to the aforementioned waterways. The Project area is located southwest of the City of Los Banos within Merced County, more near and along Los Banos Creek between the San Luis Canal and the Central California Irrigation District (CCID) Outside Canal. The property has been the site of a pilot project to recharge groundwater and more recently groundwater recharge operations under the State of California Governor's Executive Orders N-4-23 and N-7-23. The Project has received funding through the State of California Department of Water Resources Sustainable Groundwater Management Act Implementation Grant and through the Consolidated Appropriations Act pursuant to Public Law No. 118-42. The Project is eligible to receive Central Valley Project (CVP) water consistent with SLWD's CVP Contract No. 14-06-200-7773A-IR1-P.

SLWD and Vulcan have entered into a 20-year License Agreement (License Agreement) that automatically renews for five-year periods unless a notice of termination is issued by either party. The License Agreement facilitates SLWD's ability to construct, operate, and maintain all the necessary infrastructure to conduct storage, and recharge operations in the proposed Central and South Basins. The License Agreement provides for the addition of basins to be used for water supply projects as they become available.

**Project Description**
The Project entails using existing gravel pits (basins), designated as the Central Basin and the Southern Basin, to capture, store, recharge, and bank CVP and Warren Act water and/or Los Banos creek flood waters. The Central Basin is approximately 85 acres and has the capacity to store approximately 1,000 acre-feet. The Southern Basin is approximately 51 acres and is expected to store approximately 800 acre-feet upon completion of mining operations. The Basins will serve four purposes: surface water storage, groundwater recharge, groundwater recovery, and flood water capture.

**DMC Diversions**
Under the Project, CVP and/or Warren Act water will be conveyed through the DMC and diverted into the Central Basin or the Southern Basin at three locations. The first point of diversion will be constructed at approximately mile post MP 80.03-L where a new storage and recovery pump system will be installed to lift water from and return water to the DMC from the Central Basin. The second point of diversion will be constructed at approximately mile-post MP 80.03-R where a second new storage and recovery pump system will be installed to lift water from and return water to the DMC from the Southern Basin. The third point of diversion is at the existing diversion structure near Check 15 at mile post MP 79.60-R (Los Banos Creek) which will gravity flow water from the DMC into Los Banos Creek where a weir and diversion structure will be constructed to divert flows into the Central Basin.

**Los Banos Creek Diversions**
Flood water flowing in Los Banos Creek may be diverted downstream of the DMC siphon crossing where the aforementioned weir and diversion structure will be constructed to divert flows into the Central Basin. Flood waters will only be diverted under the previously stated conditions. Under the Project, the weir and diversion structure would be constructed and the capacity to divert flood waters would increase.

**Conveyance and Infrastructure**
The Project would include constructing the following infrastructure and conveyance components:

- Construct a 30 to 50 cfs water transfer facility between the Central Basin and the DMC.
- Construct a 30 to 50 cfs water transfer facility between the Southern Basin and the DMC.
- Construct a weir in Los Banos Creek downstream of the DMC siphon crossing and the existing Vulcan haul road crossing to facilitate convey water into the Central Basin from Los Banos Creek to capture water released from the DMC or flood flows;
- Construct a diversion structure on the right bank of Los Banos Creek immediately upstream of the newly constructed weir to convey water flowing in Los Banos Creek into the Central Basin.

The Project also includes contouring of the of the bottom of the existing pits being used for the Central Basin and the Southern Basin to facilitate the evacuation of the storage space. There will be no excavation work to create water storage space as the storage space was effectively created through past mining operations. Reshaping and stability improvements to the banks of the basins will also be performed.

On behalf of San Luis Water District, Kleinfelder requested a records search of the California Historic Resources Information System from the Central California Information Center to identify any cultural resources within or adjacent to the Project Area. A search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed with negative results. The NAHC provided your name and address as a tribal contact that is culturally affiliated to the project area. If you have any information that you wish to share, or have questions or would like more information about the project, please do not hesitate to contact me by phone (559) 636-1166, email (jlancaster@ppeng.com), or send a letter to my attention. I would appreciate any information you might provide to assist us with our inventory efforts.

Be assured that any locations of archaeological sites, cemeteries, or sacred places will be treated confidentially, as required by law, and not disclosed in any document available to the general public.

Sincerely,



Jackie Lancaster
Provost & Pritchard Consulting Group
Senior Project Administrator

encl.: CHRIS Records Search Results, NAHC Sacred Lands File Search Results, APE Map

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September 26, 2025

Northern Valley Yokut / Ohlone Tribe
Timothy Perez, Tribal Compliance Officer
P.O. Box 717
Linden, CA 95236

**Subject: Notification for the Los Banos Creek Recharge and Recovery Project, Merced County, California.**

Dear Timothy Perez, Tribal Compliance Officer:

Provost and Pritchard Consulting Group, is providing cultural resources services in support of the Los Banos Creek Recharge and Recovery Project, located in Merced County.

The Project is located within the boundaries of San Luis Water District's (SLWD) service area and predominantly on properties owned by Vulcan Materials Company surrounding the intersection of Los Banos Creek and the Delta-Mendota Canal (DMC), generally within existing quarry pits located on the properties that are adjacent to the aforementioned waterways. The Project area is located southwest of the City of Los Banos within Merced County, more near and along Los Banos Creek between the San Luis Canal and the Central California Irrigation District (CCID) Outside Canal. The property has been the site of a pilot project to recharge groundwater and more recently groundwater recharge operations under the State of California Governor's Executive Orders N-4-23 and N-7-23. The Project has received funding through the State of California Department of Water Resources Sustainable Groundwater Management Act Implementation Grant and through the Consolidated Appropriations Act pursuant to Public Law No. 118-42. The Project is eligible to receive Central Valley Project (CVP) water consistent with SLWD's CVP Contract No. 14-06-200-7773A-IR1-P.

SLWD and Vulcan have entered into a 20-year License Agreement (License Agreement) that automatically renews for five-year periods unless a notice of termination is issued by either party. The License Agreement facilitates SLWD's ability to construct, operate, and maintain all the necessary infrastructure to conduct storage, and recharge operations in the proposed Central and South Basins. The License Agreement provides for the addition of basins to be used for water supply projects as they become available.

**Project Description**
The Project entails using existing gravel pits (basins), designated as the Central Basin and the Southern Basin, to capture, store, recharge, and bank CVP and Warren Act water and/or Los Banos creek flood waters. The Central Basin is approximately 85 acres and has the capacity to store approximately 1,000 acre-feet. The Southern Basin is approximately 51 acres and is expected to store approximately 800 acre-feet upon completion of mining operations. The Basins will serve four purposes: surface water storage, groundwater recharge, groundwater recovery, and flood water capture.

**DMC Diversions**
Under the Project, CVP and/or Warren Act water will be conveyed through the DMC and diverted into the Central Basin or the Southern Basin at three locations. The first point of diversion will be constructed at approximately mile post MP 80.03-L where a new storage and recovery pump system will be installed to lift water from and return water to the DMC from the Central Basin. The second point of diversion will be constructed at approximately mile-post MP 80.03-R where a second new storage and recovery pump system will be installed to lift water from and return water to the DMC from the Southern Basin. The third point of diversion is at the existing diversion structure near Check 15 at mile post MP 79.60-R (Los Banos Creek) which will gravity flow water from the DMC into Los Banos Creek where a weir and diversion structure will be constructed to divert flows into the Central Basin.

**Los Banos Creek Diversions**
Flood water flowing in Los Banos Creek may be diverted downstream of the DMC siphon crossing where the aforementioned weir and diversion structure will be constructed to divert flows into the Central Basin. Flood waters will only be diverted under the previously stated conditions. Under the Project, the weir and diversion structure would be constructed and the capacity to divert flood waters would increase.

**Conveyance and Infrastructure**
The Project would include constructing the following infrastructure and conveyance components:

- Construct a 30 to 50 cfs water transfer facility between the Central Basin and the DMC.
- Construct a 30 to 50 cfs water transfer facility between the Southern Basin and the DMC.
- Construct a weir in Los Banos Creek downstream of the DMC siphon crossing and the existing Vulcan haul road crossing to facilitate convey water into the Central Basin from Los Banos Creek to capture water released from the DMC or flood flows;
- Construct a diversion structure on the right bank of Los Banos Creek immediately upstream of the newly constructed weir to convey water flowing in Los Banos Creek into the Central Basin.

The Project also includes contouring of the of the bottom of the existing pits being used for the Central Basin and the Southern Basin to facilitate the evacuation of the storage space. There will be no excavation work to create water storage space as the storage space was effectively created through past mining operations. Reshaping and stability improvements to the banks of the basins will also be performed.

On behalf of San Luis Water District, Kleinfelder requested a records search of the California Historic Resources Information System from the Central California Information Center to identify any cultural resources within or adjacent to the Project Area. A search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed with negative results. The NAHC provided your name and address as a tribal contact that is culturally affiliated to the project area. If you have any information that you wish to share, or have questions or would like more information about the project, please do not hesitate to contact me by phone (559) 636-1166, email (jlancaster@ppeng.com), or send a letter to my attention. I would appreciate any information you might provide to assist us with our inventory efforts.

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Sincerely,



Jackie Lancaster
Provost & Pritchard Consulting Group
Senior Project Administrator

encl.: CHRIS Records Search Results, NAHC Sacred Lands File Search Results, APE Map

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September 26, 2025

Santa Rosa Rancheria Tachi Yokut Tribe
Shana Powers, THPO
P.O. Box 8
Lemoore, CA 93245

**Subject: Notification for the Los Banos Creek Recharge and Recovery Project, Merced County, California.**

Dear Shana Powers, THPO:

Provost and Pritchard Consulting Group, is providing cultural resources services in support of the Los Banos Creek Recharge and Recovery Project, located in Merced County.

