



10-YEAR OUT-OF-DISTRICT WATER SALE PROGRAM

DRAFT INITIAL STUDY/MITIGATED NEGATIVE
DECLARATION

SCH NO. 2022120631

FEBRUARY 2023

PREPARED FOR:

Oakdale Irrigation District
1205 East F Street
Oakdale, CA 95361

PREPARED BY:

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
ACT	California Water Code
APE	Area of Potential Effect
BMP	Best Management Practices
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Modeling (software)
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCIC	Central California Information Center
CCSF	City and County of San Francisco
CDFW	California Fish and Wildlife
CEQA	California Environmental Quality Act
CGP	Construction General Permit, 2022-0057-DWQ
CGS	California Geological Survey
CH ₄	Methane
CHRIS	California Historical Resources Information System
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	Carbone Monoxide
CO ₂	Carbon dioxide
County	Stanislaus
District	Oakdale Irrigation District
DOC	Department of Conservation
DTSC	Department of Toxic Substances Control
ECOS	(USFWS) Environmental Conservation Online System
EIR	Environmental Impact Report
ESJGWA	Eastern San Joaquin Groundwater Authority
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
FTA	Federal Transit Administration

GHG Greenhouse Gas

GIS Geographic Information System

GSA Groundwater Sustainability Agency

GSP Groundwater Sustainability Plan

GWP Global Warming Potential

HUC Hydrologic Unit Code

IPaC U.S. Fish and Wildlife Service’s Information for Planning and Consultation system

I-5 Interstate 5

IS Initial Study

IS/MND Initial Study/Mitigated Negative Declaration

km kilometers

MBTA Migratory Bird Act

MMRP Mitigation Monitoring and Reporting Program

MND Mitigated Negative Declaration

NAAQS National Ambient Air Quality Standards

NAHC Native American Heritage Commission

ND Negative Declaration

NO₂ Nitrogen Dioxide

NO_x Nitrogen Oxides

NPDES National Pollutant Discharge Elimination System

NRCS Natural Resources Conservation Service

O₃ Ozone

OID Oakdale Irrigation District

OOD Out-of-District

Pb Lead

PG&E Pacific Gas and Electric

PM₁₀ particulate matter 10 microns in size

PM_{2.5} particulate matter 2.5 microns in size

Policy Fringe Parcels Policy

ppb parts per billion

ppm parts per million

PPV Peak Particle Velocity

Project 10-Year Water Transfer Program

ROG Reactive Organic Gases
RWQCB Regional Water Quality Control Board
SGMA Sustainable Groundwater Management Act
SJVAB San Joaquin Valley Air Basin
SJVAPCD San Joaquin Valley Air Pollution Control District
SO₂ Sulfur Dioxide
SPCC Spill Prevention, Control, and Countermeasure
SR State Route
SRA State Responsibility Area
SSJID South San Joaquin Irrigation District
STRGBA Stanislaus & Tuolumne River Groundwater Basin Association
SWPPP Storm Water Pollution Prevention Plan
SWRCB State Water Resources Control Board
TPY tons per year
USC United States Code
USEPA United States Environmental Protection Agency
USFWS United States Fish and Wildlife Service
USGS United States Geological Survey
µg/m³ micrograms per cubic meter
VdB Vibration Velocity Levels in Decibels
WDR Waste Discharge Requirements
WRP Water Resources Plan

CHAPTER 1 INTRODUCTION

Provost & Pritchard Consulting Group (Provost & Pritchard) has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) on behalf of Oakdale Irrigation District (OID or District) to address the environmental effects of the 10-Year Out-of-District Water Sale Program (“Project” or “Program”). This document has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq. OID is the CEQA lead agency for this Project.

The site and the Project are described in detail in [Chapter 2 Project 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 (MND) 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 Project 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 Air Quality and Greenhouse Gas Emissions Model, Biological Evaluation Report, Cultural Resources Information, and OID 10-Year Out-of-District Water Sales Program Draft are provided as technical **Appendix A, Appendix B, Appendix C, and Appendix D** respectively, at the end of this document.

CHAPTER 2 PROJECT DESCRIPTION

2.1 PROJECT BACKGROUND

2.1.1 Project Title

10-Year Out-of-District Water Sale Program

2.1.2 Lead Agency Name and Address

Oakdale Irrigation District
1205 E. F Street
Oakdale, CA 95361
(209) 847-0341

2.1.3 Contact Person and Phone Number

Lead Agency Contact

Scot Moody
General Manager
(209) 840-5508

CEQA Consultant

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

2.1.4 Project Location

The Project is located in parts of Stanislaus County, California, approximately 52 miles southeast of Sacramento and 180 miles northwest of Bakersfield (see [Figure 2-1](#) and [Figure 2-2](#)). The Project area spans portions of OID service area boundaries and lands outside of OID's boundaries. Zoomed in maps of each construction location can be seen in the figures ranging from [Figure 2-4](#) through [Figure 2-12](#).

2.1.5 General Plan Designation and Zoning

Project parcels are designated Agriculture (AG), and zoned A-2-40, General Agriculture, by the Stanislaus County General Plan.

2.1.6 Description of Project

Project Background and Purpose

OID was formed on November 1, 1909, as an irrigation district of the State of California formed pursuant to the provisions of Division 11 of the California Water Code (the "Act") for the purpose of delivering

irrigation water to agricultural lands within its boundaries. Geographically, the District encompasses parts of Stanislaus and San Joaquin counties, about 12 miles northeast of Modesto and 30 miles southeast of Stockton.

Water supply to the District comes principally from the Stanislaus River under well-established pre-1914 adjudicated water rights and post-1914 appropriative rights. The District's distribution systems include the Goodwin Diversion Dam on the Stanislaus River below the Tulloch Dam, at which point water is diverted into the District's main canals. The District encompasses an area of approximately 80,900 acres with an additional 77,700 acres within its sphere of influence. Urban areas in the District include the cities of Oakdale and Valley Home located in Stanislaus County. Lands are relatively level, with elevations from near sea level at the west end of the District to 250 feet above sea level at the east end.

The District's original distribution system was constructed primarily along contours to conserve available head pressure from east to west for flood irrigation of adjacent lands. The original District boundaries were also generally established on these contours as lands at or above the water level in OID's distribution system were unable to utilize the force of gravity to irrigate. As pump technology improved and pressurized systems became more economically feasible, landowners began to develop lands and plant crops above the canal contour and outside OID's boundaries. These out-of-district (OOD) lands rely on groundwater for irrigation water supply.

In 2014 the Sustainable Groundwater Management Act (SGMA) set forth a statewide framework for the long-term protection of groundwater resources. SGMA requires Groundwater Sustainability Agencies (GSAs) to develop groundwater sustainability plans (GSPs) to avoid undesirable results and mitigate overdraft within 20 years. These groundwater dependent OOD lands have been identified in the local GSP as the main contributor to the groundwater overdraft in the Modesto groundwater subbasin. The utilization of surface water for irrigation of these lands in-lieu of groundwater pumping has been identified as the optimal solution.¹

The OID 10-Year Out-of-District Water Sales Program ("Project" or "Program") proposes to provide surplus surface water, when available, from OID to irrigate up to 11,000 acres. The 11,000 acres is located outside the OID boundaries in northeastern Stanislaus County. Surface water is proposed to be provided to these lands between March and September from 2023-2032. OID has made surplus water available to OOD lands on an annual basis since the mid-1990s. These deliveries generally ranged from 3,000 to 5,000 acre-feet annually based on the amount of water available that year. However, interest and participation in OOD water supply annually from OID has been limited due to the lack of private infrastructure and available delivery points. This Project will allow for new turnouts and private infrastructure to be built such that additional water could be transferred for OOD use. A determination of surplus water availability is typically made in March each year based on hydrologic conditions in the basin. The Board decision to declare surplus water is made at a noticed Board of Directors meeting as an action item and the Board votes to formally determine if surplus water is available. The draft terms of the Program can be found in [Appendix D](#) at the end of this document. The intent of the Program includes, but is not limited to, the following:

- 1. Supplementing the irrigation demand of nearby lands that are currently solely reliant on groundwater with surface water to alleviate some of the stress on the local aquifers.**

Land north of the Stanislaus River is in the critically over-drafted Eastern San Joaquin Groundwater Subbasin which adopted its GSP in January 2020. Land south of the Stanislaus River lies in the Modesto Groundwater Subbasin which adopted its GSP in January 2022. Groundwater extractions

¹ (Stanislaus and Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency 2022)

in the OOD areas in each of the subbasins generally east of OID have led to continuous groundwater level decline. Under the Program, OID would be able to provide some of those OOD lands with surface water for use in-lieu of groundwater pumping in approximately seven out of ten years, based upon historical hydrology and existing and projected surface water demand in OID.

2. Maximizing use of conserved water determined to be surplus to OID in-district demand.

The District's Board of Directors initiated development of the OID Water Resources Plan (WRP) in November of 2004 which represents a comprehensive study of the District's water resources, delivery system, and operations. The Draft WRP was completed in November 2005 and finalized following the completion of a draft Programmatic EIR in January 2007. The final WRP provides specific, prioritized recommendations for physical and operational improvements for OID, as well as a plan to phase the implementation of these improvements consistent with available financial resources.

Since the start of WRP implementation a total of more than \$94 million in capital improvements have been completed including, but not limited to, canal and tunnel maintenance and rehabilitation, flow control and measurement, pipeline replacement, regulating reservoir construction, outflow management projects, and modernization and automation improvements. Throughout this time, OID's in-district landowners have also continued to invest in private infrastructure and refined their irrigation practices. These efforts have increased the overall water efficiency of the District. These actions have decreased OID's average annual diversions from Goodwin Dam resulting in the availability of conserved water that is surplus to OID's in-district demand.

3. Protecting the surface water right of in-district customers, while maintaining affordable rates by generating outside revenue for continued capital improvements that increase conservation.

Water sales to OOD lands would be charged at a higher volumetric rate than in-district customers. The sale of surplus surface water to local OOD customers would help generate the funds necessary for OID to meet its annual \$7 million per year capital improvement program to keep up with lifecycle replacement of its infrastructure without having to substantially increase water rates to OID's in-district constituents.

Project Description

Several parameters that would govern the Program implementation have been identified. The OOD lands would be subject to different water availability than the in-district lands. OOD lands shall only receive water under OID's pre-1914 water right. OID would use DWR snowfall and runoff forecasting, Tri-dam project snow surveys and real-time hydrology information throughout the irrigation season on the Stanislaus River from the Department of Water Resources California Data Exchange Center.² During the irrigation season OID would continuously monitor DWR's reported full natural flow at Goodwin Dam to determine the amount of pre-1914 water that was available and then ensure surface water diversions for these OOD lands did not exceed that. The amount of available pre-1914 surface water will change from month-to-month and year-to-year based on such a calculation. Additionally, the capacity of OID's existing conveyance system is limited when there is peak in-district demand, usually July to mid-August. Since in-District lands' ability to receive water would not be impacted by OOD deliveries there may be times when pre-1914 surface

²Department of Water Resources California Data Exchange Center can be accessed here: [California Data Exchange Center](#)

water is available but cannot be delivered due to capacity limitations within OID's system. During the peak of the irrigation season (generally July-August), OOD landowners can anticipate windows of time where the OID system has reached full capacity from in-district demand and water cannot be delivered to their OOD lands. OID would make as much surface water available as possible within the constraints listed above, without impacting in-district constituents. OID estimates that up to 25,000 acre-feet of water could be conveyed through the system to OOD lands throughout the irrigation season.

An analysis of New Melones Reservoir hydrology with the effects of the Project's proposed water transfer was conducted and is attached in the Hydrology Transfer Memo located in [Appendix B](#) at the end of this Document. The analysis consists of a baseline operation in which there is no water transferred, and a proposed action operation in which 25,000 acre-feet is transferred in all water year types except critically dry. While the baseline conditions for this IS/MND do include some transferred water (OID has been delivering some OOD water since the mid-1990s), the baseline operation in the Hydrology Transfer Memo consisted of no transferred water for simplicity.

Compared to the analysis baseline, results of the operation comparison primarily show a lessening of reservoir storage in New Melones Reservoir in any year the transfer occurs, and during sequential years this annual depletion can accumulate. The exception to this result occurs in wetter years when the reservoir fills and inflow exceeds downstream demand releases and additional reservoir releases are needed to reach flood control reservoir storage reservation objectives.

Minimum release requirements below Goodwin Dam are always met in both Model scenarios. Due to the additional depletion of reservoir storage in the transfer operation and the subsequent accumulation of less reservoir storage, less release in excess of minimum release requirements will occasionally occur. This outcome will occur during times when reservoir flood control reservation objectives are initially approached in a year or when reservoir management releases occur during the summer. The results of the analysis demonstrate that the proposed Project will not have a significant effect on the storage capacity of New Melones, nor will it cause the cold-water pool to be reached more often than without the Project.

Existing OID policies will remain in effect during the Program term. OID's Fringe Parcels Policy (Policy) applies to those parcels that are partially within the District boundaries and have a total irrigated acreage in excess of that total acreage which lies within the OID boundaries. In accordance with the Policy, these fringe parcels are provided an allocation of water determined by crop type for their in-district acreage at in-district rates. Once they have exceeded that allocation, they are billed at the OOD volumetric rate. OOD water can be requested for these fringe parcels if and when it's needed during years when OOD water is determined to be available. These fringe parcels are not required to participate in the 10-year Program to remain eligible to receive OOD water from OID. Additionally, the United States Army Corps of Engineers (USACE) owns and operates the Orange Blossom Park along the Stanislaus River. Through an agreement with OID, the USACE has received OOD water for irrigation of the park. The park is also not required to participate in the 10-year Program to remain eligible to receive OOD water from OID. OOD water deliveries to fringe parcels, as well as to Orange Blossom Park, are accounted for within the 25,000 acre-feet of OOD water anticipated to be conveyed and delivered to OOD lands. Varying levels of construction by the participating landowners are anticipated to be needed in order for these OOD lands to receive OID surplus water. Some landowners have existing canal delivery points (turnouts) and pipelines in place; others are adjacent to an OID canal but require a turnout and short length of new pipeline to be installed; other landowners are not adjacent to OID canals and would require a new turnout and a considerable length of new pipeline to be installed, whether through developed agricultural ground or native ground. The Program also proposes two private reservoirs on private landowner property: one would be up to four acres; and the other would be up to 15 acres (see [Figure 2-2: Project Component Location Map](#)). These reservoirs are

located adjacent to, but not within, parcels that are participating in the Program. While this IS/MND is not intended to include a detailed assessment of each individual private construction project on the lands participating in the Program; the participating parcels would be included in the overall Program footprint and this IS/MND would provide all known anticipated potential impacts based on the parcel location, general construction information and known species of concern in the Program vicinity. A list of suitable mitigation measures based on all known potential impacts within the project footprint would be included in this IS/MND. Landowners of the participating parcels that need new infrastructure would be required to provide an independent biological field study performed by a qualified biologist to evaluate their specific Program area before any construction occurs. All applicable mitigation measures identified in this IS/MND will be followed during construction activities. Should any mitigation measures not identified in this IS/MND be required by the qualified biologist as a result of a site-specific field survey, then a subsequent CEQA review for that specific site would be required. All recommended mitigation measures must be met during construction activities. OID, as lead agency, maintains the right to supervise mitigation and monitoring activities during private construction activities. The following tables detail the Assessor’s Parcel Numbers of the 124 parcels that would receive water through the Project. **Table 2-1** lists the parcels that would not require construction to receive water, while **Table 2-2** lists the parcels that would require construction to receive water.

Table 2-1: Program Parcels – No Construction Necessary to Receive Water

Program Parcels – No Construction Necessary to Receive Water				
001-012-005	002-053-009	002-063-050	002-064-007	002-074-025
001-012-008	002-063-004	002-063-052	002-065-011	002-074-026
001-012-010	002-063-041	002-063-053	002-066-008	010-019-058
001-012-015	002-063-042	002-063-054	002-066-015	010-019-059
002-020-005	002-063-043	002-063-055	002-066-016	011-005-064
002-023-015	002-063-044	002-064-001	002-074-011	011-005-065
002-040-006	002-063-046	002-064-002	002-074-019	011-005-066
002-040-007	002-063-047	002-064-003	002-074-020	011-005-073
002-040-017	002-063-048	002-064-005	002-074-021	
002-040-019	002-063-049	002-064-006	002-074-024	

Table 2-2: Program Parcels – Construction Required to Receive Water

Program Parcels – Construction Required to Receive Water				
001-011-032	002-072-005	010-020-031	011-005-072	015-002-022
001-011-034	002-072-006	010-084-001	011-006-008	015-002-044
001-011-036	002-072-015	010-084-002	011-006-009	015-081-007
001-011-037	002-072-016	010-084-003	011-006-040	015-081-038
002-020-004	002-072-017	010-084-005	011-006-041	015-081-048
002-020-015	002-072-018	010-084-007	011-006-042	015-081-050
002-021-073	002-072-019	011-003-027	011-006-043	015-081-061
002-054-005	002-072-020	011-005-043	011-006-044	015-081-062
002-054-008	002-072-021	011-005-044	011-006-045	015-082-001
002-054-012	002-072-022	011-005-045	011-006-046	015-082-002
002-064-004	010-015-056	011-005-046	011-006-049	015-082-003
002-064-008	010-015-062	011-005-058	011-007-003	015-082-004
002-072-001	010-015-068	011-005-059	015-001-048	
002-072-002	010-015-073	011-005-060	015-001-049	
002-072-003	010-015-075	011-005-068	015-001-050	
002-072-004	010-020-001	011-005-071	015-001-051	

Construction Schedule

Many of the participants in the Program would not require construction in order to receive water from OID (Table 2-1). Overall construction needs would include 12 turnouts off of the District's existing facilities, and up to 12 miles of pipeline to deliver water to some landowner properties, as well as two reservoirs totaling up to 19 acres. Approximate locations of all of these facilities can be seen in Figure 2-2, through Figure 2-15. Construction would take place over two years from 2023 to 2025, with the District responsible for constructing all turnouts off of their facilities and landowners responsible for constructing the various pipelines and private reservoirs needed to participate in the Program and receive the water to their parcels. Generally, construction would occur between the hours of 7:00 am and 5:00 pm, Monday through Friday, excluding holidays.

Construction Activities and Equipment

Construction activities would typically include excavation, connection to a District conveyance facility, installation of new pipelines and reservoirs, and installation of flow meters connected to OID's SCADA system. No new wells would be constructed as part of this Program. Construction equipment would likely include excavators, backhoes, graders, skid steers, loaders, and hauling trucks. Post-construction activities would include system testing, commissioning, and site clean-up. Construction would require temporary staging and storage of materials and equipment. Staging areas would be located onsite.

Operation and Maintenance

Operation and maintenance of new turnouts and pipelines would be largely passive and not require extensive regular maintenance or on-site personnel. The newly constructed facilities would be maintained similarly to existing facilities and site visits to said facilities would take place on an as-needed basis. Any infrastructure installed by private landowners would be their responsibility to maintain.

2.1.7 Other Public Agencies Whose Approval May Be Required for the Program

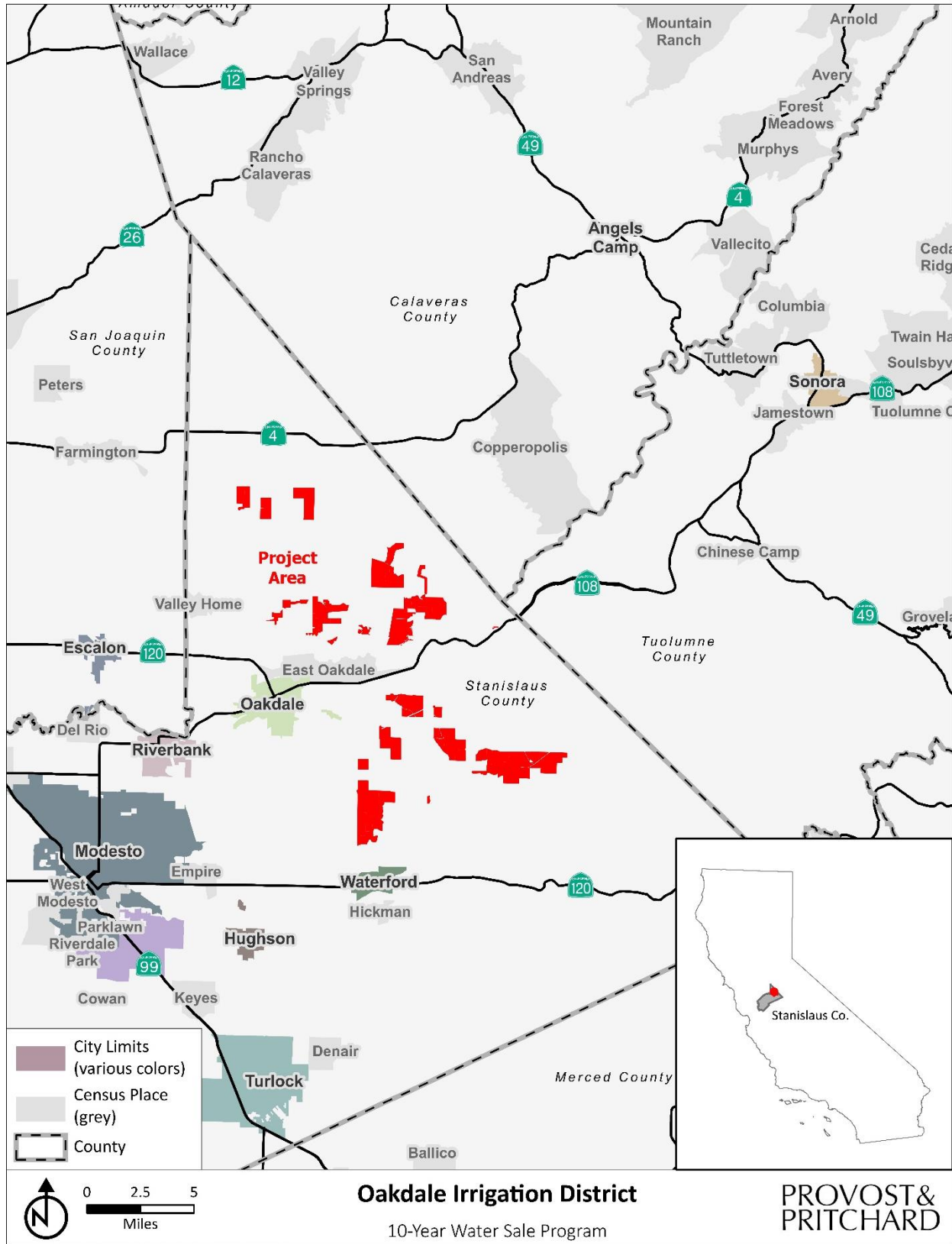
(excluding permitting and approval of private infrastructure improvements)

None

2.1.8 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.