The Project is located within the boundaries of San Luis Water District's (SLWD) service area and predominantly on properties owned by Vulcan Materials Company surrounding the intersection of Los Banos Creek and the Delta-Mendota Canal (DMC), generally within existing quarry pits located on the properties that are adjacent to the aforementioned waterways. The Project area is located southwest of the City of Los Banos within Merced County, more near and along Los Banos Creek between the San Luis Canal and the Central California Irrigation District (CCID) Outside Canal. The property has been the site of a pilot project to recharge groundwater and more recently groundwater recharge operations under the State of California Governor's Executive Orders N-4-23 and N-7-23. The Project has received funding through the State of California Department of Water Resources Sustainable Groundwater Management Act Implementation Grant and through the Consolidated Appropriations Act pursuant to Public Law No. 118-42. The Project is eligible to receive Central Valley Project (CVP) water consistent with SLWD's CVP Contract No. 14-06-200-7773A-IR1-P.

SLWD and Vulcan have entered into a 20-year License Agreement (License Agreement) that automatically renews for five-year periods unless a notice of termination is issued by either party. The License Agreement facilitates SLWD's ability to construct, operate, and maintain all the necessary infrastructure to conduct storage, and recharge operations in the proposed Central and South Basins. The License Agreement provides for the addition of basins to be used for water supply projects as they become available.

**Project Description**
The Project entails using existing gravel pits (basins), designated as the Central Basin and the Southern Basin, to capture, store, recharge, and bank CVP and Warren Act water and/or Los Banos creek flood waters. The Central Basin is approximately 85 acres and has the capacity to store approximately 1,000 acre-feet. The Southern Basin is approximately 51 acres and is expected to store approximately 800 acre-feet upon completion of mining operations. The Basins will serve four purposes: surface water storage, groundwater recharge, groundwater recovery, and flood water capture.

**DMC Diversions**
Under the Project, CVP and/or Warren Act water will be conveyed through the DMC and diverted into the Central Basin or the Southern Basin at three locations. The first point of diversion will be constructed at approximately mile post MP 80.03-L where a new storage and recovery pump system will be installed to lift water from and return water to the DMC from the Central Basin. The second point of diversion will be constructed at approximately mile-post MP 80.03-R where a second new storage and recovery pump system will be installed to lift water from and return water to the DMC from the Southern Basin. The third point of diversion is at the existing diversion structure near Check 15 at mile post MP 79.60-R (Los Banos Creek) which will gravity flow water from the DMC into Los Banos Creek where a weir and diversion structure will be constructed to divert flows into the Central Basin.

**Los Banos Creek Diversions**
Flood water flowing in Los Banos Creek may be diverted downstream of the DMC siphon crossing where the aforementioned weir and diversion structure will be constructed to divert flows into the Central Basin. Flood waters will only be diverted under the previously stated conditions. Under the Project, the weir and diversion structure would be constructed and the capacity to divert flood waters would increase.

**Conveyance and Infrastructure**
The Project would include constructing the following infrastructure and conveyance components:

- Construct a 30 to 50 cfs water transfer facility between the Central Basin and the DMC.
- Construct a 30 to 50 cfs water transfer facility between the Southern Basin and the DMC.
- Construct a weir in Los Banos Creek downstream of the DMC siphon crossing and the existing Vulcan haul road crossing to facilitate convey water into the Central Basin from Los Banos Creek to capture water released from the DMC or flood flows;
- Construct a diversion structure on the right bank of Los Banos Creek immediately upstream of the newly constructed weir to convey water flowing in Los Banos Creek into the Central Basin.

The Project also includes contouring of the of the bottom of the existing pits being used for the Central Basin and the Southern Basin to facilitate the evacuation of the storage space. There will be no excavation work to create water storage space as the storage space was effectively created through past mining operations. Reshaping and stability improvements to the banks of the basins will also be performed.

On behalf of San Luis Water District, Kleinfelder requested a records search of the California Historic Resources Information System from the Central California Information Center to identify any cultural resources within or adjacent to the Project Area. A search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed with negative results. The NAHC provided your name and address as a tribal contact that is culturally affiliated to the project area. If you have any information that you wish to share, or have questions or would like more information about the project, please do not hesitate to contact me by phone (559) 636-1166, email (jlancaster@ppeng.com), or send a letter to my attention. I would appreciate any information you might provide to assist us with our inventory efforts.

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Sincerely,



Jackie Lancaster
Provost & Pritchard Consulting Group
Senior Project Administrator

encl.: CHRIS Records Search Results, NAHC Sacred Lands File Search Results, APE Map

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September 26, 2025

Santa Rosa Rancheria Tachi Yokut Tribe
Samantha McCarty, Cultural Specialist II
P.O. Box 8
Lemoore, CA 93245

**Subject: Notification for the Los Banos Creek Recharge and Recovery Project, Merced County, California.**

Dear Samantha McCarty, Cultural Specialist II:

Provost and Pritchard Consulting Group, is providing cultural resources services in support of the Los Banos Creek Recharge and Recovery Project, located in Merced County.

The Project is located within the boundaries of San Luis Water District's (SLWD) service area and predominantly on properties owned by Vulcan Materials Company surrounding the intersection of Los Banos Creek and the Delta-Mendota Canal (DMC), generally within existing quarry pits located on the properties that are adjacent to the aforementioned waterways. The Project area is located southwest of the City of Los Banos within Merced County, more near and along Los Banos Creek between the San Luis Canal and the Central California Irrigation District (CCID) Outside Canal. The property has been the site of a pilot project to recharge groundwater and more recently groundwater recharge operations under the State of California Governor's Executive Orders N-4-23 and N-7-23. The Project has received funding through the State of California Department of Water Resources Sustainable Groundwater Management Act Implementation Grant and through the Consolidated Appropriations Act pursuant to Public Law No. 118-42. The Project is eligible to receive Central Valley Project (CVP) water consistent with SLWD's CVP Contract No. 14-06-200-7773A-IR1-P.

SLWD and Vulcan have entered into a 20-year License Agreement (License Agreement) that automatically renews for five-year periods unless a notice of termination is issued by either party. The License Agreement facilitates SLWD's ability to construct, operate, and maintain all the necessary infrastructure to conduct storage, and recharge operations in the proposed Central and South Basins. The License Agreement provides for the addition of basins to be used for water supply projects as they become available.

**Project Description**
The Project entails using existing gravel pits (basins), designated as the Central Basin and the Southern Basin, to capture, store, recharge, and bank CVP and Warren Act water and/or Los Banos creek flood waters. The Central Basin is approximately 85 acres and has the capacity to store approximately 1,000 acre-feet. The Southern Basin is approximately 51 acres and is expected to store approximately 800 acre-feet upon completion of mining operations. The Basins will serve four purposes: surface water storage, groundwater recharge, groundwater recovery, and flood water capture.

**DMC Diversions**
Under the Project, CVP and/or Warren Act water will be conveyed through the DMC and diverted into the Central Basin or the Southern Basin at three locations. The first point of diversion will be constructed at approximately mile post MP 80.03-L where a new storage and recovery pump system will be installed to lift water from and return water to the DMC from the Central Basin. The second point of diversion will be constructed at approximately mile-post MP 80.03-R where a second new storage and recovery pump system will be installed to lift water from and return water to the DMC from the Southern Basin. The third point of diversion is at the existing diversion structure near Check 15 at mile post MP 79.60-R (Los Banos Creek) which will gravity flow water from the DMC into Los Banos Creek where a weir and diversion structure will be constructed to divert flows into the Central Basin.

**Los Banos Creek Diversions**
Flood water flowing in Los Banos Creek may be diverted downstream of the DMC siphon crossing where the aforementioned weir and diversion structure will be constructed to divert flows into the Central Basin. Flood waters will only be diverted under the previously stated conditions. Under the Project, the weir and diversion structure would be constructed and the capacity to divert flood waters would increase.

**Conveyance and Infrastructure**
The Project would include constructing the following infrastructure and conveyance components:

- Construct a 30 to 50 cfs water transfer facility between the Central Basin and the DMC.
- Construct a 30 to 50 cfs water transfer facility between the Southern Basin and the DMC.
- Construct a weir in Los Banos Creek downstream of the DMC siphon crossing and the existing Vulcan haul road crossing to facilitate convey water into the Central Basin from Los Banos Creek to capture water released from the DMC or flood flows;
- Construct a diversion structure on the right bank of Los Banos Creek immediately upstream of the newly constructed weir to convey water flowing in Los Banos Creek into the Central Basin.

The Project also includes contouring of the of the bottom of the existing pits being used for the Central Basin and the Southern Basin to facilitate the evacuation of the storage space. There will be no excavation work to create water storage space as the storage space was effectively created through past mining operations. Reshaping and stability improvements to the banks of the basins will also be performed.

On behalf of San Luis Water District, Kleinfelder requested a records search of the California Historic Resources Information System from the Central California Information Center to identify any cultural resources within or adjacent to the Project Area. A search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed with negative results. The NAHC provided your name and address as a tribal contact that is culturally affiliated to the project area. If you have any information that you wish to share, or have questions or would like more information about the project, please do not hesitate to contact me by phone (559) 636-1166, email (jlancaster@ppeng.com), or send a letter to my attention. I would appreciate any information you might provide to assist us with our inventory efforts.

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Sincerely,



Jackie Lancaster
Provost & Pritchard Consulting Group
Senior Project Administrator

encl.: CHRIS Records Search Results, NAHC Sacred Lands File Search Results, APE Map

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September 26, 2025

Santa Rosa Rancheria Tachi Yokut Tribe
Nichole Escalon, Cultural Specialist I
P.O. Box 8
Lemoore, CA 93245

**Subject: Notification for the Los Banos Creek Recharge and Recovery Project, Merced County, California.**

Dear Nichole Escalon, Cultural Specialist I:

Provost and Pritchard Consulting Group, is providing cultural resources services in support of the Los Banos Creek Recharge and Recovery Project, located in Merced County.

The Project is located within the boundaries of San Luis Water District's (SLWD) service area and predominantly on properties owned by Vulcan Materials Company surrounding the intersection of Los Banos Creek and the Delta-Mendota Canal (DMC), generally within existing quarry pits located on the properties that are adjacent to the aforementioned waterways. The Project area is located southwest of the City of Los Banos within Merced County, more near and along Los Banos Creek between the San Luis Canal and the Central California Irrigation District (CCID) Outside Canal. The property has been the site of a pilot project to recharge groundwater and more recently groundwater recharge operations under the State of California Governor's Executive Orders N-4-23 and N-7-23. The Project has received funding through the State of California Department of Water Resources Sustainable Groundwater Management Act Implementation Grant and through the Consolidated Appropriations Act pursuant to Public Law No. 118-42. The Project is eligible to receive Central Valley Project (CVP) water consistent with SLWD's CVP Contract No. 14-06-200-7773A-IR1-P.

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**Project Description**
The Project entails using existing gravel pits (basins), designated as the Central Basin and the Southern Basin, to capture, store, recharge, and bank CVP and Warren Act water and/or Los Banos creek flood waters. The Central Basin is approximately 85 acres and has the capacity to store approximately 1,000 acre-feet. The Southern Basin is approximately 51 acres and is expected to store approximately 800 acre-feet upon completion of mining operations. The Basins will serve four purposes: surface water storage, groundwater recharge, groundwater recovery, and flood water capture.

**DMC Diversions**
Under the Project, CVP and/or Warren Act water will be conveyed through the DMC and diverted into the Central Basin or the Southern Basin at three locations. The first point of diversion will be constructed at approximately mile post MP 80.03-L where a new storage and recovery pump system will be installed to lift water from and return water to the DMC from the Central Basin. The second point of diversion will be constructed at approximately mile-post MP 80.03-R where a second new storage and recovery pump system will be installed to lift water from and return water to the DMC from the Southern Basin. The third point of diversion is at the existing diversion structure near Check 15 at mile post MP 79.60-R (Los Banos Creek) which will gravity flow water from the DMC into Los Banos Creek where a weir and diversion structure will be constructed to divert flows into the Central Basin.

**Los Banos Creek Diversions**
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**Conveyance and Infrastructure**
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- Construct a 30 to 50 cfs water transfer facility between the Central Basin and the DMC.
- Construct a 30 to 50 cfs water transfer facility between the Southern Basin and the DMC.
- Construct a weir in Los Banos Creek downstream of the DMC siphon crossing and the existing Vulcan haul road crossing to facilitate convey water into the Central Basin from Los Banos Creek to capture water released from the DMC or flood flows;
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The Project also includes contouring of the of the bottom of the existing pits being used for the Central Basin and the Southern Basin to facilitate the evacuation of the storage space. There will be no excavation work to create water storage space as the storage space was effectively created through past mining operations. Reshaping and stability improvements to the banks of the basins will also be performed.

On behalf of San Luis Water District, Kleinfelder requested a records search of the California Historic Resources Information System from the Central California Information Center to identify any cultural resources within or adjacent to the Project Area. A search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed with negative results. The NAHC provided your name and address as a tribal contact that is culturally affiliated to the project area. If you have any information that you wish to share, or have questions or would like more information about the project, please do not hesitate to contact me by phone (559) 636-1166, email (jlancaster@ppeng.com), or send a letter to my attention. I would appreciate any information you might provide to assist us with our inventory efforts.

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Sincerely,



Jackie Lancaster
Provost & Pritchard Consulting Group
Senior Project Administrator

encl.: CHRIS Records Search Results, NAHC Sacred Lands File Search Results, APE Map

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September 26, 2025

Tule River Indian Tribe
Neil Peyron, Chairperson
P. O. Box 589
Porterville, CA 93259

**Subject: Notification for the Los Banos Creek Recharge and Recovery Project, Merced County, California.**

Dear Neil Peyron, Chairperson:

Provost and Pritchard Consulting Group, is providing cultural resources services in support of the Los Banos Creek Recharge and Recovery Project, located in Merced County.

The Project is located within the boundaries of San Luis Water District's (SLWD) service area and predominantly on properties owned by Vulcan Materials Company surrounding the intersection of Los Banos Creek and the Delta-Mendota Canal (DMC), generally within existing quarry pits located on the properties that are adjacent to the aforementioned waterways. The Project area is located southwest of the City of Los Banos within Merced County, more near and along Los Banos Creek between the San Luis Canal and the Central California Irrigation District (CCID) Outside Canal. The property has been the site of a pilot project to recharge groundwater and more recently groundwater recharge operations under the State of California Governor's Executive Orders N-4-23 and N-7-23. The Project has received funding through the State of California Department of Water Resources Sustainable Groundwater Management Act Implementation Grant and through the Consolidated Appropriations Act pursuant to Public Law No. 118-42. The Project is eligible to receive Central Valley Project (CVP) water consistent with SLWD's CVP Contract No. 14-06-200-7773A-IR1-P.

SLWD and Vulcan have entered into a 20-year License Agreement (License Agreement) that automatically renews for five-year periods unless a notice of termination is issued by either party. The License Agreement facilitates SLWD's ability to construct, operate, and maintain all the necessary infrastructure to conduct storage, and recharge operations in the proposed Central and South Basins. The License Agreement provides for the addition of basins to be used for water supply projects as they become available.

**Project Description**
The Project entails using existing gravel pits (basins), designated as the Central Basin and the Southern Basin, to capture, store, recharge, and bank CVP and Warren Act water and/or Los Banos creek flood waters. The Central Basin is approximately 85 acres and has the capacity to store approximately 1,000 acre-feet. The Southern Basin is approximately 51 acres and is expected to store approximately 800 acre-feet upon completion of mining operations. The Basins will serve four purposes: surface water storage, groundwater recharge, groundwater recovery, and flood water capture.

**DMC Diversions**
Under the Project, CVP and/or Warren Act water will be conveyed through the DMC and diverted into the Central Basin or the Southern Basin at three locations. The first point of diversion will be constructed at approximately mile post MP 80.03-L where a new storage and recovery pump system will be installed to lift water from and return water to the DMC from the Central Basin. The second point of diversion will be constructed at approximately mile-post MP 80.03-R where a second new storage and recovery pump system will be installed to lift water from and return water to the DMC from the Southern Basin. The third point of diversion is at the existing diversion structure near Check 15 at mile post MP 79.60-R (Los Banos Creek) which will gravity flow water from the DMC into Los Banos Creek where a weir and diversion structure will be constructed to divert flows into the Central Basin.

**Los Banos Creek Diversions**
Flood water flowing in Los Banos Creek may be diverted downstream of the DMC siphon crossing where the aforementioned weir and diversion structure will be constructed to divert flows into the Central Basin. Flood waters will only be diverted under the previously stated conditions. Under the Project, the weir and diversion structure would be constructed and the capacity to divert flood waters would increase.

**Conveyance and Infrastructure**
The Project would include constructing the following infrastructure and conveyance components:

- Construct a 30 to 50 cfs water transfer facility between the Central Basin and the DMC.
- Construct a 30 to 50 cfs water transfer facility between the Southern Basin and the DMC.
- Construct a weir in Los Banos Creek downstream of the DMC siphon crossing and the existing Vulcan haul road crossing to facilitate convey water into the Central Basin from Los Banos Creek to capture water released from the DMC or flood flows;
- Construct a diversion structure on the right bank of Los Banos Creek immediately upstream of the newly constructed weir to convey water flowing in Los Banos Creek into the Central Basin.

The Project also includes contouring of the of the bottom of the existing pits being used for the Central Basin and the Southern Basin to facilitate the evacuation of the storage space. There will be no excavation work to create water storage space as the storage space was effectively created through past mining operations. Reshaping and stability improvements to the banks of the basins will also be performed.

On behalf of San Luis Water District, Kleinfelder requested a records search of the California Historic Resources Information System from the Central California Information Center to identify any cultural resources within or adjacent to the Project Area. A search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed with negative results. The NAHC provided your name and address as a tribal contact that is culturally affiliated to the project area. If you have any information that you wish to share, or have questions or would like more information about the project, please do not hesitate to contact me by phone (559) 636-1166, email (jlancaster@ppeng.com), or send a letter to my attention. I would appreciate any information you might provide to assist us with our inventory efforts.

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Sincerely,



Jackie Lancaster
Provost & Pritchard Consulting Group
Senior Project Administrator

encl.: CHRIS Records Search Results, NAHC Sacred Lands File Search Results, APE Map

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September 26, 2025

Tule River Indian Tribe
Kerri Vera, Environmental
Department
P. O. Box 589
Porterville, CA 93258

**Subject: Notification for the Los Banos Creek Recharge and Recovery Project, Merced County, California.**

Dear Kerri Vera, Environmental Department:

Provost and Pritchard Consulting Group, is providing cultural resources services in support of the Los Banos Creek Recharge and Recovery Project, located in Merced County.

The Project is located within the boundaries of San Luis Water District's (SLWD) service area and predominantly on properties owned by Vulcan Materials Company surrounding the intersection of Los Banos Creek and the Delta-Mendota Canal (DMC), generally within existing quarry pits located on the properties that are adjacent to the aforementioned waterways. The Project area is located southwest of the City of Los Banos within Merced County, more near and along Los Banos Creek between the San Luis Canal and the Central California Irrigation District (CCID) Outside Canal. The property has been the site of a pilot project to recharge groundwater and more recently groundwater recharge operations under the State of California Governor's Executive Orders N-4-23 and N-7-23. The Project has received funding through the State of California Department of Water Resources Sustainable Groundwater Management Act Implementation Grant and through the Consolidated Appropriations Act pursuant to Public Law No. 118-42. The Project is eligible to receive Central Valley Project (CVP) water consistent with SLWD's CVP Contract No. 14-06-200-7773A-IR1-P.

SLWD and Vulcan have entered into a 20-year License Agreement (License Agreement) that automatically renews for five-year periods unless a notice of termination is issued by either party. The License Agreement facilitates SLWD's ability to construct, operate, and maintain all the necessary infrastructure to conduct storage, and recharge operations in the proposed Central and South Basins. The License Agreement provides for the addition of basins to be used for water supply projects as they become available.