OID has received written correspondence from Chicken Ranch Rancheria of Me-Wuk Indians Tribe pursuant to Public Resources Code Section 21080.3.1, requesting notification of proposed projects. OID mailed out a letter inviting the Tribe to consult on this project in a certified letter dated November 21, 2022. The District followed up with email correspondence on December 5 and 7, 2022, and the Tribe confirmed that they received the AB 52 letter and did not wish to consult on this Project.



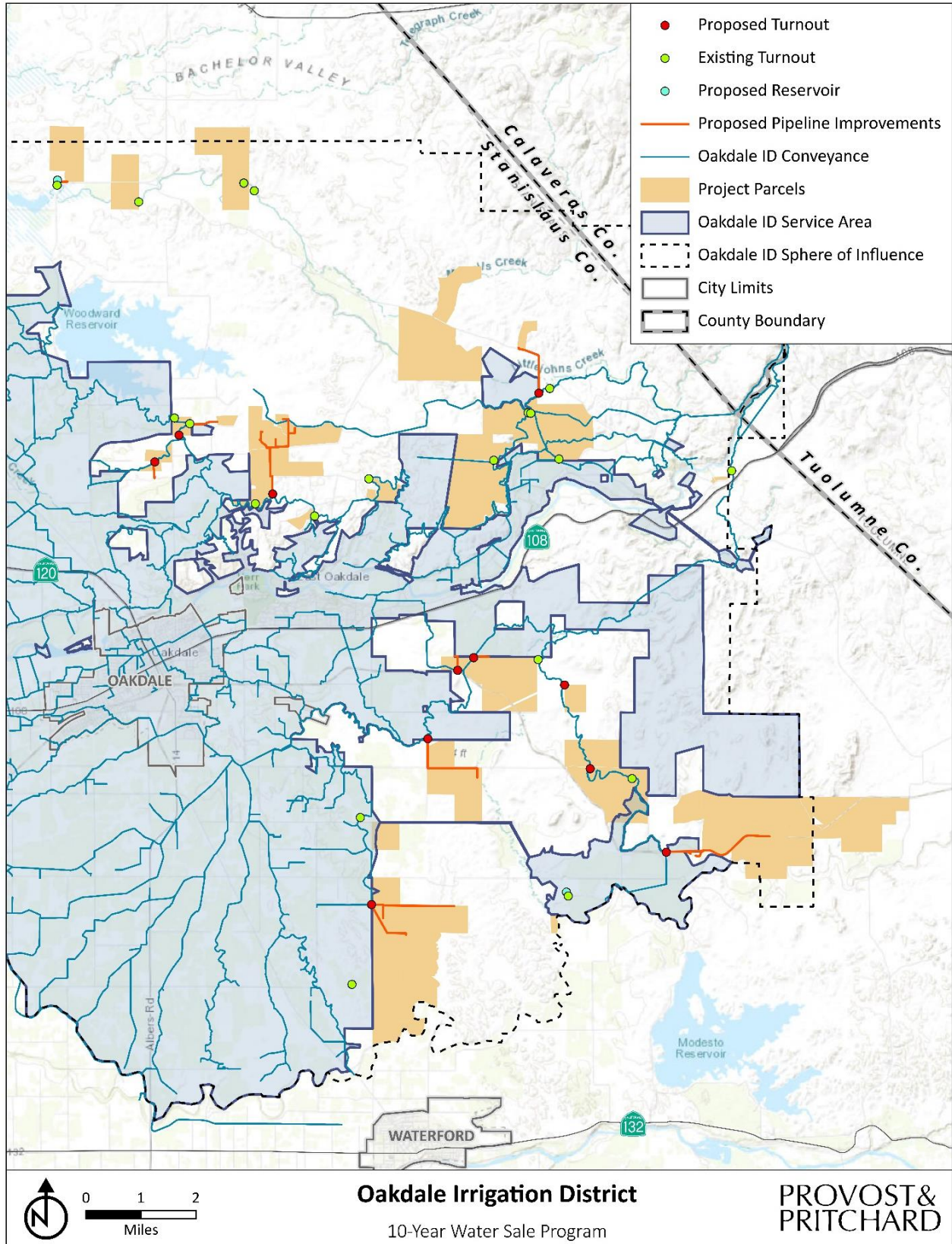


Figure 2-2: Project Component Location Map

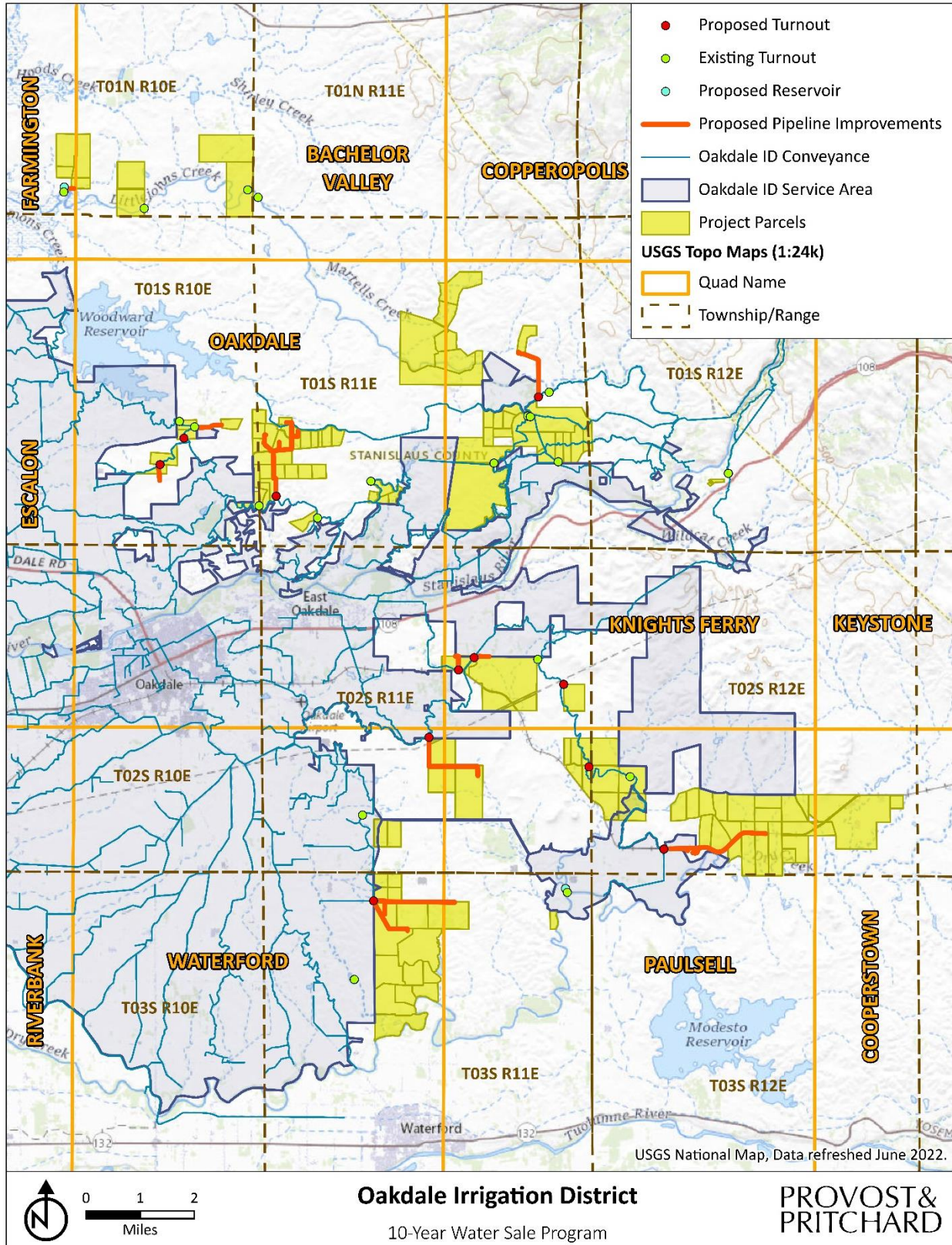
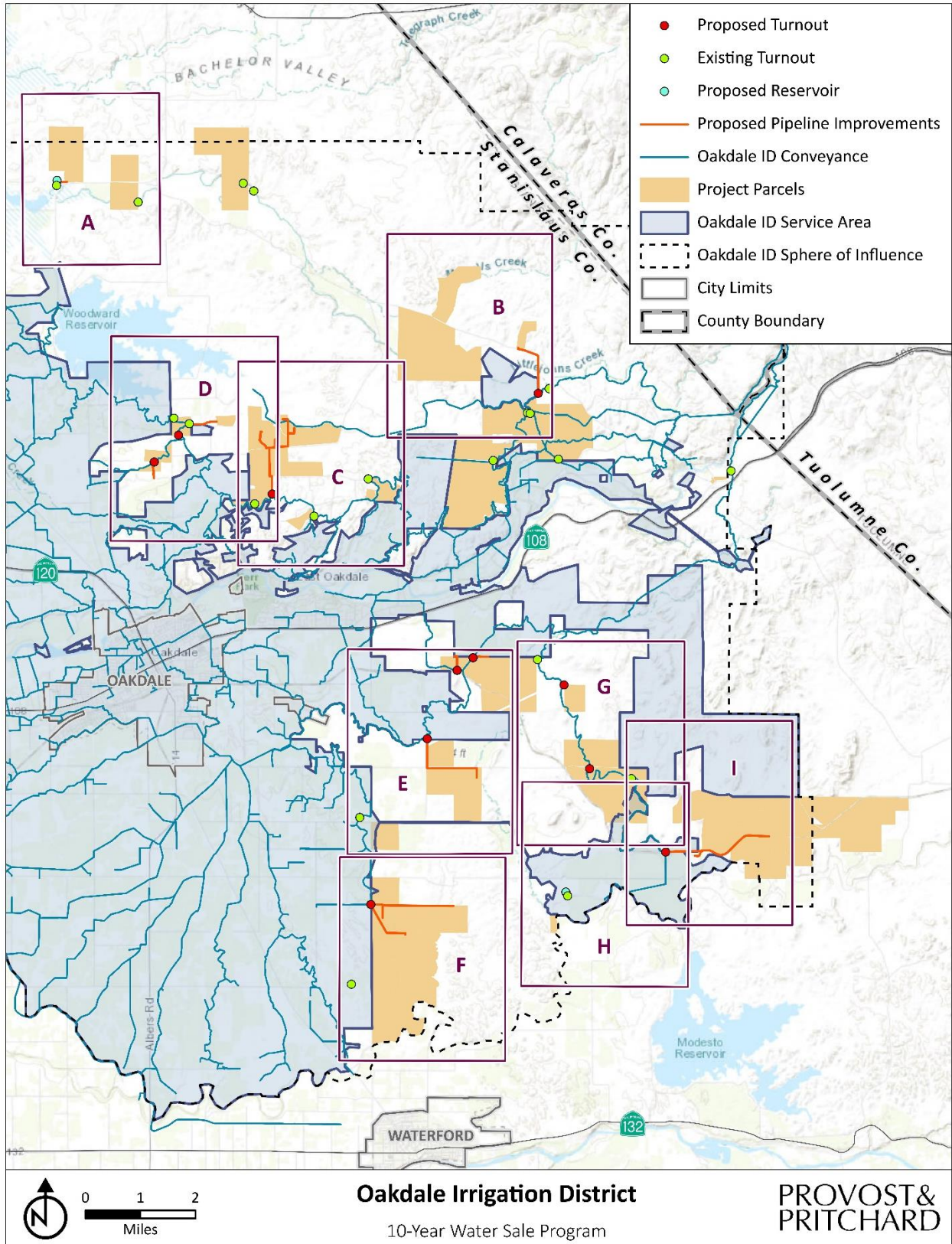