**Project Description**
The Project entails using existing gravel pits (basins), designated as the Central Basin and the Southern Basin, to capture, store, recharge, and bank CVP and Warren Act water and/or Los Banos creek flood waters. The Central Basin is approximately 85 acres and has the capacity to store approximately 1,000 acre-feet. The Southern Basin is approximately 51 acres and is expected to store approximately 800 acre-feet upon completion of mining operations. The Basins will serve four purposes: surface water storage, groundwater recharge, groundwater recovery, and flood water capture.

**DMC Diversions**
Under the Project, CVP and/or Warren Act water will be conveyed through the DMC and diverted into the Central Basin or the Southern Basin at three locations. The first point of diversion will be constructed at approximately mile post MP 80.03-L where a new storage and recovery pump system will be installed to lift water from and return water to the DMC from the Central Basin. The second point of diversion will be constructed at approximately mile-post MP 80.03-R where a second new storage and recovery pump system will be installed to lift water from and return water to the DMC from the Southern Basin. The third point of diversion is at the existing diversion structure near Check 15 at mile post MP 79.60-R (Los Banos Creek) which will gravity flow water from the DMC into Los Banos Creek where a weir and diversion structure will be constructed to divert flows into the Central Basin.

**Los Banos Creek Diversions**
Flood water flowing in Los Banos Creek may be diverted downstream of the DMC siphon crossing where the aforementioned weir and diversion structure will be constructed to divert flows into the Central Basin. Flood waters will only be diverted under the previously stated conditions. Under the Project, the weir and diversion structure would be constructed and the capacity to divert flood waters would increase.

**Conveyance and Infrastructure**
The Project would include constructing the following infrastructure and conveyance components:

- Construct a 30 to 50 cfs water transfer facility between the Central Basin and the DMC.
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- Construct a weir in Los Banos Creek downstream of the DMC siphon crossing and the existing Vulcan haul road crossing to facilitate convey water into the Central Basin from Los Banos Creek to capture water released from the DMC or flood flows;
- Construct a diversion structure on the right bank of Los Banos Creek immediately upstream of the newly constructed weir to convey water flowing in Los Banos Creek into the Central Basin.

The Project also includes contouring of the of the bottom of the existing pits being used for the Central Basin and the Southern Basin to facilitate the evacuation of the storage space. There will be no excavation work to create water storage space as the storage space was effectively created through past mining operations. Reshaping and stability improvements to the banks of the basins will also be performed.

On behalf of San Luis Water District, Kleinfelder requested a records search of the California Historic Resources Information System from the Central California Information Center to identify any cultural resources within or adjacent to the Project Area. A search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed with negative results. The NAHC provided your name and address as a tribal contact that is culturally affiliated to the project area. If you have any information that you wish to share, or have questions or would like more information about the project, please do not hesitate to contact me by phone (559) 636-1166, email (jlancaster@ppeng.com), or send a letter to my attention. I would appreciate any information you might provide to assist us with our inventory efforts.

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Sincerely,



Jackie Lancaster
Provost & Pritchard Consulting Group
Senior Project Administrator

encl.: CHRIS Records Search Results, NAHC Sacred Lands File Search Results, APE Map

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September 26, 2025

Wuksachi Indian Tribe/Eshom Valley Band
Kenneth Woodrow, Chairperson
1179 Rock Haven Ct.
Salinas, CA, 93906

**Subject: Notification for the Los Banos Creek Recharge and Recovery Project, Merced County, California.**

Dear Kenneth Woodrow, Chairperson:

Provost and Pritchard Consulting Group, is providing cultural resources services in support of the Los Banos Creek Recharge and Recovery Project, located in Merced County.

The Project is located within the boundaries of San Luis Water District's (SLWD) service area and predominantly on properties owned by Vulcan Materials Company surrounding the intersection of Los Banos Creek and the Delta-Mendota Canal (DMC), generally within existing quarry pits located on the properties that are adjacent to the aforementioned waterways. The Project area is located southwest of the City of Los Banos within Merced County, more near and along Los Banos Creek between the San Luis Canal and the Central California Irrigation District (CCID) Outside Canal. The property has been the site of a pilot project to recharge groundwater and more recently groundwater recharge operations under the State of California Governor's Executive Orders N-4-23 and N-7-23. The Project has received funding through the State of California Department of Water Resources Sustainable Groundwater Management Act Implementation Grant and through the Consolidated Appropriations Act pursuant to Public Law No. 118-42. The Project is eligible to receive Central Valley Project (CVP) water consistent with SLWD's CVP Contract No. 14-06-200-7773A-IR1-P.

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**Project Description**
The Project entails using existing gravel pits (basins), designated as the Central Basin and the Southern Basin, to capture, store, recharge, and bank CVP and Warren Act water and/or Los Banos creek flood waters. The Central Basin is approximately 85 acres and has the capacity to store approximately 1,000 acre-feet. The Southern Basin is approximately 51 acres and is expected to store approximately 800 acre-feet upon completion of mining operations. The Basins will serve four purposes: surface water storage, groundwater recharge, groundwater recovery, and flood water capture.

**DMC Diversions**
Under the Project, CVP and/or Warren Act water will be conveyed through the DMC and diverted into the Central Basin or the Southern Basin at three locations. The first point of diversion will be constructed at approximately mile post MP 80.03-L where a new storage and recovery pump system will be installed to lift water from and return water to the DMC from the Central Basin. The second point of diversion will be constructed at approximately mile-post MP 80.03-R where a second new storage and recovery pump system will be installed to lift water from and return water to the DMC from the Southern Basin. The third point of diversion is at the existing diversion structure near Check 15 at mile post MP 79.60-R (Los Banos Creek) which will gravity flow water from the DMC into Los Banos Creek where a weir and diversion structure will be constructed to divert flows into the Central Basin.

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Sincerely,



Jackie Lancaster
Provost & Pritchard Consulting Group
Senior Project Administrator

encl.: CHRIS Records Search Results, NAHC Sacred Lands File Search Results, APE Map

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September 26, 2025

Southern Sierra Miwuk Nation
Sandra Chapman, Chairperson
P.O. Box 186
Mariposa, CA, 95338

**Subject: Notification for the Los Banos Creek Recharge and Recovery Project, Merced County, California.**

Dear Sandra Chapman, Chairperson:

Provost and Pritchard Consulting Group, is providing cultural resources services in support of the Los Banos Creek Recharge and Recovery Project, located in Merced County.

The Project is located within the boundaries of San Luis Water District's (SLWD) service area and predominantly on properties owned by Vulcan Materials Company surrounding the intersection of Los Banos Creek and the Delta-Mendota Canal (DMC), generally within existing quarry pits located on the properties that are adjacent to the aforementioned waterways. The Project area is located southwest of the City of Los Banos within Merced County, more near and along Los Banos Creek between the San Luis Canal and the Central California Irrigation District (CCID) Outside Canal. The property has been the site of a pilot project to recharge groundwater and more recently groundwater recharge operations under the State of California Governor's Executive Orders N-4-23 and N-7-23. The Project has received funding through the State of California Department of Water Resources Sustainable Groundwater Management Act Implementation Grant and through the Consolidated Appropriations Act pursuant to Public Law No. 118-42. The Project is eligible to receive Central Valley Project (CVP) water consistent with SLWD's CVP Contract No. 14-06-200-7773A-IR1-P.

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Jackie Lancaster
Provost & Pritchard Consulting Group
Senior Project Administrator

encl.: CHRIS Records Search Results, NAHC Sacred Lands File Search Results, APE Map

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September 26, 2025

Southern Sierra Miwuk Nation
Jazzmyn Gegere, Director of Cultural Resource Preservation
P.O. Box 186
Mariposa, CA, 95338

**Subject: Notification for the Los Banos Creek Recharge and Recovery Project, Merced County, California.**

Dear Jazzmyn Gegere, Director of Cultural Resource Preservation:

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Jackie Lancaster
Provost & Pritchard Consulting Group
Senior Project Administrator

encl.: CHRIS Records Search Results, NAHC Sacred Lands File Search Results, APE Map

**APPENDIX C**

**RECORDS SEARCH RESULTS**

**APPENDIX D**

**SURVEY PHOTOGRAPHS**



**Photo 1**: Overview of the southern section of the APE, photo taken from southeast corner of the APE. Facing northwest.



**Photo 2**: Close up of concrete path present along southern edge of APE. Facing west.



**Photo 3**: Overview of concrete pads present in the southern part of the APE. Facing west.



**Photo 4**: Overview of modern concrete pads present in the southern part of the APE. Facing southwest.



**Photo 5**: Overview of berm surrounding pond present in southwest of APE. Facing west.



**Photo 6**: Overview of pond and surrounding artificial berm. Facing southwest.



**Photo 7**: Overview of pond from the northern end of the pond. Facing south.



**Photo 8**: Overview of northern terminus of pond present in southwest of APE. Facing northeast.



**Photo 9**: Overview of southern terminus of pond present in southwest of APE. Facing southeast.



**Photo 10**: Overview of modern use (road) and disturbances (berming and excavation) observed in the APE. Facing northeast.



**Photo 11**: Close up of excavator teeth markings on wall of quarry present in southern section of APE. Facing south.



**Photo 12**: Overview of quarry present in southern section of APE. Facing east.



**Photo 13**: Overview of quarry present within southern section of APE. Facing north.



**Photo 14**: Overview of the southern section of the APE along Los Banos Creek. Facing northeast.



**Photo 15**: Overview of P-24-001703, cement lined canal currently in use. Facing southeast.



**Photo 16**: Overview of southern section of APE with flow control station along Los Banos Creek and adjacent to P-24-001703. Facing southwest.



**Photo 17**: Overview of southern section of APE with flow control station along Los Banos Creek and adjacent to P-24-001703. Facing west.



**Photo 18**: Overview of stream that crosses perpendicular to P-24-001703. Facing northeast.



**Photo 19**: Overview of motorized flow control within P-24-001703 just outside the APE. Facing north northwest.



**Photo 20**: Overview of powerhouse for flow control within P-24-001703 just outside the APE. Facing north.



**Photo 21**: Overview of southern section of APE with P-50-001904 and southern bank of resource. Facing east.



**Photo 22**: Overview of P-24-001703 with a bridge crossing the canal. Facing east.



**Photo 23**: Overview of P-24-001703. Facing west.



**Photo 24**: Overview of southern section of APE with brick pile close to southern edge of APE. Facing west.



**Photo 25**: Overview of southern section of APE with field present along southern edge of APE. Facing west.



**Photo 26**: Overview of northern section of APE from eastern part of APE. Facing west.



**Photo 27**: Overview of northern section of APE. Facing east.



**Photo 28**: Overview of northern section of APE with no trespassing sign along northwestern part of APE. Facing northeast.



**Photo 29**: Overview of northern section of APE with house adjacent to no trespassing sign in northwestern part of APE. Facing north.



**Photo 30**: Overview of flooded fields with modern waterflow in northwestern part of APE. Facing north northwest.



**Photo 31**: Overview of flooded fields in northwestern part of APE. Facing northeast.



**Photo 32**: Overview of northern section of APE with Los Banos Creek bed and APE on private property. Facing southwest.



**Photo 33**: Overview of northern section of APE with road and rubble leading towards Vulcan Yards. Facing north.



**Photo 34**: Overview of northern section of APE with Los Banos Creek and flooded APE present on western bank. Facing southwest.



**Photo 35**: Overview of northern section of APE at base of quarry. Facing northwest.



**Photo 36**: Overview of highly disturbed northern section of APE. Facing north northeast.



**Photo 37**: Overview of northern section of APE with heavily excavated section, pond and heavy equipment tracks. Facing southeast.



**Photo 38**: Overview of northern section of APE with excavation marks on hill cut. Facing northwest.



**Photo 39**: Overview of northern section of APE with bottom of quarry. Facing east.



**Photo 40**: Overview of northern section of APE. Facing east.



**Photo 41**: Overview of northern section of APE. Facing southwest.



**Photo 42**: Overview of northern section of APE. Facing southwest.



**Photo 43**: Detail of soil stratigraphy. Facing east.

# Appendix D: Draft Monitoring Plan

# Introduction

This document describes the plan for measuring and monitoring certain physical parameters to limit impacts to water quality in the Delta-Mendota Canal (DMC), subsidence, and groundwater sustainability, as related to Los Banos Creek Recharge and Recovery Project (LBCRR Project) operations. The monitoring data used under this must be measured properly to demonstrate it is consistent, predictable, and of acceptable quality.

Reclamation will use monitoring data for the administration of any Warren Act contracts and the environmental review for future contracts.

## Background

The Delta Division of the federal CVP delivers water to almost a million acres of farmland in the San Joaquin Valley of California. The CVP is also the sole source of clean water for state and federal wildlife refuges and many private wetlands in Fresno, Merced, San Joaquin, and Stanislaus Counties.

The source of water for the Division is the northern Sierra Nevada, passing through the delta of the Sacramento and San Joaquin Rivers. This water is suitable in quality for irrigation and wetlands. The Central Valley is regularly affected by droughts that reduce the annual supply of water. Environmental regulations also restrict the operation of the Jones Pumping Plant to divert water from the Delta. The salinity of water in the Delta is highly variable due to the tidal intrusion of seawater and outflow of river water.

The DMC carries CVP water to farms, communities, and wetlands between Tracy and Mendota. The 116-mile canal was built by Reclamation in 1952 and is currently operated and maintained by the San Luis and Delta-Mendota Water Authority (Authority). Uncontrolled inflows of tailwater from uphill fields and subsurface water add contaminants to the canal. The addition of non-project water may further degrade the quality of water in the canal.

The districts in the Delta Division use surface and ground water to supplement their contractual supply from the CVP. These supplies are called “Non-Project Water” because they have not been appropriated by the United States for the purposes of the CVP. Reclamation has developed water quality requirements and monitoring protocols to regulate the introduction of Non-Project Water into the DMC. These water quality requirements and monitoring protocols are contained in a document, the Delta-Mendota Canal Non-Project Water Pump-in Program Monitoring Plan.

In that monitoring plan, the quality of the non-project water is measured to confirm that there will be no harm to downstream water users when it is pumped into the canal. Reclamation developed a set of standards for the non-project water based on the requirements of downstream water users. Routine testing under that monitoring plan is intended to demonstrate that the non-project water introduced into the DMC is of consistent, predictable, and acceptable quality. That monitoring plan also contained monitoring and restrictions on operations avoid physical impacts on the Delta-Mendota Canal due to subsidence.

The LBCRR Project is located within the Delta-Mendota groundwater subbasin and the jurisdictional area of the Central Delta-Mendota Groundwater Sustainability Agency (CDMGSA). In response to the Sustainable Groundwater Management Act of 2014, the groundwater

sustainability agencies within the Delta-Mendota subbasin adopted the Delta-Mendota Subbasin Groundwater Sustainability Plan (Delta-Mendota GSP). The Delta-Mendota GSP provides monitoring, management actions, and projects, including the LBCRR Project, to ensure that groundwater use is sustainably managed within the Delta-Mendota subbasin. Groundwater extractors are required to comply with all regulations, policies, and plan provisions adopted for the sustainable management of groundwater resources by their local groundwater sustainability agency. Presently, the CDMGSA requires the registration of all groundwater extraction wells and the metering and reporting of groundwater extractions for all users except de minimis users.

# Purpose and Goals

The purpose of this monitoring plan is to measure and monitor certain physical parameters to limit potential impacts caused by LBCRR Project operations including: (1) water quality degradation within the DMC; (2) land subsidence within and adjacent to the LBCRR Project area; and (3) undesirable results with respect to groundwater sustainability as identified in the Delta-Mendota GSP. These operations include the following actions:

- diversion of water from the Delta-Mendota Canal into storage basins,
- storage of water within storage basins
- reintroduction of stored water from the storage basins into the DMC,
- recovery of intentionally percolated (recharged) water from the aquifer underlying the storage basins and introducing the water into the DMC, and
- diversion of flood flows from Los Banos Creek into the storage basins.

The goals of this monitoring plan are:

- monitor and evaluate the baseline quality of CVP water in the DMC,
- monitor and evaluate the quality of stored water reintroduced into the DMC,
- monitor and evaluate the quality of water recovered from the aquifer and introduced into the DMC,
- monitor and evaluate groundwater level data,
- monitor and evaluate groundwater quality data, and
- monitor and evaluate changes in ground surface elevations along the DMC.

# Recovered Groundwater Quality Monitoring

The first element of this monitoring plan is monitoring the quality of groundwater recovered by extraction wells and introduced into the DMC, hereinafter referred to as **recovered groundwater**. Given the similarities between the introduction of recovered groundwater into the DMC under the LBCRR Project and the introduction of non-project water into the DMC, this monitoring element adopts and restates the water quality requirements found in the Delta-Mendota Canal Non-Project Water Pump-in Program Monitoring Plan as revised on March 2018.

## Water Quality Standards

The quality of **recovered groundwater** must meet the standards listed in Tables 1 and 2. The standards have been developed by Reclamation to measure constituents of concern that would affect downstream water users. In particular, the concentration of selenium in any **recovered groundwater** shall not exceed 2 µg/L, the limit for the Grasslands wetlands water supply channels specified in the 1998 Basin Plan.[1] The salinity of **recovered groundwater** water should not exceed 1500 mg/L TDS. The other constituents are mainly agricultural chemicals listed in the California Drinking Water Standards (Title 22)[2]. In addition, Reclamation has imposed both in-canal (Table 6) and discharge (Tables 1 and 2) boron and sodium thresholds. These thresholds are in place to project agricultural beneficial use of DMC water.

## Real-time Monitoring

Reclamation will monitor the electrical conductivity (EC) of water in the DMC at the locations listed in Table 3. Reclamation is responsible for the management and maintenance of these real-time EC stations.

## In-Canal Sampling

Based on available funding, Reclamation will collect monthly water samples from the DMC at the sites listed in Table 4.

The Authority will sample for boron and sodium at a minimum of four locations along the DMC. Two locations in the upper DMC (upstream of San Luis Reservoir), one upstream of non-project pumping and one downstream of non-project pumping. Two locations in the lower DMC (downstream of San Luis Reservoir), one upstream of non-project pumping and one downstream of non-project pumping.

## Source Sampling

Prior to pumping **recovered groundwater** into the DMC, the water in each source of **recovered groundwater** must be tested for a short list of constituents of concern (Table 1). This initial test will economically screen out unacceptable water sources. Upon review of the short list laboratory

[1] California Regional Water Quality Control Board, Central Valley Region, Fourth Edition of the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins. Revised.

[2] California Code of Regulations, Title 22. The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 4010 4037), and Administrative Code (Sections 64401 et seq.), as amended.
http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dwregulations-2016-09-23.pdf

results and written approval from Reclamation and the Authority, the **recovered groundwater** may be discharged into the DMC. **Recovered groundwater** sources discharging into the DMC are required to sample the short list of constituents every week for the first four weeks, followed by monthly sampling for the duration of pumping.

Every three years the **recovered groundwater** source is required to sample for the full suite of Title 22 (Table 2). Any source of **recovered groundwater** with out-of-date analysis will not be allowed to discharge until laboratory data is updated.

Laboratory analysis for **recovered groundwater** is at the expense of the discharger. Reclamation has provided a list of approved laboratories (Table 5). These laboratories have passed an audit by Reclamation Mid-Pacific Region Quality Assurance Staff. Samples shall be collected using industry approved field methods. Laboratory reports must be sent to Reclamation and contain appropriate chain of custody and laboratory quality control information. The source of analysis must be clearly labeled on the laboratory report.

## Maximum Allowable Concentrations

Reclamation will use real-time monitoring stations and in-canal water samples to monitor changes in the salinity, selenium, boron, and sodium levels in the DMC, and determine if **recovered groundwater** has caused these changes. In-canal changes are limited to the concentrations listed in Table 6. Reclamation will direct the Authority stop pumping if concentrations exceed these limits.