Figure 2-3: Topographic Quadrangle Map



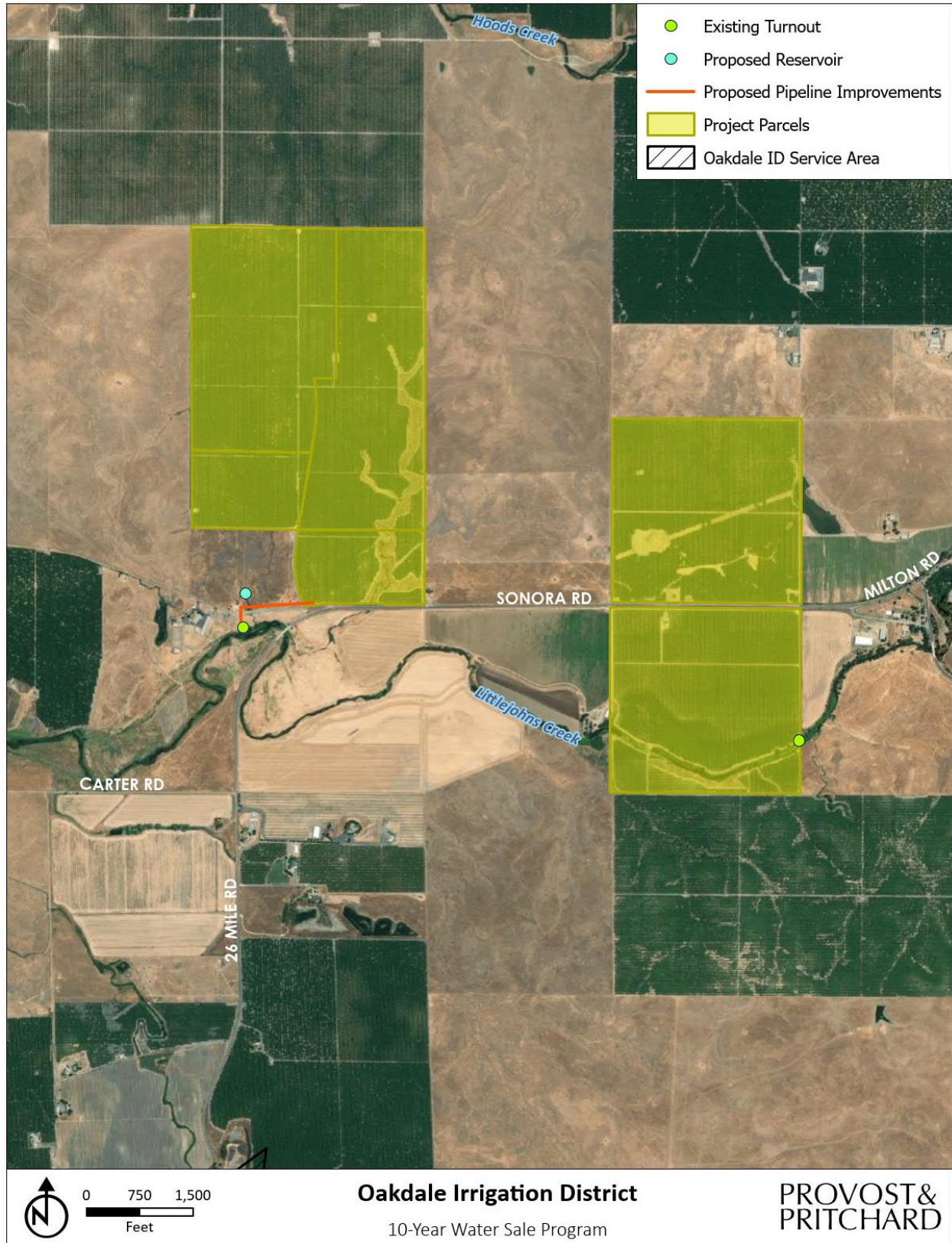


Figure 2-5: Aerial Map A

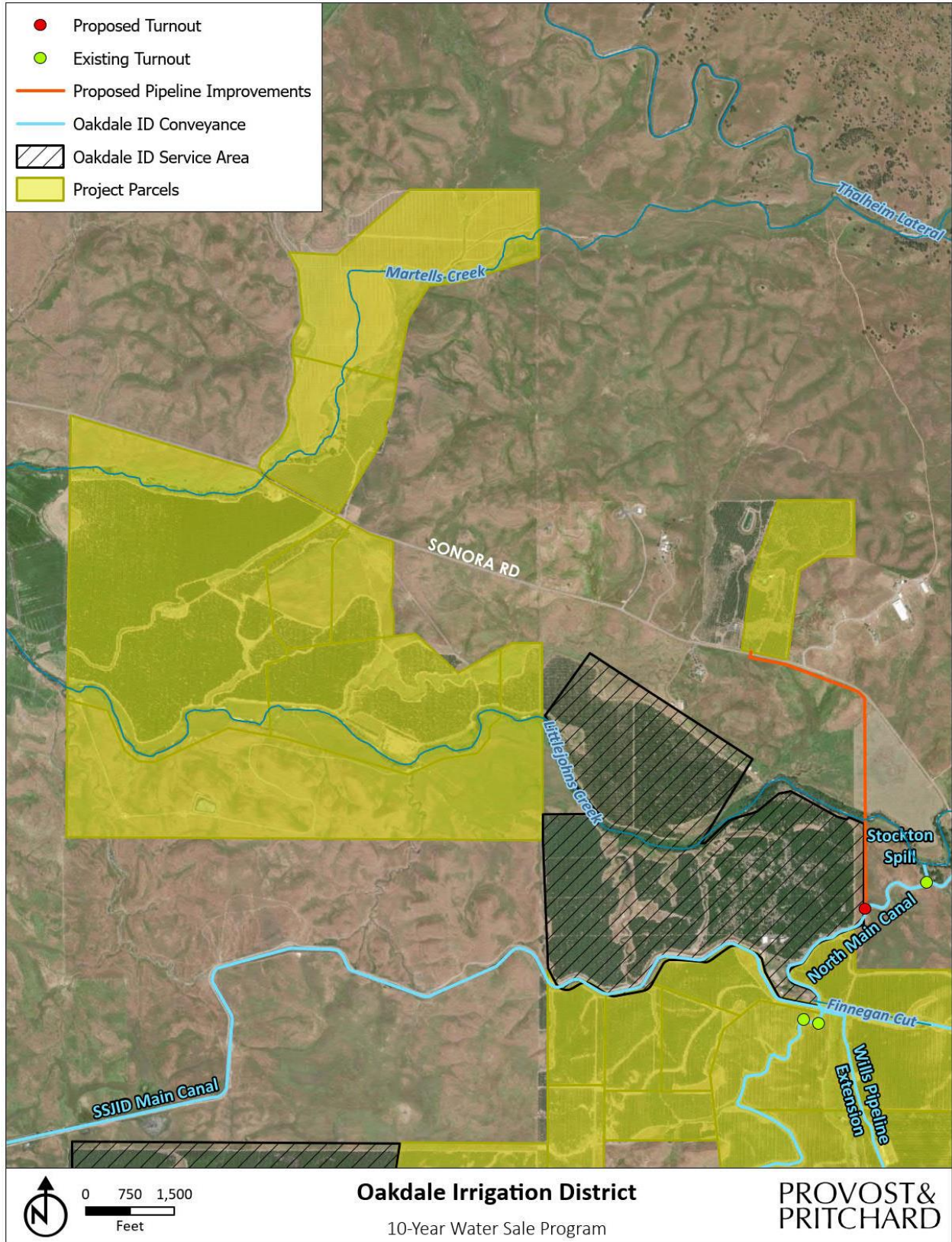


Figure 2-6: Aerial Map B

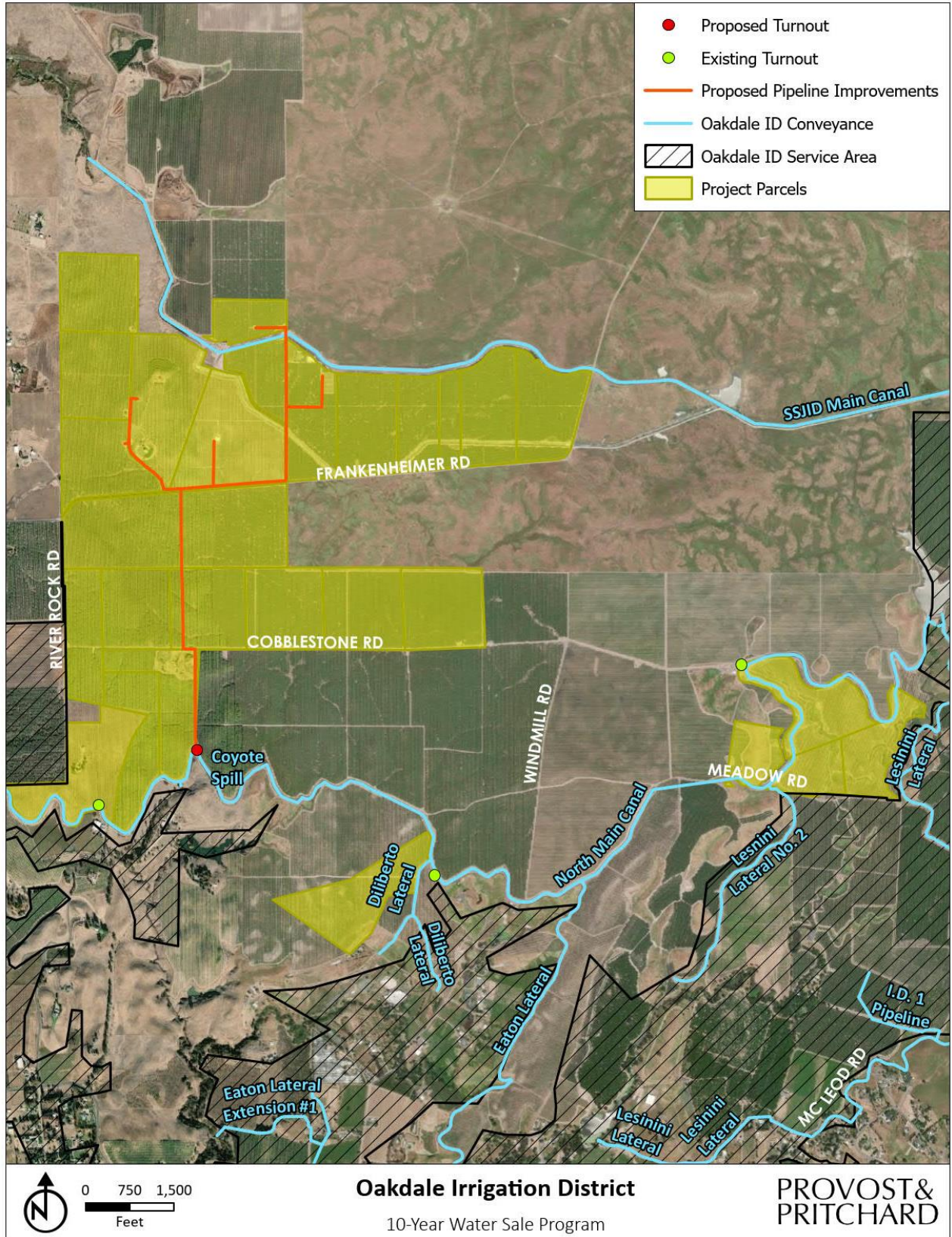


Figure 2-7: Aerial Map C

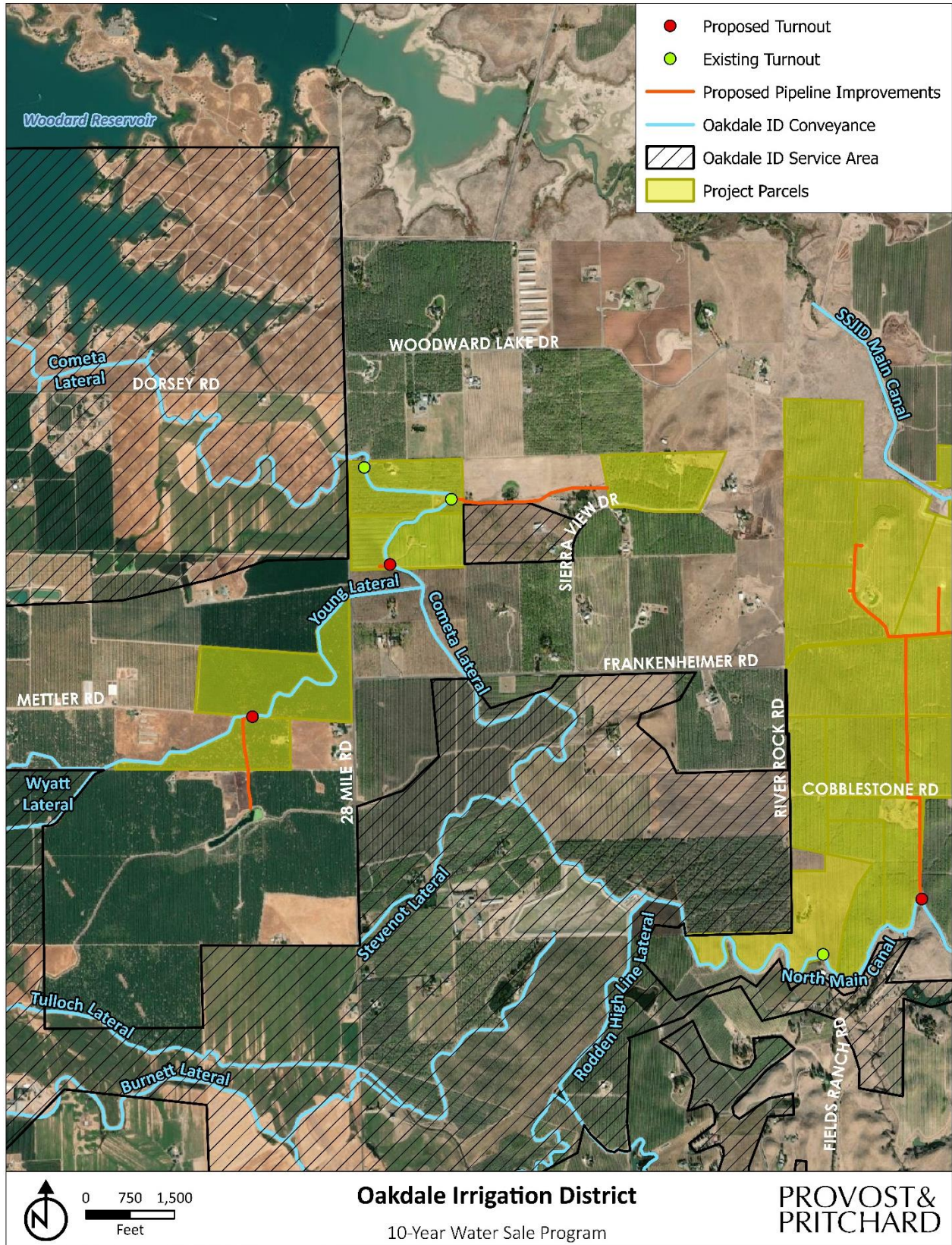


Figure 2-8: Aerial Map D

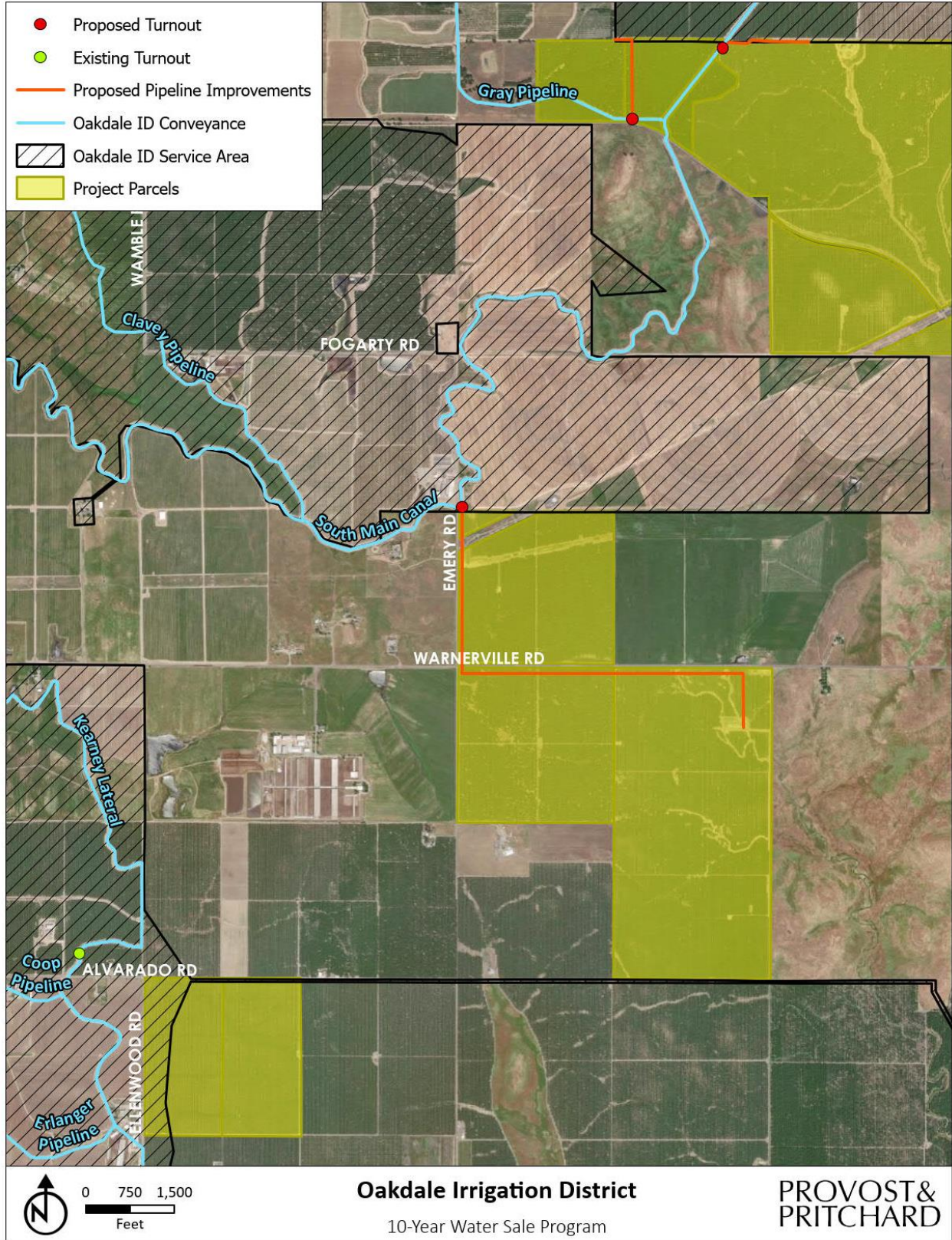
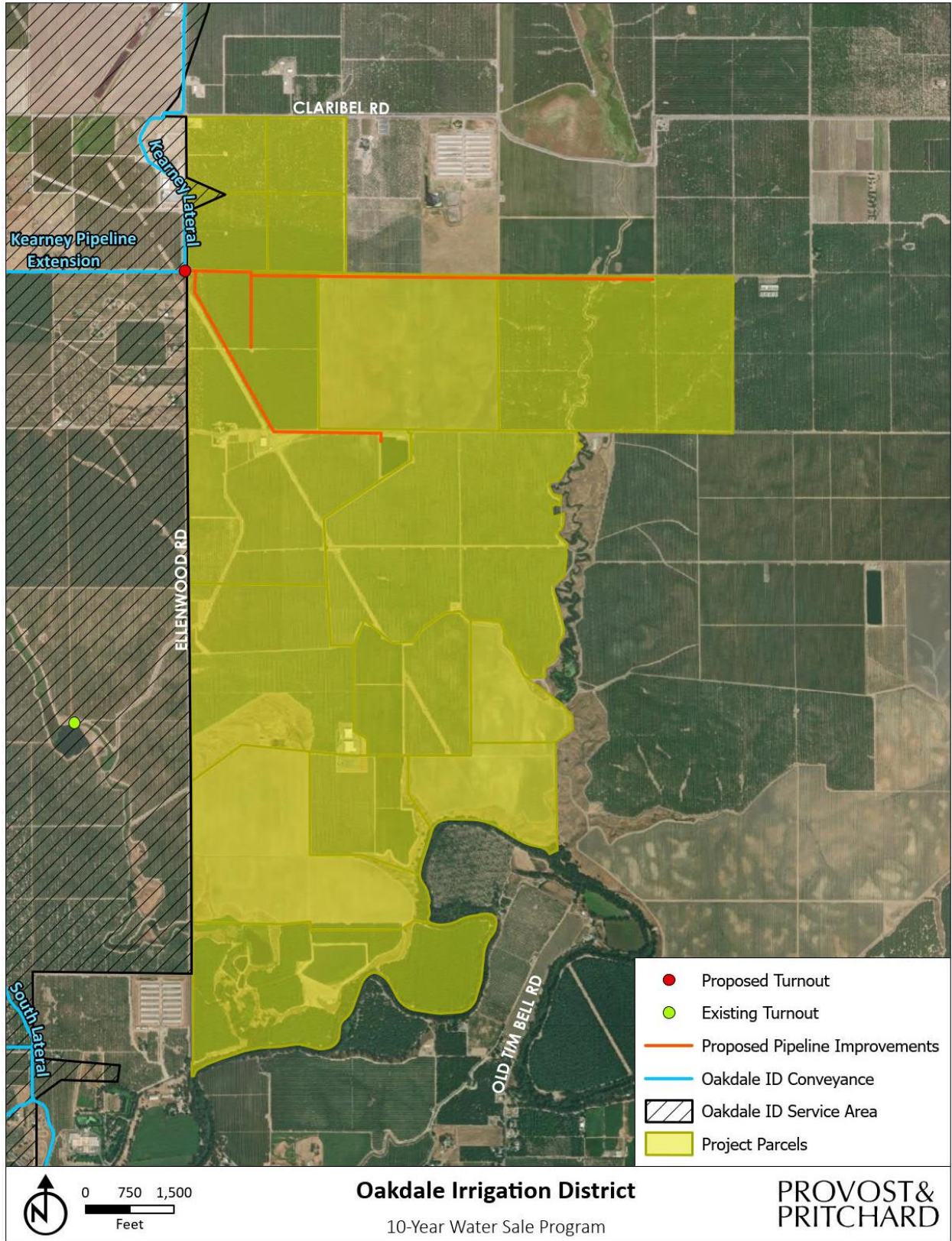