# Stored Surface Water Quality Monitoring

The second element of this monitoring plan is monitoring the quality of stored surface water that is reintroduced into the DMC after previously being diverted from the DMC, hereinafter referred to as **stored surface water**. The quality of **stored surface water** is expected and assumed to meet established water quality standards as the **stored surface water** consists entirely of **diverted surface water**. For this reason, monitoring of stored surface water quality is limited to key water quality parameters and will be limited in duration upon appropriate demonstration to Reclamation that: (1) **stored surface water** quality is equivalent to **diverted surface water** quality; and (2) stored surface water will not cause meaningful degrade the water quality within the DMC.

## Water Quality Standards

The quality of **stored surface water** that is reintroduced into the DMC must meet the standards listed in Table 1 if the **diverted surface water** meets those same standards. If the **diverted surface water** does not meet a specific standard, the **stored surface water** not be required to meet that standard The water quality standards provided in Table 2 and in-canal thresholds in Table 6 shall not apply to **stored surface water**.

## Source Sampling

During periods when water is being diverted from the DMC into the storage basins, the **diverted surface water** will be tested for a short list of constituents of concern (Table 1) when the diversion begins and every other week thereafter. Totalized meter readings representing the quantity of water diverted shall be recorded and included with the test results.

During periods when water is being reintroduced into the DMC from the storage basins, the **stored surface water** will be tested for the same short list of constituents of concern (Table 1) when the reintroduction begins and every other week thereafter. Totalized meter readings representing the quantity of water reintroduced shall be recorded and included with the test results.

Laboratory analysis for **stored surface water** is at the expense of the discharger. Reclamation has provided a list of approved laboratories (Table 5). These laboratories have passed an audit by Reclamation Mid-Pacific Region Quality Assurance Staff. Samples shall be collected using industry approved field methods. Laboratory reports must be sent to Reclamation and contain appropriate chain of custody and laboratory quality control information. The source of analysis must be clearly labeled on the laboratory report.

## Evaluation Period

This element of the monitoring plan will remain in effect until it the test results are evaluated by Reclamation and it is demonstrated to Reclamation that: (1) **stored surface water** quality is equivalent to **diverted surface water** quality; and (2) stored surface water will not cause meaningful degradation of the water quality within the DMC. This evaluation will occur after four years of LBCRR Project operations or two periods of complete water storage operations (i.e. diversion from and reintroduction into the DMC).

In the event the evaluation does not achieve the required demonstration, this element of the monitoring plan will continue until the required demonstration is made. Also, additional requirements may be added to address issues identified during monitoring.

# Groundwater Level Monitoring

The third element of this monitoring plan is the monitoring of groundwater elevations. Limitations placed on LBCRR Project groundwater recovery operations based on groundwater elevations are intended to: (1) prevent groundwater pumping from contributing to subsidence, and (2) prevent saturation of the soil and degradation of its bearing capacity underlying the DMC. This element is also intended to demonstrate that groundwater recovery operations are not impacting groundwater users in the vicinity of the LBCRR Project.

The groundwater level constraints utilized in this element are based on those provided in the Delta-Mendota Canal Non-Project Water Pump-in Program Monitoring Plan. The constraints have been modified to accommodate the fact that the aforementioned monitoring plan relies on wells having a history of recorded water levels and the recovery wells under the LBCRR Project have not been constructed and thus have no history of recorded water levels.

## Groundwater Level Monitoring

Once constructed and operational, groundwater levels in each recovery water well will be measured by the Authority once per month from March to September and every other month outside of that range. Groundwater levels in monitoring wells MC15-1, MC15-2, and MC15-3, located within the Authority Maintenance Yard, hereinafter referred to as the Project Monitoring Wells, will be measured by the Authority once per month. Measurements must be made using industry approved methods.

## Definitions

*Max Depth to Groundwater (Max DTGW)* represents the maximum depth to groundwater measurement collected from an individual well.

*Fall/Winter Median Groundwater Level* represents the average historical recovery level for each well. Determined by using groundwater level data recorded in the Fall/Winter after the well has had time to recovery from irrigation season.

## Pumping Constraints

Groundwater level pumping constraints are put in place to protect wells from pumping below their Max DTGW and further contribute to subsidence. Groundwater level data will be used for the following constraints:

An individual well will be shutoff when its Depth to Groundwater reaches 75% of the difference between the Fall/Winter Median Groundwater Level and the Max DTGW using the following equation:

Shutoff= 0.75*(Max DTGW-Fall/Winter Median) + Fall/Winter Median

If an individual well is shutoff due to groundwater levels reaching the shutoff trigger, it will not be allowed to resume pumping until it reaches 70% of the difference between the Fall/Winter Median Groundwater Level and the Max DTGW using the following equation:

Well Resumption= 0.70* (Max DTGW-Fall/Winter Median) + Fall/Winter Median

Groundwater level measurements will follow a strict schedule. If a well is shutoff it will not be measured again until the next scheduled measurement date. The Authority must notify Reclamation in writing when a well is shutoff or resuming. See Definitions section for explanation for Max DTGW and Fall/Winter Median.

## Groundwater Data Requirements

Each well must have static Max DTGW and Fall/Winter Median data established in order to participate in the program. Any well which is missing this data will be excluded from discharging into the DMC until either: (1) a groundwater level measurement can be recorded and a Fall/Winter Median depth to groundwater level can be developed; or (2) a functionally equivalent value can be determined based on groundwater elevation data of nearby wells or seasonal water level contour mapping.

## Recharge Constraints

Groundwater level recharge constraints are put into place to protect the soil underlying the DMC from becoming saturated and having its weight bearing capacity degraded. Groundwater levels taken in the Project Monitoring Wells, specifically MC15-3, which is completed in the shallowest aquifer underlying the LBCRR Project area.

The maximum storage elevation in the Central and Southern Basins has been set at 150.0 feet above sea level. The minimum depth of the DMC throughout the LBCRR Project area is 156.0 feet above sea level.

To avoid saturated soil conditions near the DMC, a maximum water surface elevation of 146.0 feet above sea level has been established. If water levels approach or exceed 146.0 feel above mean sea level in Project Monitoring Well MC15-3, any diversions from the DMC shall cease immediately and efforts shall be undertaken to reduce the elevation of water in the storage basins.

# Groundwater Quality Monitoring Plan

The fourth element of this monitoring plan involves groundwater quality monitoring. This element is intended to monitor the concentration of all constituents of concern as defined in the most recently adopted revision of the Delta-Mendota Groundwater Sustainability Plan. The constituents of concern in the most recently adopted GSP are as follows:

- Total dissolved solids (TDS)
- Arsenic
- Hexavalent chromium
- Boron
- Gross alpha radioactivity
- 1,2,3-Trichloropropane

This monitoring plan element is intended to demonstrate LBCRR Project compliance with the provisions set forth in the Delta-Mendota GSP.

## Groundwater Quality Monitoring

Groundwater quality samples will be taken from the Project Monitoring Wells MC15-1 and MC15-2 during the months of February and August. Project Monitoring Well MC-15-1 is completed in the confined or lower aquifer which lies below the Corcoran Clay layer. Project Monitoring Well MC15-2 is completed in the upper or unconfined aquifer which lies immediately above the Corcoran Clay layer. Project Monitoring Well MC15-3 is completed in a shallow zone and is not used for groundwater quality monitoring.

Project Monitoring Wells MC15-1 and MC15-2 are also a part of the water quality monitoring network established by the CDMGSA for SGMA compliance. It is the intent of this element that measurements taken for SGMA compliance will also be used for monitoring under this plan in a coordinated effort.

## Groundwater Quality Constraints

The CDMGSA has established certain minimum threshold (MT) values for water quality for Project Monitoring Wells MC15-1 and MC15-2. The MT values are provided in Table A.

If there is an exceedance of any of the MT values listed in Table A, any active LBCRR Project groundwater recovery operations will cease until a cause for the exceedance is identified and mitigated if the cause is related to those operations. The investigation of any exceedance of the water quality MT will be coordinated with the CDMGSA and be conducted in accordance with the Delta-Mendota GSP.

# Subsidence Monitoring

The fifth element of this monitoring plan is intended to monitor the amount of ground subsidence occurring along the DMC within and adjacent to the LBCRR Project area. As stated previously, constraints on groundwater levels are in place to prevent LBCRR Project groundwater recovery operations (pumping) that may cause subsidence. Additional project minoring provided in this monitoring plan element will serve to document land surface elevations along the DMC during LBCRR Project operations and determine if any additional operational constraints or modification of existing constraints are warranted.

## Ground Surface Elevation Monitoring

Ground surface elevation measurements are taken periodically by the Authority as a part of operations and maintenance of the DMC and the Delta-Mendota Canal Subsidence Correction Project. Groundwater surface measurements will be requested from the Authority annually and the measurements, along with an evaluation of any changes in ground surface elevation, will be included with monitoring plan data.

## Subsidence Constraints

The Pumping Reduction Plan adopted by the CDMGSA provides that pumping cutbacks will be implemented if certain events related to land surface measurements occur. With respect to the DMC, as an element of critical infrastructure identified in the PRP, a pumping cutback will be triggered in accordance with the following provision of the PRP:

> In areas within 0.5-miles of the DMC and outside of the SSMA, where the three-year average subsidence rate exceeds 0.20 ft/year, symmetrically defined on both sides of the critical infrastructure, Lower Aquifer pumping will be limited to 0.50 AFY/acre, and construction of new Lower Aquifer or composite wells will be prohibited. The pumping limitation shall be reviewed annually to determine the correlation between pumping and the measured subsidence.

The LBCRR Project area is outside of the Special Subsidence Management Area (SSMA) identified in the PRP. All LBCRR Project recovery wells will be completed in the upper aquifer in order to prevent subsidence.

## Subsidence Constraints

All LBCRR Project recovery wells will be completed in the upper aquifer in order to prevent subsidence. In the event that the above pumping reduction action is triggered, LBCRR Project recovery well operations may be suspended until it is determined that the operations are not causing or contributing to subsidence. Should it be determined that LBCRR Project recovery operations are not causing or contributing to subsidence while the above pumping reduction action is triggered, consideration may be given by San Luis Water District to redirecting groundwater recovered by the project to adjacent landowners pumping groundwater using composite wells or wells completed in the lower aquifer.

# Other Requirements and Disclaimers

## Access

Reclamation or its designees will be allowed access to well heads and discharge locations for independent verification of water quality, groundwater level, and flow measurements.

## Revision

Reclamation reserves the right to modify this monitoring program at any time.

**Delta-Mendota Canal**
**Non-Project Water Pump-in Program**
**Water Quality Monitoring Plan**

**Table 1. Water Quality Standards, Short List**

| Constituent | Units | Maximum Contaminant Level | | Detection Limit for Reporting | | CAS Registry Number | Recommended Analytical Method |
|---|---|---|---|---|---|---|---|
| Arsenic | mg/L | 0.01 | (1) | 0.002 | (2) | 7440-38-2 | EPA 200.8 |
| Boron | mg/L | 2.0 | (13) | | | 7440-42-8 | EPA 200.7 |
| Nitrate (as nitrogen) | mg/L | 10 | (1) | 0.4 | (2) | 7727-37-9 | EPA 300.1 |
| Selenium | mg/L | 0.002 | (10) | 0.0004 | (2) | 7782-49-2 | EPA 200.8 |
| Sodium | mg/L | 100 | (12) | | | 7440-23-5 | EPA 200.7 |
| Specific Conductance | µS/cm | 2,200 | (7) | | | | SM 2510 B |
| Sulfate | mg/L | 500 | (7) | | | 14808-79-8 | EPA 300.1 |
| Total Dissolved Solids | mg/L | 1,500 | (7) | | | | SM 2540 C |

Sources:
Recommended Analytical Methods: https://www.nemi.gov/home/
Maximum Contaminant Levels:
Title 22. The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 4010-4037), and Administrative Code (Sections 64401 et seq.), as amended.

(1) Title 22. Table 64431-A Maximum Contaminant Levels, Inorganic Chemicals

(2) Title 22. Table 64432-A Detection Limits for Reporting (DLRs) for Regulated Inorganic Chemicals

(3) Title 22. Table 64442 Radionuclide Maximum Contaminant Levels (MCLs) and Detection Levels for Purposes of Reporting (DLRs)

(4) Title 22. Table 64444-A Maximum Contaminate Levels, Organic Chemicals

(5) Title 22. Table 64445.1-A Detection Limits for Purposes of Reporting (DLRs) for Regulated Organic Chemicals

(6) Title 22. Table 64449-A Secondary Maximum Contaminant Levels "Consumer Acceptance Contaminant Levels"

(7) Title 22. Table 64449-B Secondary Maximum Contaminant Levels "Consumer Acceptance Contaminant Level Ranges"

(8) Title 22. Table 64678-A DLRs for Lead and Copper

(9) Title 22. Section 64678 (d) Lead Action level

https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dwregulations-2017-12-29.pdf

California Regional Water Quality Control Board, Central Valley Region, Fourth Edition of the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins.

(10) Basin Plan, Table III-1 (ug/L) (selenium in Grasslands water supply channels)

(11) Basin Plan, Table III-2A (ug/L) (chlorpyrifos & diazinon in San Joaquin River from Mendota to Vernalis)

Sacramento & San Joaquin River Basin Plan 2009
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr.pdf

Ayers, R. S. and D. W. Westcot, *Water Quality for Agriculture* , Food and Agriculture Organization of the United Nations - Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985).

(12) Ayers, Table 1 (mg/L) (sodium)

(13) Ayers, Table 21 (mg/L) (boron)

Water Quality Standards for Agriculture 1985
http://www.fao.org/DOCREP/003/T0234E/T0234E00.HTM

**Delta-Mendota Canal**
**Non-Project Water Pump-in Program**
**Water Quality Monitoring Plan**

**Table 2. Water Quality Standards, Title 22**

| Constituent | Units | Maximum Contaminant Level | | Detection Limit for Reporting | | CAS Registry Number | Recommended Analytical Method |
|---|---|---|---|---|---|---|---|
| **Primary** | | | | | | | |
| Aluminum | mg/L | 1 | (1) | 0.05 | (2) | 7429-90-5 | EPA 200.7 |
| Antimony | mg/L | 0.006 | (1) | 0.006 | (2) | 7440-36-0 | EPA 200.8 |
| Arsenic | mg/L | 0.010 | (1) | 0.002 | (2) | 7440-38-2 | EPA 200.8 |
| Asbestos | MFL | 7 | (1) | 0.2 MFL>10um | (2) | 1332-21-4 | EPA 100.2 |
| Barium | mg/L | 1 | (1) | 0.1 | (2) | 7440-39-3 | EPA 200.7 |
| Beryllium | mg/L | 0.004 | (1) | 0.001 | (2) | 7440-41-7 | EPA 200.7 |
| Cadmium | mg/L | 0.005 | (1) | 0.001 | (2) | 7440-43-9 | EPA 200.7 |
| Chromium, total | mg/L | 0.05 | (1) | 0.01 | (2) | 7440-47-3 | EPA 200.7 |
| Cyanide | mg/L | 0.15 | (1) | 0.1 | (2) | 57-12-5 | EPA 335.2 |
| Fluoride | mg/L | 2.0 | (1) | 0.1 | (2) | 16984-48-8 | EPA 300.1 |
| Mercury | mg/L | 0.002 | (1) | 0.001 | (2) | 7439-97-6 | EPA 245.1 |
| Nickel | mg/L | 0.1 | (1) | 0.01 | (2) | 7440-02-0 | EPA 200.7 |
| Nitrate (as nitrogen) | mg/L | 10 | (1) | 0.4 | (2) | 7727-37-9 | EPA 300.1 |
| Nitrate + Nitrite (sum as nitrogen) | mg/L | 10 | (1) | | | 14797-55-8 | EPA 353.2 |
| Nitrite (as nitrogen) | mg/L | 1 | (1) | 0.4 | (2) | 14797-65-0 | EPA 300.1 |
| Perchlorate | mg/L | 0.006 | (1) | 0.004 | (2) | 14797-73-0 | EPA 314/331/332 |
| Selenium | mg/L | 0.002 | (10) | 0.0004 | | 7782-49-2 | EPA 200.8 |
| Thallium | mg/L | 0.002 | (1) | 0.001 | (2) | 7440-28-0 | EPA 200.8 |
| **Secondary** | | | | | | | |
| Aluminum | mg/L | 0.2 | (6) | | | 7429-90-5 | EPA 200.7 |
| Color | units | 15 | (6) | | | | EPA 110 |
| Copper | mg/L | 1.0 | (6) | 0.05 | (8) | 7440-50-8 | EPA 200.7 |
| Foaming Agents (MBAS) | mg/L | 0.5 | (6) | | | | |
| Iron | mg/L | 0.3 | (6) | | | 7439-89-6 | EPA 200.7 |
| Manganese | mg/L | 0.05 | (6) | | | 7439-96-5 | EPA 200.7 |
| Methyl-tert-butyl ether (MTBE) | mg/L | 0.013 | (4) | | | 1634-04-4 | EPA 502.2/524.2 |
| Odor -threshold | units | 3 | (6) | | | | SM 2150B |
| Silver | mg/L | 0.1 | (6) | | | 7440-22-4 | EPA 200.7 |
| Thiobencarb | mg/L | 0.001 | (6) | | | 28249-77-6 | EPA 527 |
| Turbidity | units | 5 | (6) | | | | EPA 190.1/SM2130B |
| Zinc | mg/L | 5 | (6) | | | 7440-66-6 | EPA 200.7 |
| Total Dissolved Solids | mg/L | 1,500 | (7) | | | | SM 2540 C |
| Specific Conductance | µS/cm | 2,200 | (7) | | | | SM 2510 B |
| Chloride | mg/L | 500 | (7) | | | 16887-00-6 | EPA 300.1 |
| Sulfate | mg/L | 500 | (7) | | | 14808-79-8 | EPA 300.1 |
| **Other Required Analyses** | | | | | | | |
| Boron | mg/L | 2.0 | (13) | | | 7440-42-8 | EPA 200.7 |
| Lead | mg/L | 0.015 | (8) | 0.005 | (8) | 7439-92-1 | EPA 200.8 |
| Molybdenum | mg/L | 0.01 | (11) | | | 7439-98-7 | EPA 200.7 |
| Sodium | mg/L | 100 | (12) | | | 7440-23-5 | EPA 200.7 |
| **Radioactivity** | | | | | | | |
| Gross Alpha | pCi/L | 15 | (3) | 3 | (3) | | SM 7110C |