Figure 2-9: Aerial Map E



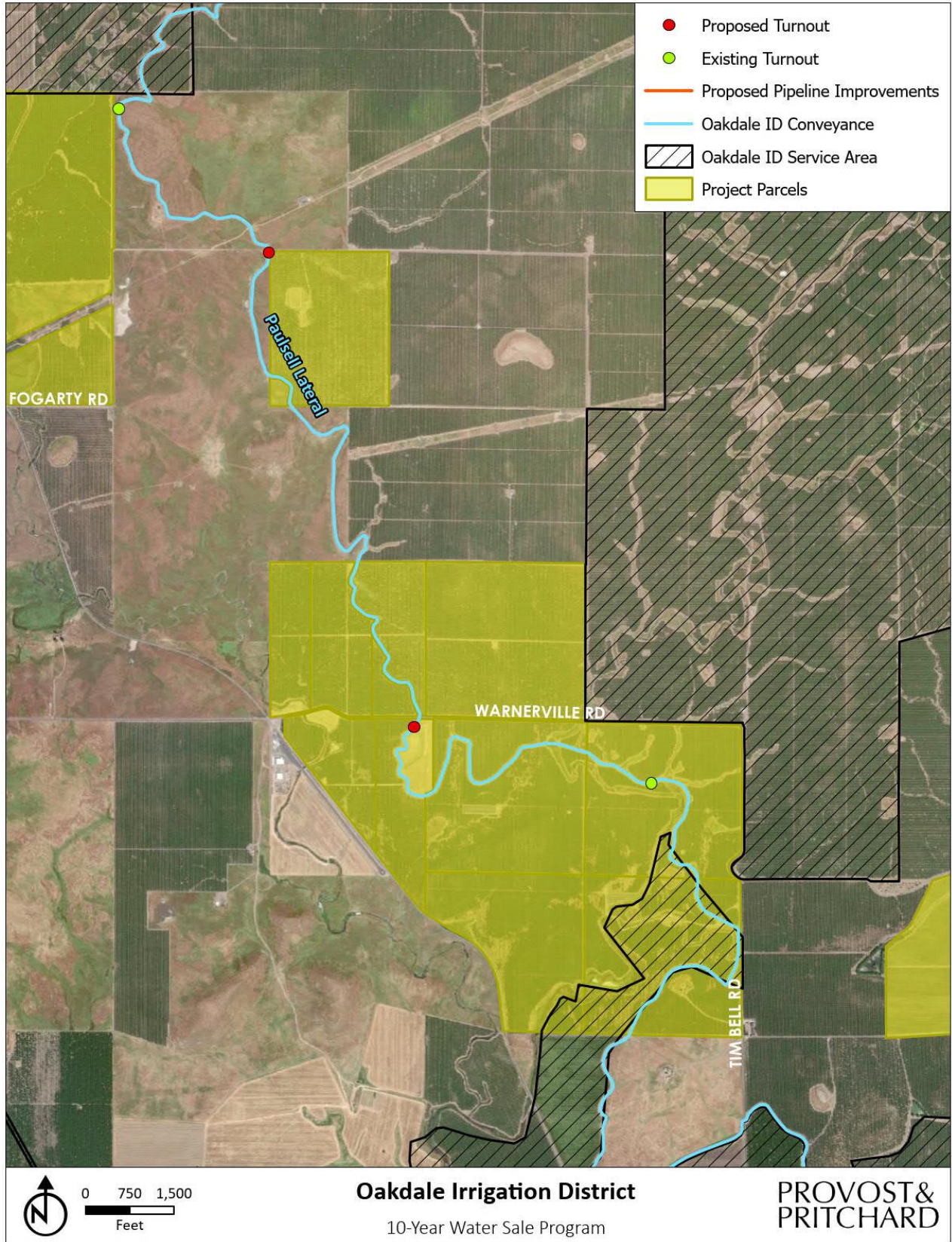


Figure 2-11: Aerial Map G

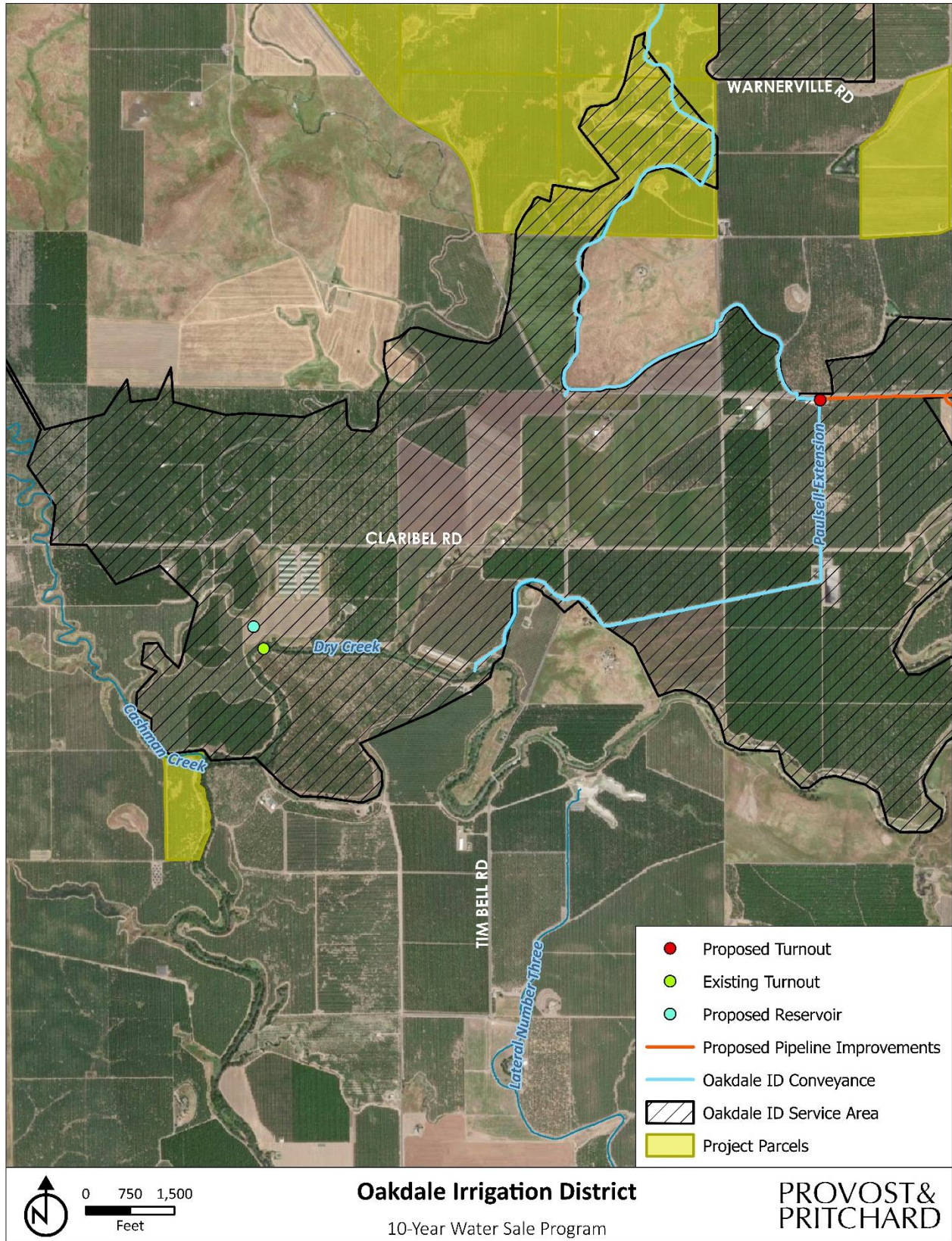


Figure 2-12: Aerial Map Zoomed H

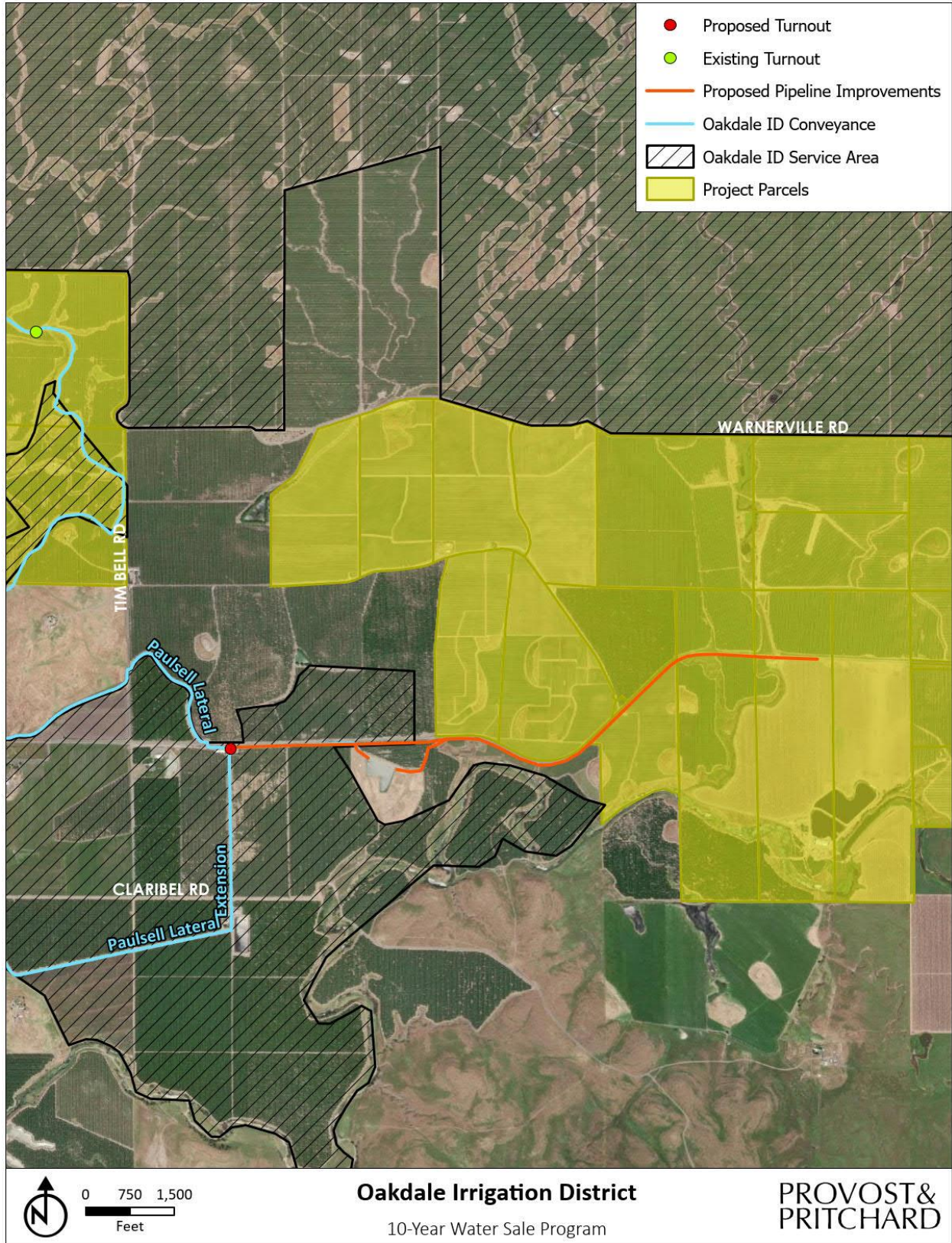


Figure 2-13: Aerial Map I

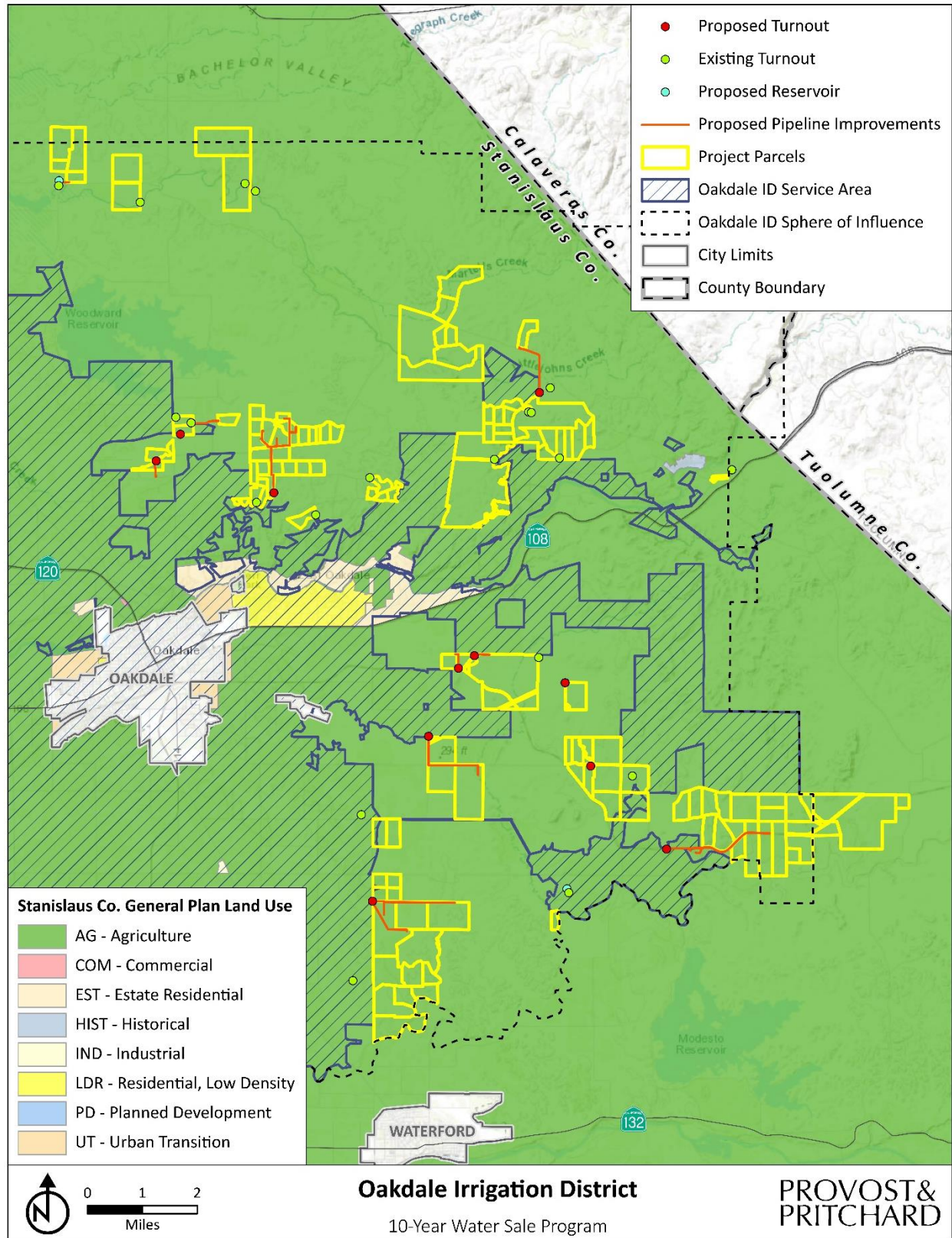


Figure 2-14: General Plan Land Use Designation Map

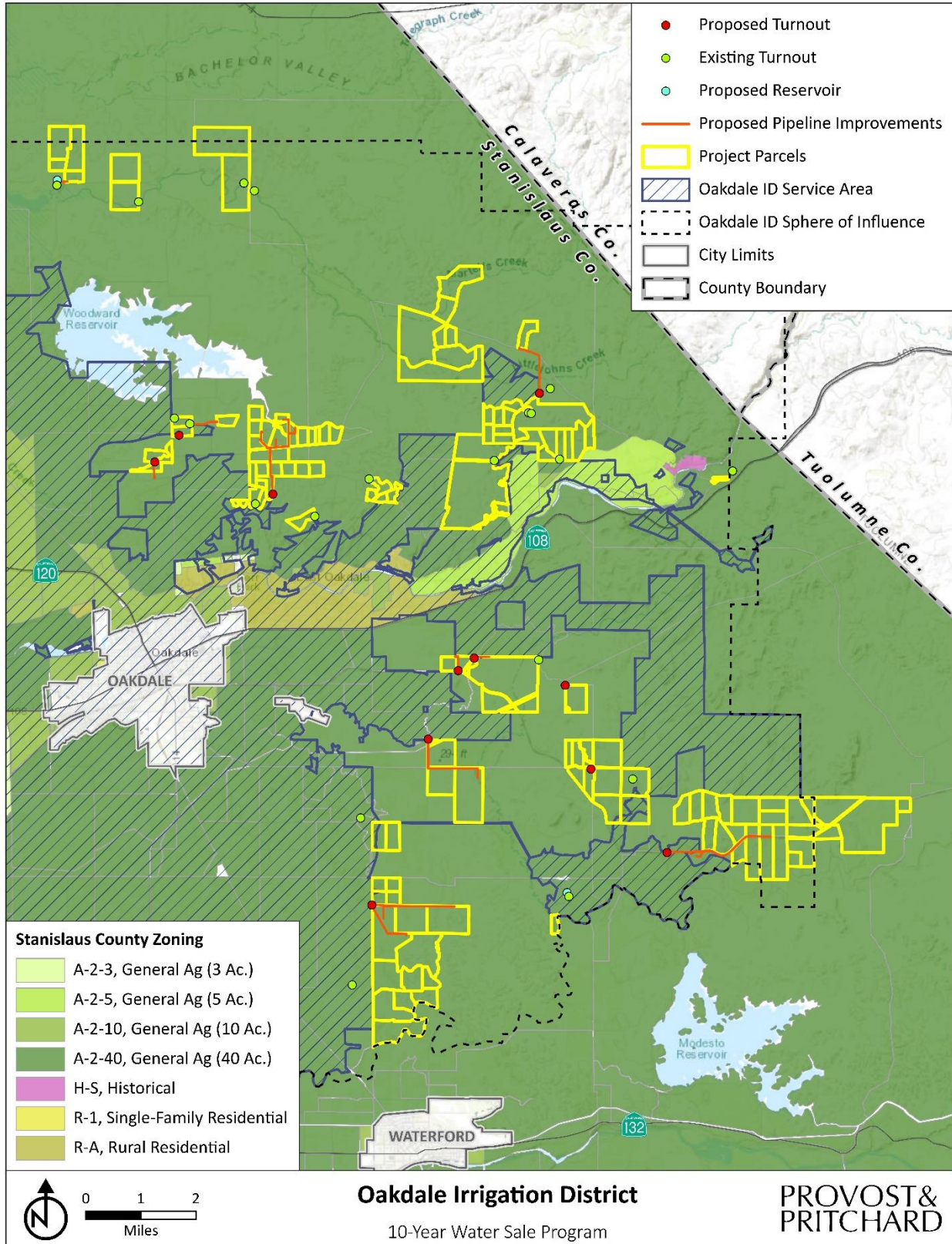


Figure 2-15: Zone District Map

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.

- | | | |
|--|---|--|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forestry Resources | <input type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input checked="" type="checkbox"/> Geology/Soils | <input type="checkbox"/> Greenhouse Gas Emissions | <input checked="" type="checkbox"/> Hazards and Hazardous Materials |
| <input type="checkbox"/> Hydrology / Water Quality | <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources |
| <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation | <input checked="" type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities and Service Systems | <input checked="" type="checkbox"/> Wildfire | <input checked="" type="checkbox"/> 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



Date



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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.1.1 Baseline Conditions

OID service area encompasses parts of Stanislaus and San Joaquin counties, but the Program parcels are only located in Stanislaus County. The District is comprised of both agricultural land and urban development. Urban areas in OID include the cities of Oakdale and Valley Home, while the surrounding land consists of rural lands used for agricultural and open space. Areas where construction would occur is comprised only of agricultural land.

According to the Stanislaus County General Plan and Airport Land Use Compatibility Plan Update Draft Program Environmental Impact Report, the Project area does not contain a designated scenic vista.³ The nearest State scenic highway is Interstate 5 (I-5) located approximately 22 miles southwest of OID’s service area.⁴

4.1.2 Impact Analysis

³ (ICF International 2016)

⁴ (California State Scenic Highway System Map 2018)

a) Have substantial adverse effect on a scenic vista?

No Impact. As mentioned above under **Baseline Conditions**, the Project area does not contain any scenic vistas. Therefore, implementation of the Project would not result in any impacts to a scenic vista. There would be no impact.

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

No Impact. There are no eligible or officially-listed State Scenic Highways in the vicinity of the Project area. The nearest segment of an eligible State Scenic Highway is a segment of the I-5 approximately 22 miles southwest of the Project area. Therefore, 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 would not degrade the existing visual character or quality of public views of the site and its surroundings. Implementation of the Project would consist of the construction of turnouts, pipelines, and reservoirs to assist in the continued operation of agricultural activities. The reservoirs, once filled with water, would provide reflective surfaces. Although this would change the visual character from baseline conditions, it would not degrade the existing visual character. The Project area already contains agricultural elements and structures such as turnouts and wells and the inclusion of additional elements would be consistent to the existing environment. 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?

No Impact. Nighttime construction activities are not anticipated. As identified above, the reservoirs developed from the Project would generate a reflective glare. This reflective glare would have minimal impact due to rural area containing limited sensitive receptors. Therefore, 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.2.1 Baseline Conditions

The Farmland Mapping and Monitoring Program (FMMP) produces maps and statistical data used for analyzing impacts to California’s agricultural resources. Agricultural land is rated according to soil quality and irrigation status; the best quality land is called Prime Farmland. The maps are updated every two years with the use of a computer mapping system, aerial imagery, public review, and field reconnaissance. The California Department of Conservation (DOC)’s 2018 FMMP is a non-regulatory program that produces “Important Farmland” maps and statistical data used for analyzing impacts on California’s agricultural resources. According to the California Important Farmland Finder, the Project area is designated as Urban and Built-Up Land, Unique Farmland, Grazing Land, Farmland of Statewide Importance, Prime Farmland, and Other Land.⁵

Currently, OID operates and maintains over 330 miles of laterals, pipelines, and tunnels, 25 deep wells, and 41 lift pumps to serve local customers. The District provides surface irrigation (raw) water to over 2,900 connections within Stanislaus and San Joaquin County (Note: The Project area only encompasses areas

⁵ (California Department of Conservation. 2018)

within Stanislaus County). According to the 2021 Stanislaus County Agricultural Report, the top three crops grown in Stanislaus County were almonds, nursery fruit and nut trees and vines, and silage.⁶

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?

No Impact. The Project would facilitate a water transfer using surplus supplies from OID to areas outside of OID's service area. The Project also includes construction of turnouts and pipelines to lands that would be receiving water but do not currently have a physical connection to OID facilities to receive transferred water. Although some lands within the Project area are designated for Prime Farmland, Unique Farmland, and Farmland of Statewide Importance, the Project would not convert them to a non-agricultural use. In fact, the Project would encourage continued farming by providing much needed water to sustain existing operations. There would be no impact.

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

No Impact. As mentioned above, the Project would encourage and enhance existing agricultural operations by providing water for agricultural irrigation purposes. This, in turn, would result in a compatible use with any existing zoning designated for agriculture, or any lands restricted under a Williamson Act contract. Therefore, 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. The Project area does not contain any lands zoned or used for forest land or timberland. Therefore, 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. Therefore, the implementation of the Project would not result in the loss of forest land, or the conversion of forest land to a 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 not result in the direct conversion of farmland or forest land to non-agricultural or non-forest use. The primary intent of the Project is to provide water to agricultural users who are in need of supplies to sustain their existing operations. The Project would not induce any growth that could result in development that converts farmland to non-agricultural use or conversion of forest land to non-forest use. There would be no impact.

⁶ (Stanislaus County 2021)

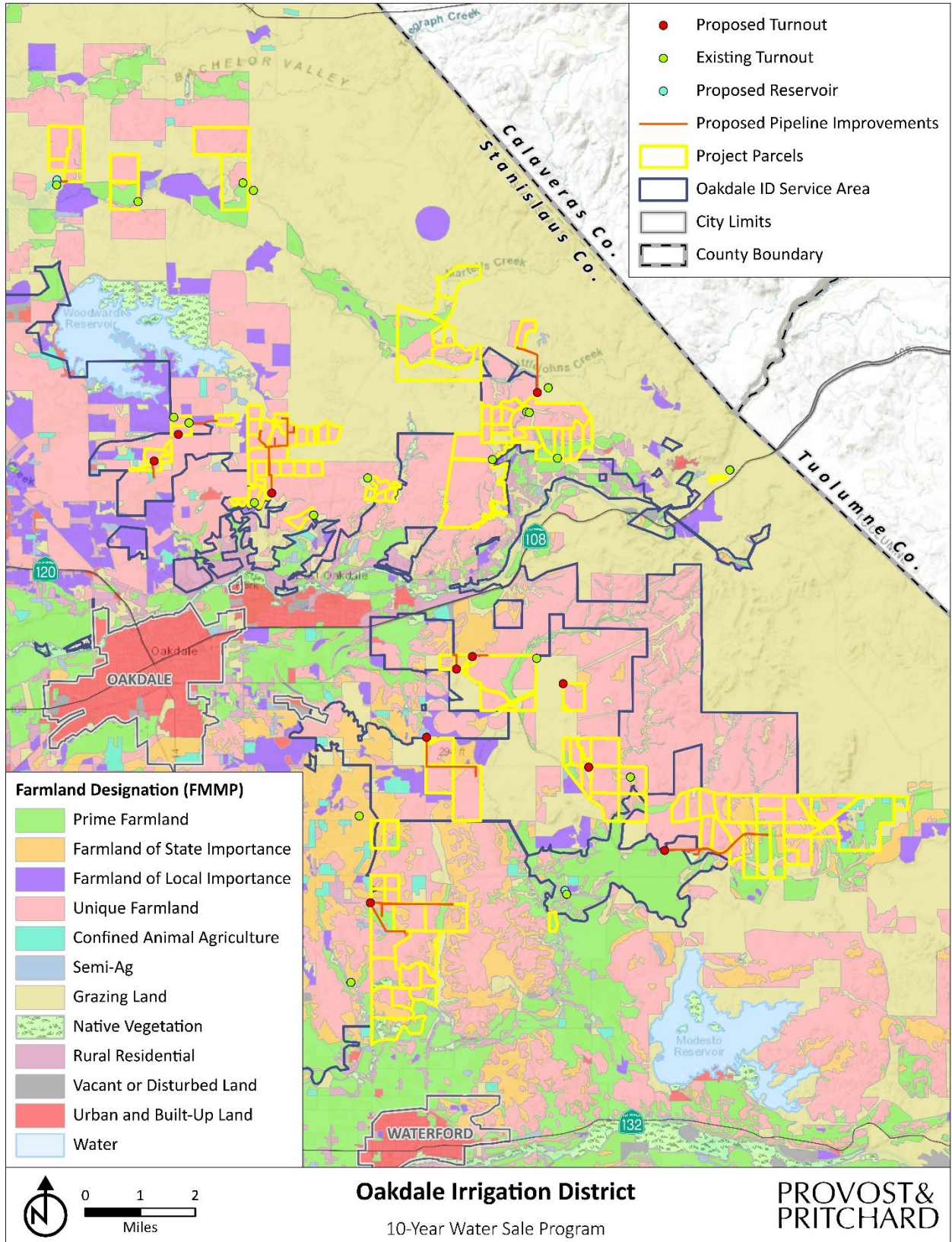


Figure 4-1: Farmland Designation Map

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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.3.1 Baseline Conditions

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 California Ambient Air Quality Standards (CAAQS). 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 nitrous oxide (NO₂) as “does not meet the primary standards,” “cannot be classified,” or “better than national standards.” For sulfur dioxide (SO₂) 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 of 10 microns (PM₁₀) based on the likelihood that they would violate national PM₁₀ standards. All other areas are designated “unclassified.”

The San Joaquin Valley Air Basin (SJVAB) is currently designated as a nonattainment area with respect to the State PM₁₀ standard, ozone, and particulate matter 2.5 microns (PM_{2.5}) standards. The SJVAB is designated nonattainment for the National Ambient Air Quality Standards (NAAQS) 8-hour ozone and PM_{2.5}

standards. On September 25, 2008, the USEPA re-designated the San Joaquin Valley to attainment status for the PM₁₀ NAAQS and approved the PM₁₀ Maintenance Plan. The Air Quality Output Files were prepared in December 2022 and are contained in [Appendix A](#).

4.3.2 Thresholds

To assist local jurisdictions in the evaluation of air quality impacts, the San Joaquin Valley Air Pollution Control District (SJVAPCD) has published the *Guide for Assessing and Mitigating Air Quality Impacts*. This guidance document includes recommended thresholds of significance to be used for the evaluation of short-term construction, long-term operational, odor, toxic air contaminant, and cumulative air quality impacts. Accordingly, the SJVAPCD-recommended thresholds of significance are used to determine whether implementation of the Project would result in a significant air quality impact. Projects that exceed these recommended thresholds would be considered to have a potentially significant impact to human health and welfare. The thresholds of significance are summarized, as follows:

Short-Term Emissions of Particulate Matter (PM₁₀): Construction impacts associated with the proposed Project would be considered significant if the feasible control measures for construction in compliance with Regulation VIII as listed in the SJVAPCD guidelines are not incorporated or implemented, or if project-generated emissions would exceed 15 tons per year (TPY).

Short-Term Emissions of Ozone Precursors (ROG and NO_x): Construction impacts would be considered significant if the Project generates emissions of Reactive Organic Gases (ROG) or Nitrogen oxides (NO_x) that exceeds 10 TPY.

Long-Term Emissions of Particulate Matter (PM₁₀): Operational impacts would be considered significant if the Project generates emissions of PM₁₀ that exceed 15 TPY.

Long-Term Emissions of Ozone Precursors (ROG and NO_x): Operational impacts would be considered significant if the Project generates emissions of ROG or NO_x that exceeds 10 TPY.

Conflict with or Obstruct Implementation of Applicable Air Quality Plan: Due to the region's nonattainment status for ozone, PM_{2.5}, and PM₁₀, if the project-generated emissions of either of the ozone precursor pollutants (i.e., ROG and NO_x) or PM₁₀ would exceed the SJVAPCD's significance thresholds, then the Project would be considered to conflict with the attainment plans. In addition, if the Project would result in a change in land use and corresponding increases in vehicle miles traveled, the Project may result in an increase in vehicle miles traveled that is unaccounted for in regional emissions inventories contained in regional air quality control plans.

Local Mobile-Source CO Concentrations: Local mobile source impacts associated with the Project would be considered significant if the project contributes to CO concentrations at receptor locations in excess of the CAAQS (i.e., 9.0 parts per million (ppm) for 8 hours or 20 ppm for 1 hour).

Toxic Air Contaminants: Exposure to toxic air contaminants would be considered significant if the probability of contracting cancer for the Maximally Exposed Individual (i.e., maximum individual risk) would exceed 20 in 1 million, or 1 in 1 million for non-carcinogenic acute or chronic hazards.

Odors: Odor impacts associated with the proposed Project would be considered significant if the project has the potential to frequently expose members of the public to objectionable odors.

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 ₂ S)	1-hour	0.03 ppm (42 µg/m ³)	Unclassified		
Vinyl Chloride (C ₂ H ₃ Cl)	24-hour	0.01 ppm (26 µg/m ³)	Attainment		
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 [2015].

***Secondary Standard

Source: <http://www.valleyair.org/aqinfo/attainment.htm>. Accessed 2015

4.3.3 Impact Analysis

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

Less than Significant Impact. CEQA requires that certain projects be analyzed for consistency with the applicable air quality plan. For a project to be consistent with SJVAPCD air quality plans, the pollutants emitted from a project should not exceed the SJVAPCD emission thresholds or cause a significant impact on air quality. In addition, emission reductions achieved through implementation of offset requirements are a major component of the SJVAPCD air quality plans. As shown in **Table 4-5**, construction of the project would not result in the generation of criteria air pollutants that would exceed SJVAPCD thresholds of significance. Implementation of SJVAPCD Regulation VIII would further reduce construction dust impacts. Operational emissions associated with the project would be minimal and not quantified. Project construction sites of more than 9,000 square feet would be subject to Rule 9510, Indirect Source Review, which encourages developers to incorporate clean air measures and reduce emissions of NO_x and PM₁₀ from new development projects. Therefore, the Project would not conflict with or obstruct implementation of SJVAPCD air quality plans. Impacts would be less than significant.