**Delta-Mendota Canal**
**Non-Project Water Pump-in Program**

| Constituent | Units | Maximum Contaminant Level | | Detection Limit for Reporting | | CAS Registry Number | Recommended Analytical Method |
|---|---|---|---|---|---|---|---|
| **Organic Chemicals** | | | | | | | |
| (a) Volatile Organic Chemicals (VOCs) | | | | | | | |
| Benzene | mg/L | 0.001 | (4) | 0.0005 | (5) | 71-43-2 | EPA 502.2/524.2 |
| Carbon Tetrachloride | mg/L | 0.0005 | (4) | 0.0005 | (5) | 56-23-5 | EPA 502.2/524.2 |
| 1,2-Dichlorobenzene | mg/L | 0.6 | (4) | 0.0005 | (5) | 95-50-1 | EPA 502.2/524.2 |
| 1,4-Dichlorobenzene | mg/L | 0.005 | (4) | 0.0005 | (5) | 106-46-7 | EPA 502.2/524.2 |
| 1,1-Dichloroethane | mg/L | 0.005 | (4) | 0.0005 | (5) | 75-34-3 | EPA 502.2/524.2 |
| 1,2-Dichloroethane | mg/L | 0.0005 | (4) | 0.0005 | (5) | 107-06-2 | EPA 502.2/524.2 |
| 1,1-Dichloroethylene | mg/L | 0.006 | (4) | 0.0005 | (5) | 75-35-4 | EPA 502.2/524.2 |
| cis-1,2-Dichloroethylene | mg/L | 0.006 | (4) | 0.0005 | (5) | 156-59-2 | EPA 502.2/524.2 |
| trans-1,2-Dichloroethylene | mg/L | 0.01 | (4) | 0.0005 | (5) | 156-60-5 | EPA 502.2/524.2 |
| Dichloromethane. | mg/L | 0.005 | (4) | 0.0005 | (5) | 75-09-2 | EPA 502.2/524.2 |
| 1,2-Dichloropropane. | mg/L | 0.005 | (4) | 0.0005 | (5) | 78-87-5 | EPA 502.2/524.2 |
| 1,3-Dichloropropene. | mg/L | 0.0005 | (4) | 0.0005 | (5) | 542-75-6 | EPA 502.2/524.2 |
| Ethylbenzene. | mg/L | 0.3 | (4) | 0.0005 | (5) | 100-41-4 | EPA 502.2/524.2 |
| Methyl-tert-butyl ether | mg/L | 0.013 | (4) | 0.003 | (5) | 1634-04-4 | EPA 502.2/524.2 |
| Monochlorobenzene | mg/L | 0.07 | (4) | 0.0005 | (5) | 108-90-7 | EPA 502.2/524.2 |
| Styrene. | mg/L | 0.1 | (4) | 0.0005 | (5) | 100-42-5 | EPA 502.2/524.2 |
| 1,1,2,2-Tetrachloroethane. | mg/L | 0.001 | (4) | 0.0005 | (5) | 79-34-5 | EPA 502.2/524.2 |
| Tetrachloroethylene (PCE) | mg/L | 0.005 | (4) | 0.0005 | (5) | 127-18-4 | EPA 502.2/524.2 |
| Toluene | mg/L | 0.15 | (4) | 0.0005 | (5) | 108-88-3 | EPA 502.2/524.2 |
| 1,2,4-Trichlorobenzene | mg/L | 0.005 | (4) | 0.0005 | (5) | 120-82-1 | EPA 502.2/524.2 |
| 1,1,1-Trichloroethane | mg/L | 0.200 | (4) | 0.0005 | (5) | 71-55-6 | EPA 502.2/524.2 |
| 1,1,2-Trichloroethane | mg/L | 0.005 | (4) | 0.0005 | (5) | 79-00-5 | EPA 502.2/524.2 |
| Trichloroethylene | mg/L | 0.005 | (4) | 0.0005 | (5) | 79-01-6 | EPA 502.2/524.2 |
| Trichlorofluoromethane | mg/L | 0.15 | (4) | 0.005 | (5) | 75-69-4 | EPA 502.2/524.2 |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane. | mg/L | 1.2 | (4) | 0.01 | (5) | 76-13-1 | SM 6200B |
| Vinyl Chloride | mg/L | 0.0005 | (4) | 0.0005 | (5) | 75-01-4 | EPA 502.2/524.2 |
| Xylenes | mg/L | 1.750 | (4) | 0.0005 | (5) | 1330-20-7 | EPA 502.2/524.2 |
| | | | | | | | |
| (b) Non-Volatile Synthetic Organic Chemicals (SOCs) | | | | | | | |
| Alachlor | mg/L | 0.002 | (4) | 0.001 | (5) | 15972-60-8 | EPA 505/507/508 |
| Atrazine | mg/L | 0.001 | (4) | 0.0005 | (5) | 1912-24-9 | EPA 505/507/508 |
| Bentazon | mg/L | 0.018 | (4) | 0.002 | (5) | 25057-89-0 | EPA 515.1 |
| Benzo(a)pyrene | mg/L | 0.0002 | (4) | 0.0001 | (5) | 50-32-8 | EPA 525.2 |
| Carbofuran | mg/L | 0.018 | (4) | 0.005 | (5) | 1563-66-2 | EPA 531.1 |
| Chlordane | mg/L | 0.0001 | (4) | 0.0001 | (5) | 57-74-9 | EPA 505/508 |
| 2,4-D | mg/L | 0.07 | (4) | 0.01 | (5) | 94-75-7 | EPA 515.1 |
| Dalapon | mg/L | 0.2 | (4) | 0.01 | (5) | 75-99-0 | EPA 515.1 |
| Dibromochloropropane | mg/L | 0.0002 | (4) | 0.00001 | (5) | 96-12-8 | EPA 502.2/504.1 |
| Di(2-ethylhexyl)adipate | mg/L | 0.4 | (4) | 0.005 | (5) | 103-23-1 | EPA 506 |
| Di(2-ethylhexyl)phthalate | mg/L | 0.004 | (4) | 0.003 | (5) | 117-81-7 | EPA 506 |
| Dinoseb | mg/L | 0.007 | (4) | 0.002 | (5) | 88-85-7 | EPA 5151-4 |
| Diquat | mg/L | 0.02 | (4) | 0.004 | (5) | 85-00-7 | EPA 549.2 |
| Endothall | mg/L | 0.1 | (4) | 0.045 | (5) | 145-73-3 | EPA 548.1 |
| Endrin. | mg/L | 0.002 | (4) | 0.0001 | (5) | 72-20-8 | EPA 505/508 |
| Ethylene Dibromide | mg/L | 0.00005 | (4) | 0.00002 | (5) | 106-93-4 | EPA 502.2/504.1 |
| Glyphosate | mg/L | 0.7 | (4) | 0.025 | (5) | 1071-83-6 | EPA 547 |
| Heptachlor. | mg/L | 0.00001 | (4) | 0.00001 | (5) | 76-44-8 | EPA 508 |
| Heptachlor Epoxide | mg/L | 0.00001 | (4) | 0.00001 | (5) | 1024-57-3 | EPA 508 |
| Hexachlorobenzene | mg/L | 0.001 | (4) | 0.0005 | (5) | 118-74-1 | EPA 505/508 |
| Hexachlorocyclopentadiene | mg/L | 0.05 | (4) | 0.001 | (5) | 77-47-4 | EPA 505/508 |
| Lindane (gamma-BHC) | mg/L | 0.0002 | (4) | 0.0002 | (5) | 58-89-9 | EPA 505/508 |
| Methoxychlor | mg/L | 0.03 | (4) | 0.01 | (5) | 72-43-5 | EPA 505/508 |

**Delta-Mendota Canal**
**Non-Project Water Pump-in Program**

| Constituent | Units | Maximum Contaminant Level | | Detection Limit for Reporting | | CAS Registry Number | Recommended Analytical Method |
|---|---|---|---|---|---|---|---|
| Molinate | mg/L | 0.02 | (4) | 0.002 | (5) | 2212-67-1 | EPA 525.1 |
| Oxamyl | mg/L | 0.05 | (4) | 0.02 | (5) | 23135-22-0 | EPA 531.1 |
| Pentachlorophenol | mg/L | 0.001 | (4) | 0.0001 | (5) | 87-86-5 | EPA 515.1-3 |
| Picloram | mg/L | 0.5 | (4) | 0.001 | (5) | 1918-02-1 | EPA 515.1-3 |
| Polychlorinated Biphenyls | mg/L | 0.0005 | (4) | 0.0005 | (5) | 1336-36-3 | EPA 130.1 |
| Simazine | mg/L | 0.004 | (4) | 0.001 | (5) | 122-34-9 | EPA 505 |
| Thiobencarb (Bolero) | mg/L | 0.07 | (4) | 0.001 | (5) | 28249-77-6 | EPA 527 |
| Toxaphene | mg/L | 0.003 | (4) | 0.001 | (5) | 8001-35-2 | EPA 505 |
| 1,2,3-Trichloropropane | mg/L | 0.000005 | (4) | 0.000005 | (5) | 96-18-4 | EPA 524.3 |
| 2,3,7,8-TCDD (Dioxin) | mg/L | 3 x 10-8 | (4) | 5 x 10-9 | (5) | 1746-01-6 | EPA 130.3 |
| 2,4,5-TP (Silvex) | mg/L | 0.05 | (4) | 0.001 | (5) | 93-72-1 | EPA 515.1 |
| Other Organic Chemicals | | | | | | | |
| Chlorpyrifos | ug/L | 0.015 | (11) | | | 2921-88-2 | EPA 8141A |
| Diazinon | ug/L | 0.10 | (11) | | | 333-41-5 | EPA 8141A |

Sources:
Recommended Analytical Methods: https://www.nemi.gov/home/
Maximum Contaminant Levels:

Title 22. The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 4010-4037), and Administrative Code (Sections 64401 et seq.), as amended.

(1) Title 22. Table 64431-A Maximum Contaminant Levels, Inorganic Chemicals

(2) Title 22. Table 64432-A Detection Limits for Reporting (DLRs) for Regulated Inorganic Chemicals

(3) Title 22. Table 64442 Radionuclide Maximum Contaminant Levels (MCLs) and Detection Levels for Purposes of Reporting (DLRs)

(4) Title 22. Table 64444-A Maximum Contaminate Levels, Organic Chemicals

(5) Title 22. Table 64445.1-A Detection Limits for Purposes of Reporting (DLRs) for Regulated Organic Chemicals

(6) Title 22. Table 64449-A Secondary Maximum Contaminant Levels "Consumer Acceptance Contaminant Levels"

(7) Title 22. Table 64449-B Secondary Maximum Contaminant Levels "Consumer Acceptance Contaminant Level Ranges"

(8) Title 22. Table 64678-A DLRs for Lead and Copper

(9) Title 22. Section 64678 (d) Lead Action level

https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dwregulations-2017-12-29.pdf

California Regional Water Quality Control Board, Central Valley Region, Fourth Edition of the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins. Revised June 2015

(10) Basin Plan, Table III-1 (ug/L) (selenium in Grasslands water supply channels)

(11) Basin Plan, Table III-2A. 4-day average (chronic) concentrations of chlorpyrifos & diazinon in San Joaquin River from Mendota to Vernalis

http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr.pdf

Ayers, R. S. and D. W. Westcot, *Water Quality for Agriculture* , Food and Agriculture Organization of the United Nations - Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985).

(12) Ayers, Table 1 (mg/L) (sodium)

(13) Ayers, Table 21 (mg/L) (boron)

http://www.fao.org/DOCREP/003/T0234E/T0234E00.HTM