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. Construction pollutants as a result of Project activities was analyzed over the course of one (1) year. Emissions were modeled using California Emissions Estimator Modeling (CalEEMod) version 2020.4.0 for construction of turnouts and reservoirs, with SacMetro Road Construction Emission Model version 9.0.1 for the construction of the pipeline. Emissions were found to not exceed SJVAPCD thresholds of significance. Therefore, impacts would be less than significant.

Table 4-5: Short-Term Construction-Generated Emissions of Criteria Air Pollutants

Source	Annual Emissions (Tons/Year) ⁽¹⁾					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Turnouts, 12 total	0.422	4.218	4.646	0.007	0.238	0.286
Pipeline, 12 miles	0.060	0.580	1.020	0.000	0.680	0.160
Reservoirs, 19 acres	0.329	2.261	3.120	0.0087	0.7686	0.2965
Total	0.811	7.059	8.786	0.0157	1.6866	0.7425
Threshold of Significance	10	10	100	27	15	15
Significant Impact?	No	No	No	No	No	No

Note: Emissions were quantified using CalEEmod Version 2020.4.0 and SacMetro Road Construction Emissions Model version 9.0.1. Refer to **Appendix A** for modeling results and assumptions. Totals may not sum due to rounding.

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

Less than Significant Impact. Construction of the Project would require the use of diesel-powered construction equipment. Sensitive receptors exist near almost all proposed construction sites. However, due to the size of each site's pipeline and/or reservoir, exposure to substantial pollutant concentrations would be short, temporary, and minimal. Therefore, 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?

No Impact. Land uses that are typically identified as sources of objectionable odors include landfills, transfer stations, sewage treatment plants, wastewater pump stations, composting facilities, feed lots, coffee roasters, asphalt batch plants, and rendering plants, among other uses. The Project does not include any of these activities or land uses. The Project would therefore have no impact with respect to generation of emissions leading to odors or other adverse or objectionable emissions.

4.4 BIOLOGICAL RESOURCES

Table 4-6: 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.4.1 Baseline Conditions

Topography

The Project area is located in northeast Stanislaus County within the San Joaquin Valley, in various locations surrounding Oakdale, California (see [Figure 2-1](#)). This area lies just east of the foothills of the Sierra Nevada Mountain Range. The topography is relatively flat with elevations ranging from approximately 200 to 300 feet.

Climate

Like most of California, the Project area experiences a Mediterranean climate. Warm, dry summers are followed by cool, moist winters. Summer temperatures range between 70- and 80-degrees Fahrenheit (°F), but can exceed 90 °F. Winter minimum temperatures are near 40 °F. The average annual precipitation is approximately 21 inches, falling mainly from October to April.⁷

Hydrology

The Project area lies within multiple watersheds. The principal drainage comes from the mainstem of the Stanislaus River. The watersheds begin as rainfall events or snowmelt from the west slopes of the Sierra Nevada Mountain Range, which flows into the Stanislaus River and feeds into New Melones Lake. Here, the Stanislaus River is intercepted by New Melones Dam. Downstream of New Melones Dam, the river flows west into the Tulloch Reservoir and again into the Goodwin Dam Reservoir. It is at Goodwin Dam that water is distributed into District canals which convey water to the Project area.

The Project area lies within four watersheds: Lone Tree Creek - Hydrologic Unit Code (HUC) 1804005103; Littlejohns Creek- HUC 1804005102; Lower Stanislaus River - HUC 1804001007; Dry Creek - HUC 1804000913; and seven subwatersheds: Upper Lone Tree Creek - HUC 180400510301; Peachys Creek-Littlejohns Creek - HUC 180400510203; Rodden Creek-Stanislaus River - HUC 180400100702; Town of Oakdale-Stanislaus River - HUC 180400100703; Cashman Creek - HUC 180400091305; Town of Oakdale-Dry Creek - HUC 180400091306; and Dry Creek - HUC 180400091307.

Soils

Seventeen soil mapping units representing 13 soil types were identified within the Proposed Turnouts and are displayed with their core properties in [Table 4-7](#) below.

Table 4-7: List of Soils Located Onsite and Their Basic Properties

Soil	Soil Map Unit	Percent of APE	Hydric Unit	Hydric Minor Units	Drainage	Permeability	Runoff
<i>Alamo</i>	Clay, 0 to 2 percent slopes	5.8%	Yes	No	Poorly drained	Very slow	Very high
<i>Honcut</i>	Fine sandy loam, 0 to 1 percent slopes	9.9%	No	No	Well drained	Moderately rapid	Very low runoff
<i>Hopeton</i>	Clay loam, 0 to 3 percent slopes	2.1%	No	No	Moderately well drained	Medium permeability	High
<i>Montpellier</i>	Coarse sandy loam, 3 to 8 percent slopes	3.6%	No	No	Well drained	Moderately slow permeability	High
<i>Pentz</i>	Gravelly loam, 8 to 30 percent slopes	12.1%	No	No	Well drained	Medium permeability	Low runoff

⁷ (Weather Spark 2022)

Soil	Soil Map Unit	Percent of APE	Hydric Unit	Hydric Minor Units	Drainage	Permeability	Runoff
<i>Pentz-Peters</i>	Association, 2 to 8 percent slopes	3.9%	No	No	Well drained	Medium permeability	Medium
<i>Peters</i>	Clay, 2 to 8 percent slopes	0.0%	No	Yes	Well drained	High permeability	Very high
	Clay, 8 to 15 percent slopes	3.3%	No	No	Well drained	High permeability	Very high
	Cobbly clay, 8 to 15 percent slopes	6.9%	No	No	Well drained	High permeability	High
<i>Peters-Pentz</i>	Complex, 0 to 8 percent slopes	0.9%	No	No	Well drained	Medium permeability	Medium
	Complex, 8 to 15 percent slopes	5.7%	No	No	Well drained	Medium permeability	Medium
	Association, 2 to 8 percent slopes	12.3%	No	No	Well drained	Medium permeability	Medium
<i>Psammentic Haploxerolls-Mollic Fluvaquents-Riverwash</i>	Complex, 0 to 8 percent slopes	6.9%	Yes	-	-	-	-
<i>Raynor</i>	Clay, 0 to 3 percent slopes	3.4%	No	No	Well drained	Low permeability	High
<i>San Joaquin</i>	Sandy loam, 2 to 5 percent slopes	4.0%	No	No	Moderately well drained	Very slow permeability	Medium
<i>Terrace Escarpments</i>	Loamy sand, 30 to 50 percent slopes	3.5%	No	-	Excessively drained	-	Very high
<i>Whitney</i>	Sandy loams, 3 to 8 percent slopes	15.7%	No	No	Well drained	Moderately rapid permeability	Medium

Two of the major soil mapping units and none of the minor soil mapping units were identified as hydric. The major and minor soils which are hydric make up approximately 12.7% of the soil in the Project area (NRCS, 2022). 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.

The complete Natural Resources Conservation Service (NRCS) Web Soil Survey report is available as an appendix in [Appendix B](#) at the end of this document.

4.4.2 Biotic Habitats within the Project Area

A reconnaissance-level field survey of the Proposed Turnouts within the Project Area ([Figure 2-2](#)) was conducted on November 2, 2022. The survey consisted of walking and driving thoroughly through the Project area to identify and record land uses, biological habitats and communities, and plant and animal species observed, and to assess the area for suitable habitats and resources which could be of use to various wildlife species. The full written report of biological findings is contained in the Biological Evaluation located in [Appendix B](#).

OID Distribution Canals

At the time of survey, the OID irrigation season had just ended and some water was still present within the canals. The species identified in and around the canals included American Pipet (*Anthus rubescens*), American Robin (*Turdus migratorius*), Black Pheobe (*Sayornis nigricans*), Brewers Blackbird (*Euphagus cyanocephalus*), California Scrub Jay (*Aphelocoma californica*), Cooper's Hawk (*Accipiter cooperii*), House Finch (*Carpodacus mexicanus*), Killdeer (*Charadrius vociferus*), Lesser Goldfinch (*Carduelis psaltria*), Loggerhead Shrike (*Lanius ludovicianus*), Mourning Dove (*Zenaida macroura*), Northern Flicker (*Colaptes auratus*), Northern Harrier (*Circus hudsonius*), Northern Mockingbird (*Mimus polyglottos*), Red-tailed Hawk (*Buteo jamaicensis*), Red-winged Blackbird (*Agelaius phoeniceus*), Ruby-crowned Kinglet (*Regulus calendula*), Savannah Sparrow (*Passerculus sandwichensis*), Turkey Vulture (*Cathartes aura*), Western Meadowlark (*Sturnella neglecta*), and White-crowned Sparrow (*Zonotrichia leucophrys*).

Plant species observed in and around the canals include oat grasses (*Avena* sp.), mustard (*Brassica* sp.), broadleaf cattail (*Typha latifolia*), brome grasses (*Bromus* sp.), cheeseweed mallow (*Malva parviflora*), common sow thistle (*Sonchus oleraceus*), curly dock (*Rumex crispus*), dove weed (*Murdannia nudiflora*), field horsetail (*Equisetum arvense*), flax-leaved horseweed (*Conyza bonariensis*), Fremont's cottonwood (*Populus fremontii*), Italian thistle (*Carduus pycnocephalus*), Jersey cudweed (*Helichrysum luteoalbum*), pepperweed (*Lepidium latifolium*), *Rubus* sp., *Salix* sp., soft rush (*Juncus effusus*), spiny cocklebur (*Xanthium spinosum*), valley oak (*Quercus lobata*), yellow star thistle (*Centaurea solstitialis*), and perennial shrubs (*Yucca* sp.).

Agricultural

The area surrounding the Project area consisted primarily of agriculture lands and cattle and dairy heifers. This habitat included active fruit and nut orchards, field and row crops, as well as fallow fields. Agricultural lands included structures, equipment, and rural houses, along with farm animals, domestic pets, and ornamental landscape.

Open Space

Open space areas included herbaceous, shrub, tree, and grassland communities. Herbaceous plants, such as grasses and wildflowers, do not produce woody tissue, are green and leaf-like in appearance or texture, and generally die back at the end of each growing season. Shrubs are short woody plants with two or more stems growing from the base. Trees are scattered throughout the Project area including oak woodlands and riparian areas and can be used by a multitude of species for roosting, nesting, and food sources. In addition to those species discussed above the area also included invasive grasses and perennial veldtgrass

(*Ehrharta calycina*), rice cutgrass (*Leersia oryzoides*), hairy crabgrass (*Digitaria sanguinalis*), and smooth crabgrass (*Digitaria ischaemum*).

Wetlands and Vernal Pools

Wetlands and vernal pools are permanent and are fed by a continual water source or are seasonal bodies of standing water that typically form during winter and spring rain and then dry out completely in the hot summer months. They provide important nesting and foraging areas for a variety of water birds and breeding habitat for many terrestrial or semi-aquatic animals such as frogs, salamanders, and turtles.

Representative photographs of the site at the time of the survey are available in [Appendix B](#) at the end of this document.

Natural Communities of Special Concern

Natural communities of special concern are those that are of limited distribution, distinguished by significant biological diversity, or home to special status species. CDFW is responsible for the classification and mapping of all-natural communities in California. Just as the special status plant and animal species, these natural communities of special concern can be found within the CNDDDB. According to CNDDDB, there are four occurrences of Northern Hardpan Vernal Pool in the region. They are located approximately seven miles southeast, three miles north, 11 eleven miles northwest, and 12 twelve miles northwest of the central Project area.

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 and that may require special management and protection. According to CNDDDB and IPaC, there is one turnout which is located within designated critical habitat of Colusa grass (*Neostapfia colusana*), Greene’s tuctoria (*Tuctoria greenei*), and vernal pool tadpole shrimp (*Lepidurus packardi*).

The Stanislaus River is not designated as Critical Habitat by USFWS, but CDFW and other local agencies would have an obligation to protect native fish species within the river. Although no construction would occur in the Stanislaus River, the water transferred under the proposed Project could reduce the excess spill flow from New Melones Reservoir in some years. OID has completed an analysis of the New Melones Reservoir Hydrology (Hydrology Transfer Memo in Appendix B) which indicates that regardless of the proposed 25,000 acre-foot water transfer, the flow requirements below Goodwin Dam would be met in all years and the cold-water pool would not be drawn down more often than without the Project. Therefore, the Project would not negatively impact habitat for Chinook Salmon, Steelhead, or other fish species.

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. As the human population grows, urban expansion encroaches on the already-limited suitable habitat. This results in sensitive species becoming increasingly more vulnerable to extirpation. State and federal regulations have provided the CDFW and the USFWS with a mechanism 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 plants and animals are referred to as “special status species.” This survey was conducted outside of the blooming season for most plants. Further investigation of special status plants is recommended to occur during the plants’ blooming seasons.

A thorough search of the CNDDDB for published accounts of special status plant and animal species was conducted for the *Farmington, Bachelor Valley, Knights Ferry, Oakdale, Escalon, Waterford, Paulsell, and Cooperstown* 7.5-minute quadrangles that contain the APE, and for the 18 surrounding quadrangles: *Peters, Linden, Valley Springs Southwest, Jenny Lind, Salt Spring Valley, Copperopolis, New Melones Dam, Keystone, Chinese Camp, La Grange, Snelling, Turlock Lake, Montpelier, Denair, Ceres, Riverbank, Salida, and Avena.* These species and their potential to occur within the APE are listed in **Table 4-8** and **Table 4-9**. Raw data obtained from CNDDDB is available in **Appendix B** at the end of this document. All relevant sources of information, as discussed in the *Study Methodology* of the Biological Evaluation Report (**Appendix B**), as well as field observations, were used to determine if any special status species are known to be within the Project area. **Figure 2-3** shows the Project’s 7.5-minute quadrangle, according to United States Geological Survey Topographic Maps.

Table 4-8: List of Special Status Animals with Potential to Occur Onsite and/or in the Vicinity

Species	Status	Habitat	Occurrence on Project Site
American badger (<i>Taxidea taxus</i>)	CSC	Grasslands, savannas, and mountain meadows near timberline are preferred. Most abundant in drier open spaces of shrub and grassland. Burrows in soil.	Possible. There is suitable habitat for this species within the Program area.
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	CE, CFP	Resides in old growth forests as well as lower montane coniferous forests. Nests are generally found in large, old-growth trees within a mile of water. Nests and winters along ocean shores, lake margins, and rivers.	Possible. There could potentially be suitable habitat for this species within the Program area. There are water bodies and large trees nearby that could support this species.
Burrowing Owl (<i>Athene cucularia</i>)	CSC	Resides in open, dry annual or perennial grasslands, deserts, and scrublands with low growing vegetation. Nests underground in existing burrows created by mammals, most often ground squirrels.	Possible. There is suitable habitat for this species within the Program area. This species has been known to nest in the banks of canals and ditches, open undisturbed fields, and grasslands.
California Horned Lark (<i>Eremophila alpestris actia</i>)	CWL	Frequents open habitats, including short-grass prairie, mountain meadows, open coastal plains, fallow grain fields, and alkali flats. Found primarily in coastal regions, including Sonoma and San Diego Counties.	Possible. There is suitable habitat for this species within the Program area. There are open areas which could attract this species.
California tiger salamander (<i>Ambystoma californiense</i>)	FT, CT, CWL	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 1500 feet in elevation.	Possible. There is suitable habitat for this species within the Program area. There are known vernal pools within the Program area.
Chinook salmon (<i>Oncorhynchus tshawytscha</i>) - Central Valley fall run	FSC	In California, restricted to the Sacramento River and San Joaquin River valley bottoms and a few of the lesser tributaries.	Absent. Although water within the District’s Canals comes from the Stanislaus River, this species could not occur within the Canals. Water is distributed

Species	Status	Habitat	Occurrence on Project Site
			into the canals at Goodwin Dam, and this species is only located downstream of this structure. The fish ladder at the Goodwin Dam has been destroyed by rockfall, so there is no potential for passage of this species upstream past the dam. OID completed an analysis of New Melones Reservoir hydrology (described in Section 4.10.2 C) to review any potential incidental impacts to New Melones Reservoir storage from the transfer. The results of that analysis indicate that while the need for spill from New Melones may be incrementally reduced in some years due to the Project, the flow requirements below Goodwin Dam are always met and the cold-water pool is not reached more often than without the Project.
Conservancy fairy shrimp (<i>Branchinecta conservatio</i>)	FE	Endemic to the grasslands of the northern two-thirds of the Central Valley. Found in large, turbid pools.	Possible. There is suitable habitat for this species within the Program area. There are known vernal pools within the Program area.
Crotch bumble bee (<i>Bombus crotchii</i>)	CCE	Occurs throughout coastal California, as well as east to the Sierra-Cascade crest, and south in to Mexico. Food plant genera include <i>Antirrhinum</i> , <i>Phacelia</i> , <i>Clarkia</i> , <i>Dendromecon</i> , <i>Eschscholzia</i> , and <i>Eriogonum</i> .	Possible. There is suitable habitat for this species within the Program area.
Delta smelt (<i>Hypomesus transpacificus</i>)	FT, CE	This pelagic and euryhaline species is Endemic to the Sacramento-San Joaquin River Delta, upstream through Contra Costa, Sacramento, San Joaquin, and Solano Counties.	Absent. Although water within the District's Canals comes from the Stanislaus River, this species could not occur within the Canals. Water is distributed into the canals at Goodwin Dam, and this species is only located downstream of this structure. The fish ladder at the Goodwin Dam has been destroyed by rockfall, so there is no potential for passage of this species upstream past the dam. The APE is also outside of the typical range of this species. There are no recorded observations of this species within the 16-quad search.
Foothill yellow-legged frog (<i>Rana boylei</i>)	CCT, CSC	Frequents rocky streams and rivers with rocky substrate and open, sunny	Unlikely. The Program area is outside of the typical range of

Species	Status	Habitat	Occurrence on Project Site
		banks in forests, chaparral, and woodlands. Occasionally found in isolated pools, vegetated backwaters, and deep, shaded, spring-fed pools.	this species. Habitat for this species is marginal.
Giant gartersnake (<i>Thamnophis gigas</i>)	FT, CT	Occurs in marshes, sloughs, drainage canals, irrigation 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.	Possible. There is suitable habitat for this species within the Program area. This species could occur within waterbodies or uplands within the Program area.
Green sturgeon (<i>Acipenser medirostris</i>)	FT	Spawns in the Sacramento, Feather, and Yuba Rivers. Presence in upper Stanislaus and San Joaquin Rivers may indicate spawning. Non-spawning adults occupy marine/estuarine waters. Delta Estuary is important for rearing juveniles.	Absent. Although water within the District's Canals comes from the Stanislaus River, this species could not occur within the Canals. Water is distributed into the canals at Goodwin Dam, and this species is only located downstream of this structure. The fish ladder at the Goodwin Dam has been destroyed by rockfall, so there is no potential for passage of this species upstream past the dam. The nearest recorded observation of this species occurred in the Stanislaus River in 2017. OID completed an analysis of New Melones Reservoir hydrology (Appendix B), and results of that analysis indicate that while the need for spill from New Melones may be incrementally reduced in some years due to the transferred under Project, the flow requirements below Goodwin Dam are always met and the cold-water pool is not reached more often than without the Project.
Hardhead (<i>Mylopharodon conocephalus</i>)	CSC	Occurs in low- to mid-elevation streams in the Sacramento-San Joaquin drainage. Clear, deep pools with sand-gravel-boulder bottoms and slow-moving water is required. This species is often sympatric with Sacramento pikeminnow and Sacramento sucker. Hardhead are typically absent from streams occupied by centrarchids and from heavily altered habitats.	Absent. Although water within the District's Canals comes from the Stanislaus River, this species could not occur within the Canals. Water is distributed into the canals at Goodwin Dam, and this species is only located downstream of this structure. The fish ladder at the Goodwin Dam has been destroyed by rockfall, so there is no potential for passage of this species upstream past the

Species	Status	Habitat	Occurrence on Project Site
			dam. The nearest recorded observations of this species occurred in the Stanislaus River and Tuolumne River in 2008. OID completed an analysis of New Melones Reservoir hydrology (Appendix B), and results of that analysis indicate that while the need for spill from New Melones may be incrementally reduced in some years due to the transferred under Project, the flow requirements below Goodwin Dam are always met and the cold-water pool is not reached more often than without the Project.
Least Bell's Vireo (<i>Vireo bellii pusillus</i>)	FE, CE	This migratory species breeds in southern California. Breeding habitat consists of dense, low, shrubby, riparian vegetation in the vicinity of water or dry river bottoms. By the early 1980s, this species was extirpated from most of its historic range in California, including the Central Valley. This species now occurs exclusively along the coast of southern California (USFWS, 1998).	Absent. The APE is outside of the current known range of this species. This species has been extirpated from the region. The only recorded observation of this species in the region occurred approximately 10 miles southeast of the APE in 1919.
Loggerhead Shrike (<i>Lanius ludovicianus</i>)	CSC	Frequents open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low herbaceous cover. In the Central Valley, nests in riparian areas, desert scrub, and agricultural hedgerows.	Present. This species was observed passing through the Program area during the biological survey.
Monarch Butterfly (<i>Danaus plexippus</i>)	FC	Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby. Larval host plants consist of milkweeds (<i>Asclepias</i> sp.). Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico.	Possible. There could be potential habitat for this species within the Program area.
Mountain Plover (<i>Charadrius montanus</i>)	CSC	Breeds on open plains at moderate elevations. Winters in short-grass plains and fields, plowed or fallow fields, and sandy deserts. Prefers flat, bare ground with burrowing rodents.	Possible. There is suitable habitat for this species within the APE. This species could occur within the open areas in the Program area.
Northern California legless lizard (<i>Anniella pulchra</i>)	CSC	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.	Possible. There is suitable habitat for this species within the Program area. This species could occur within the loose soil of leaf litter in the Program area.
Northern Harrier (<i>Circus hudsonius</i>)	CSC	Nests and forges in various grasslands, including salt grass in desert sinks, riparian scrub, and	Present. This species was observed passing through the

Species	Status	Habitat	Occurrence on Project Site
		wetland edges. Nests constructed on the ground from sticks in wet areas, usually on the edge of marshes.	Program area during the biological survey.
Osprey (<i>Pandion haliaetus</i>)	CWL	Found at the ocean shore, bays, freshwater lakes, and larger streams. Builds large nests in tree-tops within 15 miles of a good fish-producing body of water.	Possible. There is suitable habitat for this species within the Program area. This species could occur in large trees within the Program area since there are waterbodies in the region.
Pallid bat (<i>Antrozous pallidus</i>)	CSC	Found in grasslands, chaparral, and woodlands, where it feeds on ground- and vegetation-dwelling arthropods, and occasionally takes insects in flight. Prefers to roost in rock crevices, but may also use tree cavities, caves, bridges, and other man-made structures.	Possible. There is suitable habitat for this species within the Program area. This species could be found roosting in trees or in structures and foraging within open areas in the Program area.
Red Hills Roach (<i>Hesperoleucus symmetricus serpentinus</i>)	CSC	Found in small, spring fed intermittent creeks streams flowing through serpentine outcrops near Sonora. It may be confined to pools and perennial stream reaches during summer and drought.	Absent. Suitable habitat for this species is absent from the Program area. The Program area is outside of the typical range of this species.
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	FE, CT	Underground dens with multiple entrances in alkali sink, valley grassland, and woodland in valleys and adjacent foothills.	Possible. There could be potential habitat for this species within the Program areas. This species could be found within open spaces or migrating through the area .
Steelhead – Central Valley DPS (<i>Oncorhynchus mykiss irideus</i> pop.11)	FT	This winter-run fish begins migration to fresh water during peak flows during December and February. Spawning season is typically from February to April. After hatching, fry move to deeper, mid-channel habitats in late summer and fall. In general, both juveniles and adults prefer complex habitat boulders, submerged clay and undercut banks, and large woody debris.	Absent. Although water within the District’s canals comes from the Stanislaus River, this species could not occur within the Canals. Water is distributed into the canals at Goodwin Dam, and this species is only located downstream of this structure. The fish ladder at the Goodwin Dam has been destroyed by rockfall, so there is no potential for passage of this species upstream past the dam. The nearest recorded observation of this species occurred in the Stanislaus River and Tuolumne River in 2014. OID completed an analysis of New Melones Reservoir hydrology (Appendix B), and results of that analysis indicate that while the need for spill from New Melones may be incrementally reduced in some years due to the transferred under Project, the flow requirements below Goodwin

Species	Status	Habitat	Occurrence on Project Site
			Dam are always met and the cold-water pool is not drawn down more often than without the Project.
Swainson's Hawk (<i>Buteo swainsoni</i>)	CT	Nests in large trees in open areas adjacent to grasslands, grain or alfalfa fields, or livestock pastures suitable for supporting rodent populations.	Possible. There is suitable habitat for this species within the Program area. This species could be found in large trees within the Program area.
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	CSC	Occurs in a variety of habitats, but prefers cool, dark roost sites, and are often found in caves and mines. They roost in the open, hanging from walls and ceilings. Western populations typically forage on moths in areas of dense foliage.	Possible. There is potential habitat for this species within the Program area. This species would not be expected to roost within the Program area, but there is high quality foraging habitats within the Program area which this species could utilize.
Tricolored Blackbird (<i>Agelaius tricolor</i>)	CT, CSC	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 on dairy farm forage fields.	Possible. There is suitable habitat for this species within the Program area. There is nesting habitat such as dense cattails within the Program area.
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	FT	Lives in mature elderberry shrubs of the Central Valley and foothills. Adults are active March to June.	Possible. There is potential habitat for this species within the Program area. There could be elderberry shrubs within the Program area for this species to utilize.
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	FT	Occupies vernal pools, clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools.	Possible. There is suitable habitat for this species within the Program area. There are known vernal pools within the Program area.
Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>)	FE	Occurs in vernal pools, clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools.	Possible. There is suitable habitat for this species within the Program area. There is Critical Habitat for this species within the Program area.
Western bumble bee (<i>Bombus occidentalis</i>)	CCE	Occurs in a variety of habitats. Can survive in agricultural, urban, and rural areas. They require suitable nesting sites and overwintering sites, as well as suitable nectar and pollen sources.	Possible. There is suitable habitat for this species within the Program area.
Western mastiff bat (<i>Eumops perotis californicus</i>)	CSC	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.	Possible. There is suitable habitat for this species within the Program area. This species could potentially roost in structures or forage within the Program area.
Western pond turtle (<i>Emys marmorata</i>)	CSC	An aquatic turtle of ponds, marshes, slow-moving rivers, streams, and	Possible. There is suitable habitat for this species within

Species	Status	Habitat	Occurrence on Project Site
		irrigation ditches with riparian vegetation. Requires adequate basking sites and sandy banks or grassy open fields to deposit eggs.	the Program area. This species is known to occur within canals and ditches.
Western red bat (<i>Lasiurus blossevillii</i>)	CSC	Roosts primarily in trees, 2–40 ft above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	Possible. There is suitable habitat for this species within the Program area. This species could potentially roost in structures or forage within the Program area.
Western spadefoot (<i>Spea hammondi</i>)	CSC	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 pools or temporary wetlands, lasting a minimum of three weeks, which do not contain bullfrogs, fish, or crayfish are necessary for breeding.	Possible. There is suitable habitat for this species within the Program area. This species could potentially breed within the canals or ditches within the Program area.
Yellow Breasted Chat (<i>Icteria virens</i>)	CSC	Inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	Possible. There is suitable habitat for this species within the Program area. Riparian thickets of blackberry were observed within the Program area where this species could potentially nest.

Table 4-9: List of Special Status Plants with Potential to Occur Onsite and/or in the Vicinity

Species	Status	Habitat	Occurrence on Project Site
Ahart’s dwarf rush (<i>Juncus leiospermus</i> var. <i>ahartii</i>)	CNPS 1B	Located within valley and foothill grasslands. Restricted to the edges of vernal pools at elevations between 100 and 750 feet. Blooms March - May	Possible. There is suitable habitat for this species within the Program area. There are vernal pools and grasslands in the Program area.
Beaked clarkia (<i>Clarkia rostrata</i>)	CNPS 1B	Found in woodlands and valley foothill grasslands on the west slope of the Sierra Nevada range, between 200 and 3000 feet in elevation. Blooms April – May.	Possible. There are multiple observations of this species in the region. There is suitable habitat for this species in the Program area.
Chinese Camp brodiaea (<i>Brodiaea pallida</i>)	FT, CE, CNPS 1B	Found in valley and foothill grassland, and cismontane woodland. Often in rocky, intermittent streambeds. Associated with serpentinite. At elevations between 540 and 1265 feet. Blooms May - June.	Absent. The APE is outside of the lower elevational range of this species.
Colusa grass (<i>Neostapfia colusana</i>)	FT, CE, CNPS 1B	Found in vernal pools in the San Joaquin Valley at elevations below 410 feet. Blooms May – August.	Possible. There is suitable habitat for this species within the Program area. There is Critical Habitat for this species located within the Program area.
Congdon’s lomatium (<i>Lomatium congdonii</i>)	CNPS 1B	Occurs in cismontane woodland and chaparral. Especially in serpentine soils with serpentine chaparral plants and grey pines. Elevation 1100 to 2050 feet. Blooms March - June.	Absent. The APE is outside of the lower elevational range of this species.

Species	Status	Habitat	Occurrence on Project Site
<i>Delicate bluecup</i> (<i>Githopsis tenella</i>)	CNPS 1B	Found in foothill areas surrounding the San Joaquin Valley, growing in mesic sites. Habitats include chaparral and cismontane woodlands at elevations between 3610 feet and 6233 feet. Blooms May – June.	Absent. The APE is outside of the lower elevational range of this species.
Delta button-celery (<i>Eryngium racemosum</i>)	CE, CNPS 1B	Found in riparian scrublands in floodplains near the California Delta at elevations between 10 and 100 feet. Blooms June – August.	Possible. There could be potential habitat for this species within the Program area.
Dwarf downingia (<i>Downingia pusilla</i>)	CNPS 2B	Found in vernal pools in valley and foothill grassland communities at elevations below 1600 feet. Blooms March – May.	Possible. There is suitable habitat for this species within the Program area. There are known vernal pools within the Program area.
Forked hare-leaf (<i>Lagophylla dichotoma</i>)	CNPS 1B	Found in cismontane woodland, and valley and foothill grassland communities at elevations between 600 feet and 1100 feet.	Absent. The APE is outside of the lower elevational range of this species.
Greene’s tuctoria (<i>Tuctoria greenei</i>)	FE, CR, CNPS 1B	Found in the San Joaquin Valley and other parts of California in vernal pools within valley grassland, wetland, and riparian communities at elevations below 3500 feet. Blooms May – September.	Possible. There is suitable habitat for this species within the Program area. This species could occur within the riparian habitat within the Program area. There is Critical Habitat for this species located in the Program area.
Hairy Orcutt grass (<i>Orcuttia pilosa</i>)	FE, CE, CNPS 1B	Found in vernal pools in valley grassland, wetland, and riparian communities at elevations below 650 feet. Blooms May – September.	Possible. There is suitable habitat for this species within the Program area. There are known vernal pools within the Program area.
Hartweg’s golden sunburst (<i>Pseudobahia bahifolia</i>)	FE, CE, CNPS 1B	Found in valley and foothill grassland and cismontane woodland communities in clay soils that are often acidic. Occurs predominantly on northern slopes, but also along shady creeks and near vernal pools at elevations between 300 feet and 650 feet. Blooms March – May.	Possible. There is suitable habitat for this species within the Program area. This species could occur within the clay soil and riparian habitat in the Program area.
Heartscale (<i>Atriplex cordulata</i> var. <i>cordulata</i>)	CNPS 1B	Found in the San Joaquin Valley and Sacramento Valley in saline or alkaline soils within shadescale scrub, valley grassland, and wetland-riparian communities at elevations below 230 feet. Blooms June–July.	Possible. There could be potential habitat for this species within the Program area.
Hoover’s calycadenia (<i>Calycadenia hooveri</i>)	CNPS 1B	Found in valley and foothill grassland and cismontane woodland communities on exposed, rocky, barren soil at elevations between 300 feet and 1300 feet. Blooms June – September.	Possible. There is suitable habitat for this species within the Program area. The Program area contains soil that could potentially support this species.
Hoover’s cryptantha (<i>Cryptantha hooveri</i>)	CNPS 1A	Presumed extirpated in California. Found in valley and foothill grassland and inland dunes in coarse sand at elevations below 250 feet. Blooms Mar – May.	Unlikely. This species has not been observed in the region in over 80 years. It is presumed to be extirpated in California.
Hoover’s spurge (<i>Euphorbia hooveri</i>)	FT, CNPS 1B	Found in the San Joaquin Valley and Sacramento Valley in vernal pools within valley grassland, freshwater wetland, and riparian communities at elevations below 800 feet. Blooms July – September.	Possible. There is suitable habitat for this species within the Program area. This species could occur within vernal pools, grasslands, wetlands, or riparian communities within the Program area.

Species	Status	Habitat	Occurrence on Project Site
Layne's ragwort (<i>Packera layneae</i>)	FT, CR, CNPS 1B	Found in chaparral and cismontane woodland communities. Associated with serpentine or gabbro soils, rocky areas, and occasionally along streams. At elevations between 655 to 3560 feet. Blooms April - August.	Absent. The Program area is outside of the lower elevational range of this species.
Legenere (<i>Legenere limosa</i>)	CNPS 1B	Found in wetlands and vernal pool beds at elevations between 5 and 2900 feet. Blooms April - June.	Possible. There is suitable habitat for this species within the Program area. This species could occur within wetlands or vernal pools in the Program area.
Mariposa cryptantha (<i>Cryptantha mariposae</i>)	CNPS 1B.3	Usually occurs in chaparral communities. Can be found on rocky, semi barren ridges, dry slopes, and serpentine outcrops at elevations between 650 feet and 2135 feet. Blooms April - June.	Absent. The APE is outside of the lower elevational range of this species.
Merced monardella (<i>Monardella leucocephala</i>)	CNPS 1A	Found in the San Joaquin Valley, associated with valley and foothill grasslands. Grows along rivers in moist, sandy soils at elevations between 164 feet and 328 feet. Blooms May - July.	Possible. There is suitable habitat for this species within the Program area. This species could occur within the grasslands or riparian habitat in the Program area.
Patterson's navarretia (<i>Navarretia paradoxiclara</i>)	CNPS 1B	Found in open, seasonally wet meadows and seeps. Associated with drainages, openings, serpentinite, and vernal mesic soils. At elevations between 500 and 1400 feet. Blooms May - June.	Absent. The APE is outside of the lower elevational range of this species.
Peruvian dodder (<i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>)	CNPS 2B	An annual vine located in marshes and swamps. Found on herbs including <i>Alternanthera</i> , <i>Dalea</i> , <i>Lythrum</i> , <i>Polygonum</i> , and <i>Xanthium</i> .	Unlikely. This species is presumed extirpated in California. It has not been observed in the region in over 70 years.
Pincushion navaretia (<i>Navarretia myersii</i> spp. <i>myersii</i>)	CNPS 1B	Found in vernal pools in clay soils at elevations between 65-295 feet. Often associated with non-native grasslands. Blooms in May.	Possible. There is suitable habitat for this species within the Program area. This species could occur within vernal pools in the program area.
Rawhide Hill onion (<i>Allium tuolumnense</i>)	CNPS 1B	Found in cismontane woodland. Restricted to serpentine soil, usually in grey pine chaparral. Associated with steep, rocky, south facing slopes or small drainages. Found at elevations between 1000 and 1970 feet. Blooms March - May.	Absent. The APE is outside of the lower elevational range of this species.
Red Hills cryptantha (<i>Cryptantha spithamaea</i>)	CNPS 1B	Found in chaparral and cismontane woodland communities. Associated with serpentinite, streambeds, and openings at elevations between 900 and 1500 feet. Blooms April - May.	Absent. The APE is outside of the lower elevational range of this species.
Red Hills ragwort (<i>Senecio clevelandii</i> var. <i>heterophyllus</i>)	CNPS 1B	Found in cismontane woodland communities. Associated with ultramafic and drying serpentine soils. Is often found along streams. At elevations between 850 and 1265 feet. Blooms May - July.	Absent. The APE is outside of the lower elevational range of this species.
Red Hills soaproot (<i>Chlorogalum grandiflorum</i>)	CNPS 1B	Found in cismontane woodland, chaparral, and lower montane coniferous forest communities. Occurs frequently on serpentine or gabbro soils, as well as non-ultramafic substrates. Can be found on historically disturbed sites. At elevations	Absent. The APE is outside of the lower elevational range of this species.

Species	Status	Habitat	Occurrence on Project Site
		between 800 and 5550 feet. Blooms May - June.	
Red Hills vervain (<i>Verbena californica</i>)	FT, CT, CNPS 1B	Occurs in cismontane woodland, as well as valley and foothill grassland communities. Associated with mesic sites on serpentine, usually serpentine seeps, or creeks. At elevations between 850 and 1310 feet. Blooms May - September.	Absent. The APE is outside of the lower elevational range of this species.
San Joaquin Valley Orcutt grass (<i>Orcuttia inaequalis</i>)	FT, CE, CNPS 1B	Found in the eastern San Joaquin Valley and the Sierra Nevada foothills in vernal pools within valley grassland, freshwater wetland, and wetland-riparian communities at elevations below 2600 feet. Blooms April – September.	Possible. There is suitable habitat for this species within the Program area. This species could occur within vernal pools, grasslands, wetlands, or wetland-riparian communities within the Program area.
Shaggyhair lupine (<i>Lupinus spectabilis</i>)	CNPS 1B	Chaparral, cismontane woodland. Open rocky slopes of serpentine. Mostly on serpentine chaparral surrounded by grey pine woodland at elevations between 855 and 2705 feet.	Absent. The APE is outside of the lower elevational range of this species.
Spiny-sepaled button-celery (<i>Eryngium spinosepalum</i>)	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 feet and 4160 feet. Blooms April–July.	Possible. There is suitable habitat for this species within the Program area. This species could occur within the canals or ditches in the APE.
Stanislaus monkeyflower (<i>Erythranthe marmorata</i>)	CNPS 1B	Found in cismontane woodland and lower montane coniferous forest communities at elevations between 330 and 3000 feet. Blooms March - May.	Possible. There could be potential habitat for this species within the Program area.
Subtle orache (<i>Atriplex subtilis</i>)	CNPS 1B	Found in the San Joaquin Valley in saline depressions in alkaline soils within valley and foothill grassland communities at elevations below 330 feet. Blooms June–October.	Possible. There is potential habitat for this species within the Program area. This species could occur within grassland communities in the Program area.
Succulent owl’s-clover (<i>Castilleja campestris</i> var. <i>succulenta</i>)	FT, CE, CNPS 1B	Found in vernal pools, often in acidic soils at elevations below 2500 feet. Blooms April – July.	Possible. There is potential habitat for this species within the Program area. This species could occur within vernal pools in the Program area.
Tongue-leaf copper moss (<i>Scopelophila cataractae</i>)	CNPS 2B	Found in cismontane woodland communities. Is found on metamorphic substrate. There is only one recorded occurrence of this species on California, at an elevation of 1310 feet.	Unlikely. This is no suitable habitat for this species within the Program area.
Tuolumne button-celery (<i>Eryngium pinnatisectum</i>)	CNPS 1B	Found in cismontane woodland and lower montane coniferous forest communities, and vernal pools. Associated with volcanic soils, wetlands, and mesic sites within other natural communities at elevations between 230 and 3000 feet. Blooms May - August.	Possible. There is suitable habitat for this species within the Program area. This species could occur within vernal pools in the Program area.

Species	Status	Habitat	Occurrence on Project Site
Veiny monardella (<i>Monardella venosa</i>)	CNPS 1B	Found in valley grassland, foothill grassland, and cismontane woodland communities. Occurs in heavy clay, mostly with grassland associates. At elevations between 200 and 1350 feet. Blooms May - July.	Possible. There is suitable habitat for this species within the Program area. There is clay soil present within the Program area.

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 | CFP | California Fully Protected |
| FSC | Federal Species of Concern | CSC | California Species of Concern |
| | | CWL | California Watch List |
| | | CCE | California Endangered (Candidate) |
| | | CR | California Rare |

CNPS LISTING

- | | | | |
|----|---|----|--|
| 1A | Plants Presumed Extinct in California. | 2B | Plants Rare, Threatened, or Endangered in California, but more common elsewhere. |
| 1B | Plants Rare, Threatened, or Endangered in California and elsewhere. | | |

4.4.3 Applicable Regulations for Construction

Threatened and Endangered Species

Permits may be required from the USFWS and/or CDFW if activities associated with a project have the potential to result in the “take” of a species listed as threatened or endangered under the federal and/or state Endangered Species Acts. Take is defined by the State of California 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 federal Endangered Species Act to include “harm” (16 United States Code (USC), Section 1532(19), 50 Code of Federal Regulation (CFR), Section 17.3). CDFW and USFWS are responsible agencies under CEQA and the National Environmental Policy Act (NEPA). Both agencies review CEQA and NEPA documents in order to determine the adequacy of their treatment of endangered species issues and to make project-specific recommendations for their conservation.⁸

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 federal Endangered Species Act (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

⁸ (California Department of Fish and Wildlife 2022)

that involve a federal permit, license, or funding and are likely to destroy or adversely modify Critical Habitat will be affected.⁹

Migratory Birds

The Federal 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 nearly all bird's native to the United States, even those that are non-migratory. The MBTA encompasses whole birds, parts of birds, nests, and eggs. Additionally, California Fish and Game Code makes it unlawful to take or possess any non-game bird covered by the MBTA (Section 3513), as well as any other native non-game bird (Section 3800).¹⁰

Birds of Prey

Birds of prey are protected in California under provisions of 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 federal Bald and Golden Eagle Protection Act (16 USC 668), which makes it unlawful to kill birds or their eggs.¹¹

Nesting Birds

In California, protection is afforded to 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.¹²

Wetlands and other "Jurisdictional Waters"

Natural drainage channels and adjacent wetlands may be considered "waters of the United States" or "jurisdictional waters" subject to the jurisdiction of the USACE. The extent of jurisdiction has been defined in the Code of Federal Regulations but has also been subject to interpretation of the federal courts. Jurisdictional waters generally include:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
- All impoundments of waters otherwise defined as waters of the United States under the definition;
- Tributaries of waters identified in paragraphs the bulleted items above.

⁹ (United States Fish & Wildlife Service 2022)

¹⁰ Ibid.

¹¹ (United States Fish & Wildlife Service 2022)

¹² Ibid.

As of October 2021, the regulations have reverted back to 2015 compliance standards. As determined by the United States Supreme Court in its 2001 *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers (SWANCC)* decision, channels and wetlands isolated from other jurisdictional waters cannot be considered jurisdictional on the basis of their use, hypothetical or observed, by migratory birds. Similarly, in its 2006 consolidated *Carabell/Rapanos* decision, the Supreme Court ruled that a significant nexus between a wetland and other navigable waters must exist for the wetland itself to be considered a navigable and therefore jurisdictional water. Furthermore, the Supreme Court clarified that the United States Environmental Protection Agency (USEPA) and the USACE will not assert jurisdiction over ditches excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

The USACE regulates the filling or grading of Waters of the United States under the authority of Section 404 of the Clean Water Act. The extent of jurisdiction within drainage channels is defined by “ordinary high-water marks” on opposing channel banks. All activities that involve the discharge of dredge or fill material into Waters of the United States are subject to the permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that results in no net loss of wetland functions or values. No permit can be issued until the RWQCB issues a Section 401 Water Quality Certification (or waiver of such certification) verifying that the proposed activity will meet State water quality standards.

Under the Porter-Cologne Water Quality Control Act of 1969, the SWRCB has regulatory authority to protect the water quality of all surface water and groundwater in the State of California (“Waters of the State”). Nine RWQCBs oversee water quality at the local and regional level. The RWQCB for a given region regulates discharges of fill or pollutants into Waters of the State through the issuance of various permits and orders. Discharges into Waters of the State that are also Waters of the United States require a Section 401 Water Quality Certification from the RWQCB as a prerequisite to obtaining certain federal permits, such as a Section 404 Clean Water Act permit. Discharges into all Waters of the State, even those that are not also Waters of the United States, 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 Pollution 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 Water of the United States may require a NPDES permit.

CDFW has jurisdiction over the bed and bank of natural drainages and lakes according to provisions of Section 1601 and 1602 of the California Fish and Game Code. Activities that may substantially modify such waters through the diversion or obstruction of their natural flow, change or use of any material from their bed or bank, or the deposition of debris require a notification of a Lake or Streambed Alteration. If CDFW determines that the activity may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement (LSA) will be prepared. Such an agreement typically stipulates those certain measures will be implemented to protect the habitat values of the lake or drainage in question.¹³

¹³ (United States Environmental Protection Agency 2022)

Stanislaus County General Plan

The Stanislaus County General Plan Policy Document contains the following goals and policies related to the Project:

Conservation/Open Space Element

Policy Three

1. Review all development requests to ensure that sensitive areas (e.g., riparian habitats, vernal pools, rare plants, flyways, etc.) are left undisturbed or that mitigation measures acceptable to appropriate state and federal agencies are included in the project.
2. In known sensitive areas, the State Department of Fish and Wildlife shall be notified as required by the California Native Plant Protection Act; the USFWS also shall be notified.
3. All discretionary projects that will potentially impact riparian habitat and/or vernal pools or other sensitive areas shall include mitigation measures for protecting that habitat.
4. All discretionary projects within an adopted Airport Influence Area (AIA) that have the potential to create habitat, habitat conservation, or species protection shall be reviewed by the Airport Land Use Commission.
5. Implementation of this policy shall not be extended to the level of an unconstitutional "taking" of property.
6. Any ground disturbing activities on lands previously undisturbed that will potentially impact riparian habitat and/or vernal pools or other sensitive areas shall include mitigation measures for protecting that habitat, as required by the State Department of Fish and Wildlife.

4.4.4 Impact Analysis

Impact analysis provided below covers three specific activities: (1) Known impacts from new turnout facilities to be constructed by OID; (2) Unknown impacts associated with landowner participation into the Program area and based on construction activities needed to receive Program water. It will be the responsibility of the landowners of the participating parcels to conduct an independent biological pre-construction survey to determine which mitigation measures are necessary to incorporate to avoid potential impacts during construction; and (3) Landowner participation into the Program that does not require construction activities (e.g., all associated facilities already exist) to receive water.

- 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?

OID New and Existing Facilities

Less than Significant Impact with Mitigation Incorporated. The Program area is made up of scattered parcels of land upon which several turnouts are proposed. Project site figures are available in Chapter 2. The total area of disturbance to construct the Program turnouts is approximately eight acres. Species identified as candidate, sensitive, or special status in local or regional plans, policies, or regulations by CDFW or USFWS that have the potential to be impacted by the temporary turnout construction activities include Burrowing Owl, California Horned Lark, Loggerhead Shrike, Northern Harrier, pallid bat, Swainson's Hawk, Townsend's big-eared bat, Tricolored Blackbird, western mastiff bat, western pond turtle, western red bat, western spadefoot, Yellow Breasted Chat, beaked clarkia, Greene's tuctoria, Hartweg's golden sunburst, Hoover's calycadenia, Merced monardella, spiny-sepaled button-celery, and veiny monardella. Therefore, prior to commencing construction of District turnouts, OID must complete **BIO-1a** (WEAP Training), **BIO-1b**

(BMPs), and perform a pre-construction survey by a qualified biologist to identify any potential species or habitat identified above prior to the start of construction activities. Further, implementation of mitigation measures **BIO-4a, BIO-4b, BIO-4c, BIO-10a, BIO-10b, BIO-10c, BIO-10d, BIO-12a, BIO-12b, BIO-12c, BIO-12d, BIO-13a, BIO-13b, BIO-13d, BIO-15a, BIO-15b, BIO-15c, BIO-16a, BIO-16b, BIO-16c, BIO-16d, BIO-16e, BIO-17a, BIO-17b, and BIO-17c** would reduce potential impacts to a less than significant level under CEQA and will ensure compliance with State and federal laws protecting these species.

Landowner Program Participation with Construction Activities

Less than Significant Impact with Mitigation Incorporated. In some cases, participants in the Program may need to add extend, or repair existing water pipelines and/or delivery facilities on their own properties. Because these areas were not surveyed, it is unknown which potential impacts to multiple potential species and habitat may occur. Species identified as candidate, sensitive, or special status in local or regional plans, policies, or regulations by CDFW or USFWS that have the potential to be impacted by the temporary landowner construction activities include American badger, Bald Eagle, Burrowing Owl, California Horned Lark, California tiger salamander, conservancy fairy shrimp, Crotch bumble bee, giant gartersnake, Loggerhead Shrike, monarch butterfly, mountain plover, Northern California legless lizard, Northern Harrier, Osprey, pallid bat, San Joaquin kit fox, Swainson's Hawk, Townsend's big-eared bat, Tricolored Blackbird, valley elderberry longhorn beetle, vernal pool fairy shrimp, vernal pool tadpole shrimp, western bumble bee, western mastiff bat, western pond turtle, western red bat, western spadefoot, Yellow Breasted Chat, Ahart's dwarf rush, beaked clarkia, Colusa grass, delta button-celery, dwarf downingia, Greene's tuctoria, hairy Orcutt grass, Hartweg's golden sunburst, heartscale, Hoover's calycadenia, Merced monardella, Pincushion navarettia, San Joaquin Valley Orcutt grass, spiny-sepaled button-celery, Stanislaus monkeyflower, subtle orache, succulent owl's-clover, Tuolumne button-celery, and veiny monardella. Therefore, prior to commencing construction activities as a result of the Program water delivery, landowners must comply with the following mitigation measures: **BIO-1a, BIO-1b, BIO-2a, BIO-2b, BIO-2c, BIO-2b, BIO-3a, BIO-3b, BIO-3c, BIO-4a, BIO-4b, BIO-4c, BIO-5a, BIO-5b, BIO-5c, BIO-5d, BIO-6a, BIO-6b, BIO-6c, BIO-7a, BIO-7b, BIO-7c, BIO-8a, BIO-8b, BIO-9a, BIO-9b, BIO-9c, BIO-10a, BIO-10b, BIO-10c, BIO-10d, BIO-11a, BIO-11b, BIO-11c, BIO-12a, BIO-12b, BIO-12c, BIO-12d, BIO-13a, BIO-13b, BIO-13d, BIO-13d, BIO-14a, BIO-14b, BIO-14c, BIO-14d, BIO-15a, BIO-15b, BIO-15c, BIO-16a, BIO-16b, BIO-16c, BIO-16d, BIO-16e, BIO-17a, BIO-17a, BIO-17b, and BIO-17c.** OID would supervise and confirm compliance with all mitigation measures prior to the release of Program waters through the MMRP mandatory process.

Landowner Program Participation with No Construction

Less than Significant Impact. In this situation impacts would not occur. Landowners participating in the Program already have the infrastructure in place and would not need to partake in construction or soil disturbance activities. Therefore, impacts would be less than significant and would not require mitigation.

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?

OID New and Existing Facilities

Less than Significant Impact with Mitigation Incorporated. There is designated Critical Habitat of Colusa grass, Greene's tuctoria, and vernal pool tadpole shrimp within one of the proposed turnouts. Therefore, prior to commencing construction of District turnouts, OID must complete **BIO-18b and BIO-18c.** This would reduce potential impacts to less than significant under CEQA and will ensure compliance with State and federal laws protecting these species.

Landowner Program Participation with Construction Activities

Less than Significant Impact with Mitigation Incorporated. In some cases, participants in the Program may need to add, extend, or repair existing water pipelines and/or delivery facilities on their own properties. Because these areas were not surveyed, it is unknown which potential impacts to possible sensitive natural communities may occur. Sensitive natural communities that have the potential to be impacted by the temporary landowner construction activities could include Northern Hardpan Vernal Pool, other vernal pools, Critical Habitat, or riparian habitat. Therefore, prior to commencing construction activities as a result of the Program water delivery, landowners must comply with mitigation measures **BIO-18a**, **BIO-18b**, and **BIO-18c** to reduce potential impacts to less than significant under CEQA. OID would supervise and confirm compliance with all mitigation measures prior to the release of Program waters through the MMRP mandatory process.

Landowner Program Participation with No Construction

Less than Significant Impact. In this situation impacts would not occur. Landowners participating in the Program already have the infrastructure in place and would not need to partake in construction or soil disturbance activities. Therefore, impacts would be less than significant and would not require mitigation.

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?

OID New and Existing Facilities

Less than Significant Impact. There are no federally protected wetlands as defined by Section 404 of the Clean Water Act within the construction areas of the proposed turnouts. Direct removal, filling, hydrological interruption, or construction is not anticipated to occur within any federally protected wetlands. The District's Canals are not likely to be considered Waters of the United States and fall under the Jurisdiction of USACE.

If construction would involve ground disturbance over an area greater than one acre, the Project would also be required 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 (SWPPP) to ensure construction activities do not adversely affect water quality. Any impacts would be less than significant.

Landowner Program Participation with Construction Activities

Less than Significant Impact with Mitigation Incorporated. In some cases, participants in the Program may need to add, extend, or repair existing water pipelines and/or delivery facilities on their own properties. Because these areas were not surveyed, it is unknown which potential impacts to federally protected wetlands may occur. Therefore, prior to commencing construction activities as a result of the Program water delivery, landowners must comply with mitigation measures **BIO-19a**, **BIO-19b**, and **BIO-19c** to reduce potential impacts to less than significant under CEQA. OID would supervise and confirm compliance with all mitigation measures prior to the release of Program waters through the MMRP mandatory process.

Landowner Program Participation with No Construction

Less than Significant Impact. In this situation impacts would not occur. Landowners participating in the Program already have the infrastructure in place and would not need to partake in construction or soil disturbance activities. Therefore, impacts would be less than significant and would not require mitigation.

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?

OID New and Existing Facilities

No Impact. The proposed turnout areas do not contain features that would be likely to function as wildlife movement corridors. The areas are open and isolated and construction activities would not impede the dispersal or movement of wildlife. There are no native wildlife nursery sites present. There would be no impact.

Landowner Program Participation with Construction Activities

Less than Significant Impact with Mitigation Incorporated. In some cases, participants in the Program may need to add, extend, or repair existing water pipelines and/or delivery facilities on their own properties. Because these areas were not surveyed, it is unknown which potential impacts to wildlife movement corridors or native wildlife nursery sites may occur. Therefore, prior to commencing construction activities as a result of the Program water delivery, landowners must comply with mitigation measures **BIO-20a**, **BIO-20b**, **BIO-20c** and **BIO-20d** to reduce potential impacts to less than significant under CEQA. OID would supervise and confirm compliance with all mitigation measures prior to the release of Program waters through the MMRP mandatory process.

Landowner Program Participation with No Construction

Less than Significant Impact. In this situation impacts would not occur. Landowners participating in the Program already have the infrastructure in place and would not need to partake in construction or soil disturbance activities. Therefore, impacts would be less than significant and would not require mitigation.

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

Less than Significant Impact. The Program is consistent with the goals and policies of the Stanislaus County General Plan. Additionally, the OID would implement the Program policies to further protect biological resources. Compliance with federal, State, and local regulations and conditions would be required for protected trees and jurisdictional areas and impacts would be less than significant.

f) Would the project 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. There are no known habitat conservation plans (HCPs) or a Natural Community Conservation Plans (NCCP) in the Program area. There would be no impact.

4.4.5 Mitigation

General Mitigation Measures

BIO-1a (WEAP Training): Prior to initiating construction activities (including staging and mobilization), all personnel associated with Project construction will attend mandatory Worker Environmental Awareness Program (WEAP) training, conducted by a qualified biologist, to aid workers in identifying special status resources that may occur in the APE. 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 a list of required protective measures to avoid “take.” A fact sheet conveying this information, along with photographs or illustrations of sensitive species with potential to occur onsite, will also be prepared for distribution to all contractors, their employees, and all other personnel involved with construction of the Project. All employees will sign a form documenting that they have attended WEAP training and understand the information presented to them.

BIO-1b **(BMPs):** The Project proponent will ensure 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.
- Workers will inspect areas beneath parked vehicles prior to mobilization. If special status species are detected beneath vehicles, 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 listed (rare, threatened, or endangered) species is prohibited.
- The presence of any special status species and/or any wildlife mortalities will be reported to the Project’s designated biologist and the appropriate regulatory agencies.

American Badger

BIO-2a **(Pre-construction Survey):** A qualified biologist will conduct a pre-construction survey of Project areas within 30 days prior to vegetation clearing or ground disturbing activities. Goals of this survey include a search for potentially active badger dens and suitable habitat within Project areas for American badger. Environmentally sensitive areas will be flagged for avoidance. If no American badger individuals or suitable burrows are observed, no further mitigation is required.

BIO-2b **(Camera Station):** If potential dens with dimensions suitable for American badger (diameter of four (4) inches or greater) are detected during pre-construction surveys, each potential den will be monitored by a qualified biologist with remote camera stations for a period of three consecutive nights. If there is no activity at the den location recorded for three consecutive nights, the den can be deemed “inactive” or “unoccupied” and will be sealed or destroyed within 24 hours of the inactive findings.

BIO-2c **(Den Avoidance/Buffers):** If an American badger is denning on or within 50 feet of the Project site, the Project proponent will avoid the den by a minimum 50-foot buffer. If the 50-foot buffer cannot be maintained, the Project proponent will contact CDFW for guidance on how to proceed.

BIO-2d **(Consultation/ITP):** Badgers will not be evicted from dens without CDFW consultation/coordination. In the event an active den is detected during surveys and cannot be avoided, consultation with CDFW is warranted to discuss how to implement the Project and avoid

take. If take cannot be avoided, take authorization through the acquisition of an ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.

Bald Eagle

BIO-3a (Pre-construction Survey): If activities must occur within breeding season (February 1 to August 31), a qualified biologist will conduct pre-construction surveys for eagle nests within ~~30 days~~ 10 days prior to the start of construction. The survey will include the proposed work area and surrounding lands within one mile. Eagle nests are considered “active” upon the nest-building stage.

BIO-3b (Establish Buffers): On discovery of an active eagle nest near work areas, the following no-disturbance buffers will be maintained around each nest: 0.5 mile no-disturbance buffer ~~660-foot no-disturbance buffer~~. If a ~~660-foot~~ 0.5 mile no disturbance buffer zone is infeasible, the Project proponent will contact CDFW for guidance on how to proceed.

BIO-3c (Reporting): All detected eagle nests will be reported to CDFW and USFWS immediately. This includes any nest that has been used by an eagle in the past or is being used currently as a primary or alternate nest site. The discovery of any eagle carcasses and any non-lethal or lethal incidental “take” of these species will be reported to CDFW and USFWS immediately.

Burrowing Owl

BIO-4a (Pre-construction Take Avoidance Survey): A qualified biologist will conduct a pre-construction take avoidance survey for burrowing owls and suitable burrows, in accordance with CDFW’s *Staff Report on Burrowing Owl Mitigation* (2012), within 30 days prior to the start of construction activities. The survey shall include the proposed work area and surrounding lands within 500 feet. If no burrowing owl individuals or suitable burrows are observed, no further mitigation is required.

BIO-4b (Avoidance): If an active burrowing owl burrow is detected, the occurrence shall be reported to the local CDFW office and the CNDDDB, and disturbance-free buffers shall be implemented in accordance with CDFW’s 2012 Staff Report on Burrowing Owl Mitigation, as outlined in the table below:

Location	Time of Year	Level of Disturbance		
		Low	Medium	High
Nesting sites	April 1 – August 15	200 meters	500 meters	500 meters
Nesting sites	August 16 – October 15	200 meters	200 meters	500 meters
Nesting sites	October 16 – March 31	50 meters	100 meters	500 meters

BIO-4c (Consultation with CDFW and Passive Relocation): If avoidance of an active burrowing owl burrow is not feasible, CDFW will be immediately consulted to determine the best course of action, which may include passive relocation during non-breeding season. Passive relocation and/or burrow exclusion will not take place without coordination with CDFW and preparation of an approved exclusion and relocation plan.

California tiger salamander

BIO-5a (Avoidance): The Project's construction activities should occur, if feasible, between May 1 and September 30 (outside of wet season) in an effort to avoid impacts to California tiger salamander.

BIO-5b (Pre-construction Survey): A qualified biologist will conduct a pre-construction survey to identify any small mammal burrows within 30 days prior to the start of construction. The survey will include the proposed work area and a 50 ft. buffer. If Any small mammal burrows are identified during the survey, a 50 ft. no-disturbance buffer will be placed around the burrows.

BIO-5bc (Exclusion fencing): If the Project must occur during the wet season (May 1 – September 30), the Project should install exclusion fencing around active construction to ensure California tiger salamanders do not enter the site during construction. Exclusion fencing materials, size, and placement should follow wildlife agency guidelines appropriate for the species.

BIO-5ed (Formal Consultation): If any California tiger salamanders are observed during construction, work should stop immediately. A qualified wildlife biologist, approved to handle and remove California tiger salamander should be called to identify and remove the species. If take of any individual California tiger salamanders occurs, USFWS should be notified immediately, and the qualified biologist should remain onsite as a monitor during construction activities to provide protection of the species.

Conservancy Fairy Shrimp, Vernal Pool Fairy Shrimp, and Vernal Pool Tadpole Shrimp

BIO-6a (Desktop Survey): A qualified biologist will perform a desktop survey of the APE and an additional 100-foot survey area around the designated APE to determine if appropriate habitat for vernal pool fairy shrimp or vernal pool tadpole shrimp exists within the Project area or has existed in the past. If no suitable habitat is observed, no further mitigation is required.

BIO-6b (Avoidance): On discovery of suitable habitat for special status fairy shrimp, a qualified biologist will determine appropriate construction setback (buffer zones) based on applicable CDFW and/or USFWS guidelines, if appropriate. Please refer to MM BIO-3 Vernal Pools for buffer zones. Construction buffers will be identified with flagging, fencing, or other easily visible means. If appropriate buffer zones cannot be maintained throughout Project activities the Project will not be able to proceed.

BIO-6c (Project Relocation): If the Project proponent wants to avoid the permitting process, project activities will be moved to provide the appropriate buffer zone identified in MM BIO-3c.

Crotch Bumble bee and Western Bumble Bee

BIO-7a (Pre-Construction Survey): A qualified biologist will survey the Project work area during spring or fall prior to the start of Project activities to identify whether over-wintering, nesting, or foraging habitats of the Crotch bumble bee or Morrison bumble bee are present on or within 100 feet of the Project work area. Suitable habitat includes small mammal burrows and thatched/bunch grasses. If no suitable habitat is observed, no further mitigation is required.

BIO-7b **(Visual Surveys):** If suitable habitat is identified in the Project work area, a qualified biologist will conduct visual surveys during the flying period between March 1 to September 1 prior to Project activity. Visual surveys will focus on small mammal burrows and thatched/bunch grasses. If an individual or nest is observed, no Project activities will occur until CDFW has been consulted.

BIO-7c **(Formal Consultation):** The qualified biologist will consult with CDFW if an individual or a nest is observed. Work will not occur until CDFW determines distances for disturbance-free buffers, or a plan to protect the Crotch bumble bee/western bumble bee, including over-wintering queens, has been submitted to and approved in writing by CDFW.

Giant Gartersnake

BIO-8a **(Pre-construction Survey):** A qualified biologist shall conduct a pre-construction survey of Project areas within 30 days prior to vegetation clearing or ground disturbing activities. If evidence of a suitable habitat for giant gartersnake is detected on pre-construction surveys, construction monitoring will be required.

BIO-8b **(Monitor):** A qualified biologist will conduct a pre-activity clearance survey each day and remain onsite to oversee all vegetation clearing and ground disturbing activities conducted within suitable habitat for giant gartersnake. The biological monitor must possess required collecting/handling permits. If a special status reptile or amphibian is observed within Project areas, the biologist will stop work order and the individual will either be allowed to leave of its own volition or will be captured by the qualified biologist and relocated out of harm's way to the nearest suitable habitat beyond the influence of the Project work area. "Take" of listed (rare, threatened, or endangered) is prohibited. If a listed species is observed within the Project area, the biologist will stop work and contact the appropriate regulatory agency (CDFW and/or USFWS) for guidance on how to proceed.

Monarch Butterfly

BIO-9a **(Pre-Construction Survey):** A qualified biologist will survey the Project work area within 7 days prior to the start of Project activities to identify whether over-wintering or foraging habitats of the Monarch butterfly are present on or within 100 feet of the Project work area. If no individuals or suitable habitat is observed, no further mitigation is required.

BIO-9b **(Visual Surveys):** If suitable habitat is identified buffer zones of 100 feet will be provided using exclusion fencing. If habitat cannot be avoided, a qualified biologist will conduct visual surveys between October through May prior to Project activity. Surveys will not take place when daytime temperatures are below 55 degrees Fahrenheit. If an individual or colony is observed, no Project activities will occur until CDFW has been consulted.

BIO-9c **(Consultation with CDFW):** The qualified biologist will consult with CDFW if an individual or a colony is observed. Work will not occur until a plan to protect the Monarch butterfly, including over-wintering colonies, has been submitted and approved in writing by CDFW.

Nesting Birds

BIO-10a **(Avoidance):** The Project's construction activities will occur, if feasible, between September 16 and January 31 (outside of nesting bird season) in an effort to avoid impacts to nesting birds.

- BIO-10b** (**Pre-construction Surveys**): If activities must occur within nesting bird season (February 1 to September 15), a qualified biologist would conduct pre-construction surveys for Swainson's hawk nests onsite and within a 0.5-mile radius. This survey would 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 pre-construction survey would also provide a presence/absence survey for all other nesting birds within the APE and an additional 50 feet, no more than 7 days prior to the start of construction. All raptor nests would be considered "active" upon the nest-building stage.
- BIO-10c** (**Establish Buffers**): On discovery of any active nests or breeding colonies near work areas, the biologist will determine appropriate construction setback distances based on applicable CDFW and/or USFWS guidelines and/or the biology of the species in question. Recommended construction buffers include 0.5 miles for Swainson's Hawk and 300 ft. for Tricolored Blackbird. Construction 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.
- BIO-10d** (**Consultation with CDFW**): In the event that a Tricolored Blackbird nesting colony or Swainson's Hawk nest is detected during surveys, consultation with CDFW is warranted to discuss whether the Project can avoid take and, if take avoidance is not feasible, to acquire an incidental take permit for Tricolored Blackbird pursuant to Fish and Game Code section 2081, subdivision (b), prior to any Project activities.

Northern California Legless Lizard

- BIO-11a** (**Avoidance**): The Project's construction activities will occur, if feasible, outside of areas that contain loose soil or leaf litter which are suitable habitats for legless lizards. If no individuals or suitable habitat is observed, no further mitigation is required.
- BIO-11b** (**Pre-construction Surveys**): If activities must occur in areas that contain loose soil and leaf litter a qualified biologist will conduct pre-construction surveys within 48 hours prior to beginning any Project activities. Any loose substrate in which lizards could bury themselves will be gently raked with a hand tool (e.g., a garden rake) to a depth of two inches to locate any lizards that could be under the surface.
- BIO-11c** (**Consulting Agencies**): On discovery of any Northern California legless lizards, the biologist will consult CDFW and/or USFWS to determine adequate buffers and mitigation since no guidelines currently exist for this species.

San Joaquin kit fox

- BIO-12a** (**Pre-Construction Survey**): No less than 14 days and no more than 30 days prior to the start of construction, a pre-construction survey for San Joaquin kit fox will be conducted on and within 500 feet of proposed work areas. If no suitable habitat or potential dens are observed, no further mitigation is required.
- BIO-12b** (**Establish Buffers**): On discovery of any potential SJKF dens near the Project area a qualified biologist will determine appropriate construction setback distances (buffer zones) based on applicable CDFW and/or USFWS guidelines (below). If buffer distances cannot be maintained, a focused survey would be required. Construction buffers will be identified

with flagging, fencing, or other easily visible means, and 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-12c **(Focused Surveys):** If a potential San Joaquin kit fox den is detected within 500 feet of construction activities and buffer distances cannot be maintained, a Focused Survey will be performed in accordance with the *USFWS 2011 Standardized Recommendations for Protection of the San Joaquin Kit Fox* (United States Fish & Wildlife Service 2022).

BIO-12d **(Cover Excavations/Mortality Reporting):** Pipes or culverts with a diameter greater than 4 inches will be capped or taped closed when it is ascertained that no SJKF are present. Any SJKF found in a pipe or culvert will be allowed to escape unimpeded. The Sacramento Field Office of USFWS and the Fresno Field Office of CDFW will be notified in writing within three working days in the case of the accidental death or injury to a San Joaquin kit fox during construction. Notification must include the date, time, and location of the incident and any other pertinent information.

Special Status Bats

BIO-13a **(Avoidance):** The Project's construction activities will occur, if feasible, between November 1 and February 28 (outside of bat maternity season) in an effort to avoid impacts to maternity roosts.

BIO-13b **(Pre-construction Emergence Survey):** A pre-construction emergence survey for bats will be performed if construction activities fall between March 1 and September 30 (bat maternity season). The survey will be conducted by a qualified biologist within (10) ten days prior to construction activities and only include trees or structures which are potentially suitable for bat roosts.

BIO-13c **(Establish Buffers):** On discovery of any bat roosts near work areas, a qualified biologist should determine appropriate construction setback distances (buffer zones) based on applicable CDFW and/or USFWS guidelines, if appropriate. Construction buffers should be identified with flagging, fencing, or other easily visible means, and should be maintained until the biologist has determined that the roost should no longer be impacted by construction.

BIO-13ad **(Operational Hours):** Construction activities shall be limited to daylight hours to reduce potential impacts to special status bats that could be foraging onsite.

Valley Elderberry Longhorn Beetle

BIO-14a **(Pre-Construction Survey):** A qualified biologist will conduct a pre-construction survey within the APE and an additional 100-foot survey area around the designated APE for elderberry plants suitable to host Valley elderberry longhorn beetle (VELB) in areas where vegetation removal will occur 30 days prior to the start of construction. If no individuals or suitable habitat is observed, no further mitigation is required.

- BIO-14b** **(Avoidance):** If elderberry plants are identified, construction buffers will be placed around the plant(s). Complete avoidance (i.e., no adverse effects) may be assumed when a 100-foot buffer is established and maintained around all elderberry plants. If complete avoidance of all elderberry plants cannot be maintained, then a focused survey according to USFWS's *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (United States Environmental Protection Agency 2022), will be required.
- BIO-14c** **(Focused Survey):** If elderberry plants are identified a focused survey will be performed between March and June when VELB adults are active. All plants will be inspected to determine if they have stems measuring 1.0 inch or greater in diameter at ground level. Elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level will be inspected for exit holes within the stems as they have the potential to host VELB. If the Elderberry shrubs have no stems measuring 1.0 inch or greater in diameter at ground level, they are unlikely to be habitat for the beetle because of their small size and/or immaturity. Therefore, no minimization measures are required for removal of elderberry plants with no stems measuring 1.0 inch or greater in diameter at ground level with no exit holes. If suitable VELB host plants are found and cannot be avoided, then CDFW will be consulted on how to proceed.
- BIO-14d** **(Formal Consultation):** If suitable VELB host plants are detected within Project work areas during the pre-construction survey, and the plants cannot be avoided, the Project proponent will initiate consultation with CDFW and/or USFWS to determine next steps for relocation or to obtain an Incidental Take Permit (ITP).

Western Pond Turtle

- BIO-15a** **(Pre-construction Survey):** No more than thirty (30) days prior to the start of construction, a qualified biologist will conduct a pre-construction survey for western pond turtle within the District's Canals, as well as adjacent to the proposed work area. Pre-construction surveys will be conducted in accordance with the *United States Geological Survey Western Pond Turtle (Emys marmorata) Visual Survey Protocol for the Southcoast Ecoregion* (United States Geological Survey 2006). Surveys will be conducted outside of winter months (December – February). If no western pond turtles are observed during the pre-construction survey, then construction activities may begin. If construction is delayed or halted for more than 90 days, another pre-construction survey for western pond turtle will be conducted. If the surveys result in the identification of a special status species, the qualified biologist should determine if appropriate buffers can be implemented to avoid impacts to the individual(s) or if further surveys are required to avoid impacts to potential nesting sites.
- BIO-15b** **(Monitor):** If species observations are found, a qualified biologist will conduct a pre-activity clearance survey each day and remain onsite to oversee all vegetation clearing and ground disturbing activities conducted within suitable habitat for western pond turtle. If a listed species is observed within the Project area, the biologist will stop work and allow the species to leave the site of its own volition or contact the appropriate regulatory agency (CDFW and/or USFWS) for guidance on how to proceed.
- BIO-15c** **(ITP):** In the event western pond turtles are detected during surveys and cannot be avoided, consultation with CDFW is warranted to discuss how to implement the Project and avoid take. If take cannot be avoided, take authorization through the acquisition of an

ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.

Western Spadefoot

- BIO-16a** (*Pre-construction Survey*): A qualified biologist will conduct a preconstruction survey within thirty (30) days prior to the start of construction. The goal of this survey will be to identify if any suitable breeding or upland habitat is present within the APE and an additional 100-foot survey area around the designated APE. If no individuals or suitable habitat is observed, no further mitigation is required.
- BIO-16b** (*Avoidance*): On discovery of any suitable habitat near work areas, the biologist will determine appropriate construction setback distances based on applicable CDFW and/or USFWS guidelines for western spadefoot. Construction buffers will be identified with flagging, fencing, or other easily visible means, and will be maintained until the end of the Project. If appropriate construction buffers cannot be maintained a focused survey will be required to determine if western spadefoots are found within the Project area or 100 feet from the Project.
- BIO-16c** (*Focused Survey*): If appropriate buffers cannot be maintained, a qualified biologist will conduct a focused survey during the known peak breeding months of this species (February-March), prior to the start of construction. Transects will be walked throughout the entire APE and surrounding lands within 100 feet and vantage points will be used to survey for standing water. If no western spadefoots adults or larvae are observed during the survey, then construction activities may begin. If the survey results in the identification of this special status species, a qualified biologist will consult CDFW to determine if appropriate buffers can be implemented to avoid impacts to individual(s) during construction.
- BIO-16d** (*Monitor*): If species observations are found, a qualified biologist will conduct a pre-activity clearance survey each day and remain onsite to oversee all vegetation clearing and ground disturbing activities conducted within suitable habitat for western spadefoot. If a listed species is observed within the Project area, the biologist will stop work and allow the species to leave the site of its own volition or contact the appropriate regulatory agency (CDFW and/or USFWS) for guidance on how to proceed.
- BIO-16e** (*Formal Consultation*): If western spadefoots are detected during surveys and cannot be avoided, consultation with CDFW is warranted to discuss how to implement the Project and avoid take. If take cannot be avoided, take authorization through the acquisition of an ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.

Special Status Plant Species

- BIO-17a** (*Pre-Construction Survey*): A qualified botanist/biologist will conduct focused botanical surveys for Ahart's dwarf rush, beaked clarkia, Colusa grass, delta button-celery, dwarf downingia, Greene's tuctoria, hairy Orcutt grass, Hartweg's golden sunburst, heartscale, Hoover's calycadenia, Merced monardella, Pincushion navarettia, San Joaquin Valley Orcutt grass, spiny-sepaled button-celery, Stanislaus monkeyflower, subtle orache, succulent owl's-clover, Tuolumne button-celery, and veiny monardella according to CDFW's Protocols for Surveying and Evaluating Impacts to Special Status Native Plant

Populations and Sensitive Natural Communities (2018) for areas where ground disturbance will occur and prior to the start of construction.

BIO-17b **(Avoidance):** If special status plants are identified during a survey, a 50 ft. disturbance-free buffer and use of exclusion fencing will be placed around the area so as not to disturb the plants or their root system.

BIO-17c **(Formal Consultation):** If rare plant individuals or populations or sensitive natural communities are detected within Project work areas during the focused botanical survey, and the plants cannot be avoided, the Project proponent will initiate consultation with CDFW and/or USFWS to determine next steps for relocation or to obtain an Incidental Take Permit (ITP).

Sensitive Natural Communities

BIO-18a **(Desktop Survey):** A qualified biologist will perform a desktop survey of the project area to determine if Northern Hardpan Vernal Pool, other vernal pools, riparian habitat, Critical Habitat, or other sensitive natural communities exist within the Program area or has existed in the past. If no suitable habitat is observed, no further mitigation is required.

BIO-18b **(Pre-construction Survey):** If areas with suitable habitat were found during the Desktop Survey a qualified biologist will conduct a pre-construction survey of Project areas prior to approving the Project.

BIO-18c **(Avoidance):** On discovery of a sensitive natural community, or in the presence of designated Critical Habitat a qualified biologist will determine appropriate construction setback distances (buffer zones) and/or based on applicable CDFW and/or USFWS guidelines. A qualified biologist will determine if this is adequate or if site-specific buffers must be implemented. Construction buffers will be identified with flagging, fencing, or other easily visible means. If appropriate buffer zones cannot be maintained throughout Program activities the Program proponent will need to obtain all necessary permits required by federal, state, and local regulatory agencies.

Regulated Waters, Wetlands, and Water Quality

BIO-19a **(Desktop Survey):** A qualified biologist will perform a desktop survey of the project area to determine if potential jurisdictional waters or wetlands as defined by Section 404 of the Clean Water Act are present within the Project area or have existed in the past. If no potential jurisdictional waters/wetlands are observed, no further mitigation is required.

BIO-19b **(Delineation):** If areas with suitable habitat were found during the Desktop Survey a qualified biologist will conduct a delineation of Project areas to identify potential jurisdictional waters/wetlands prior to approving the Project.

BIO-19c **(Permits and regulations):** If potential jurisdictional waters or wetlands are determined to be within the APE or impacted by Project activities, the proponent will ensure all required permits are obtained with all appropriate federal, state, and local regulatory agencies.

Wildlife Movement Corridors and Native Wildlife Nursery Sites

BIO-20a **(Pre-construction Survey):** A qualified biologist will conduct a pre-construction survey of construction areas prior to approval. This survey will look for wildlife movement corridors

and native wildlife nursery sites. If no suitable habitat is observed, no further mitigation is required.

BIO-20b **(Operational Hours):** Construction activities will be limited to daylight hours to reduce potential impacts to wildlife movement corridors.

BIO-20c **(Wildlife Access):** At no point will access 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 will be identified by a qualified biologist and maintained throughout the construction schedule timeframe.

BIO-20d **(Cover Excavations):** Pipeline/culvert/siphon excavations and vertical pipes shall be covered each night to prevent wildlife from falling in and becoming trapped or injured during migratory or dispersal movements.

4.5 CULTURAL RESOURCES

Table 4-10: 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.5.1 Baseline Conditions

Within Stanislaus County, there are 20 National Registry of Historic Places listings, five State landmarks, and seven points of historical interest. These records of known archaeological and historical resources are filed with the Office of Historic Preservation, Central California Information Center, and California State University, Stanislaus, located in Turlock, California. Exact locations are kept confidential so as to protect these valuable resources. The two chief historical areas within Stanislaus County are in and around the gold rush towns of Knights Ferry and La Grange. Located in the community are a number of historic buildings considered worthy of preservation. The County, working closely with the residents of these communities, has established a historical site zone ensuring that all development within the two towns would be consistent with their historical nature.¹⁴

Central California Information Center of the California Historical Resources Information System – Historical Records Search

A records search from the Central California Information Center (CCIC) of the California Historical Resources Information System (CHRIS), located at California State University, Stanislaus was conducted for the Project area in November 2022. The CCIC records search includes a review of all recorded archaeological and built-environment resources as well as a review of cultural resource reports on file. In addition, the California Points of Historical Interest, the California Historical Landmarks, the California Register of Historical Resources, the National Register of Historic Places, and the California State Built Environment Resources Directory (BERD) listings were reviewed for the area of potential effect (APE) (See [Figure 2-2](#)) and an additional ¼-mile radius. Due to the sensitive nature of cultural resources, specifics of archaeological site locations are not released.

Additional sources included the State Office of Historic Preservation (SHPO) Historic Properties Directory, Archaeological Determinations of Eligibility, and the California Inventory of Historic Resources. ([Appendix C](#))

¹⁴ (Stanislaus County 2015)

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?

a and b) Less than Significant Impact with Mitigation Incorporated. According to the research results received by the CCIC, there are no formally recorded prehistoric or historic archaeological resources within the Project area. There are four historic structures that have been recorded and evaluated within the Project area, the details of which are outlined below in **Table 4-11**. The Paulsell Lateral is one of these structures, the Project proposes that three turnouts would be constructed off this District facility. Turnouts from District facilities, such as the Paulsell Lateral, would be consistent with the current use and aesthetic of the conveyance facilities and would not alter the integrity or use of these facilities. Therefore, the Paulsell Lateral would not be significantly impacted or affected by any of the ground disturbing activities that are being proposed as part of the Program. Further, the Paulsell Lateral has been previously determined ineligible for the NHRP by a consensus through the Section 106 process.

As discussed above in **Section 2.1.6**, many of the participants in the Project would not need any construction in order to receive water from OID facilities. Project construction activities include a total of 12 turnouts off of District facilities and up to 12 miles of pipeline on participating landowner properties, as well as creation of two reservoirs. Approximate locations of all of these facilities can be found in Chapter 2.

Table 4-11: Historic structures have been recorded and evaluated within the project area:

Identification Number	Name	Evaluation Status	Eligibility Status
P-50-000074	San Joaquin Pipelines 1 & 2/Hetch Hetchy Aqueduct	2S2	Determine eligible for the National Register of Historic Places by a consensus through the Section 106 process and listed on the California Register of Historical Resources.
P-50-002001	Paulsell Lateral	6Y	Determined ineligible for the National Register of Historic Places by a consensus through the Section 106 process, not evaluated for the California Register of Historical Resources or for Local Listing.
P-50-002109	South San Joaquin Irrigation District Main Canal	6Y	Determined ineligible for the National Register of Historic Places by a consensus through the Section 106 process, not evaluated for the California Register of Historical Resources or for Local Listing.
P-50-002229	Pacific Gas & Electric (PG&E) Eastern Transmission Towers	6Y	Determined ineligible for the National Register of Historic Places by a consensus through the Section 106 process, not evaluated for the California Register of Historical Resources or for Local Listing.

In the unlikely event that cultural resources, such as artifacts, are unearthed during Project ground disturbing activities, implementation of mitigation measure **CUL-1** outlined below, would reduce any impacts to less than significant.

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

Less than Significant Impact with Mitigation Incorporated. Although no remains have been identified within the Project site, there is a possibility of encountering unknown remains, either in isolation or with prehistoric archaeological deposits. The Project would have a significant effect on the environment if any disturbance to human remains were to occur, including those interred outside of formal cemeteries.

Implementation of mitigation measure **CUL-2** outlined below would reduce potential impacts to the discovery of human remains to a less-than-significant level by ensuring compliance with California Health and Safety Code Section 7050.5 in the event that any human remains are encountered during project-related ground-disturbing activities.

4.5.3 Mitigation

CUL-1 (Archaeological Resources): In the unlikely event that archaeological resources (sites, features or artifacts) are unearthed or exposed during any stage of Project construction activities, work in the area of discovery will cease until the area is evaluated by a qualified archaeologist. If mitigation is warranted, the project proponent will abide by recommendations of the archaeologist on site.

CUL-2 (Human Remains): In the unlikely event that any human remains are discovered on the Project site, the appropriate County Coroner (Stanislaus County) must be notified of the discovery (California Health and Safety Code, Section 7050.5) and all activities in the immediate area of the find or in any nearby area reasonably suspected to overlie adjacent human remains must cease until appropriate and lawful measures have been implemented. If the Coroner determines that the remains are not recent, but rather of Native American origin, the Coroner will notify the Native American Heritage Commission (NAHC) in Sacramento within 24 hours to permit the NAHC to determine the Most Likely Descendent of the deceased Native American.

4.6 ENERGY

Table 4-12: 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.6.1 Baseline Conditions

PG&E supplies electricity and natural gas to the Project area. PG&E obtains its power through hydroelectric, thermal (natural gas), wind, and solar generation or 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. New construction would be subject to Titles 20 and 24 of the California Code of Regulations which each serve to reduce demand for electrical energy by implementing energy-efficient standards for residential, as well as non-residential buildings.

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. Implementation of the Project would require the temporary use of energy resources for construction of the proposed turnouts, pipelines, and reservoirs. This energy use would primarily be in the form of petroleum products and electricity used to operate construction equipment and consumed during vehicle trips associated with material delivery/debris hauling and commuting workers. Indirect energy use would also occur and include the extraction, production, and transportation of goods and materials needed for construction. While construction activities would result in the temporary consumption of energy resources in the form of vehicle and equipment fuels (gasoline and diesel fuel) and electricity (directly or indirectly), such consumption would be incidental and temporary and would not result in wasteful, inefficient, or unnecessary consumption of energy resources. Some landowners with new turnouts and private pipelines may install new sump boxes with pumps to work in conjunction with their existing irrigation systems. Use of these electric pumps would be part of ordinary agricultural operations and not considered unnecessary. Maintenance of these structures would require minimal energy use, similar to existing OID infrastructure maintenance activities. Private landowners would be responsible for the maintenance of any structures constructed on their land. These activities would occur on an as-needed basis. Additionally, the Project does not involve constructing habitable structures; therefore, no energy efficiency policies apply. For these reasons, energy impacts during Project construction, maintenance, and operation would be less than significant.

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

Less than Significant Impact. Current regulations for cleaner and more energy efficient construction equipment, heavy-duty equipment, and earthmoving equipment used in construction contributes to reductions in energy as well as reduction in pollutant emissions. California implemented its *In-Use Off-Road Diesel Fueled Fleets* regulations (off-road regulation) which applies to all self-propelled off-road diesel vehicles 25 horsepower or greater and most two-engine vehicles. The *Small Off-Road Engines* program was implemented by California to apply to categories of outdoor powered equipment and specialty vehicles often used in construction. This type of approved construction equipment is permitted because of the reduction in emission and energy use. Meeting current regulations would ensure impacts would be less than significant.

4.7 GEOLOGY AND SOILS

Table 4-13: 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:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994) creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.7.1 Baseline Conditions

Geology and Soils

The Project is located in the northern region of the San Joaquin Valley, specifically in Stanislaus County. Stanislaus County spans three geomorphic provinces: the Great Valley, the Coast Ranges, and the Sierra Nevada geomorphic provinces. The largest area of the county is in the San Joaquin Valley portion of the Great Valley geomorphic province, which is in the flat, lowland center of the county; a narrow band on the

eastern edge of the county is the Sierra Nevada foothills of the Sierra Nevada geomorphic province; and a broad band on the west side of the county is the steeper Coast Ranges geomorphic province.¹⁵

As mentioned in **Section 4.4 Biological Resources**, there are 17 soil mapping units representing 13 soil types were identified within the proposed turnouts (see **Table 4-7**). Two of the major soil mapping units and one of the minor soil mapping units were identified as hydric. The major and minor soils which are hydric make up approximately 12.7% of the soil in the Project area.

Faults and Seismicity

The Project area is not located within an Alquist-Priolo Earthquake Fault Zone and no known faults are within the area.¹⁶ The nearest major fault is the San Andreas Fault, located over 80 miles west of Project area. 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. A smaller fault zone, the Negro Jack Point fault, is approximately five miles east of the Project area.

Liquefaction

Liquefaction takes place when loosely packed, water-logged sediments at or near the ground surface lose their strength in response to strong ground shaking. Liquefaction occurring beneath buildings and other structures can cause major damage during earthquakes. According to the DOC Earthquake Zones of Required Investigation map, no portions of the Project are located in areas susceptible to liquefaction.¹⁷ Additionally, the portion of the county most susceptible to liquefaction is likely the western margin of the valley because of the combination of young geologic units and potential for strong ground shaking.¹⁸

Subsidence

There are two types of subsidence: land subsidence and hydro compaction subsidence. Hydro compaction subsidence occurs when a large land area settles due to over-saturation. Land subsidence occurs when an extensive amount of ground water, oil, or natural gas is withdrawn from below the ground surface. Land subsidence as a result of groundwater overdraft is a serious concern of Stanislaus County. These areas are typically composed of open-textured soils that become saturated, high in silt or clay content. Stanislaus County does not contain land that is impacted by hydro compaction subsidence.

Dam and Levee Failure

According to the Dam Breach Inundation Map Web Publisher, the ConAgra Aerated and Settling Ponds, located within the City of Oakdale, has an extremely high susceptibility to inundation from a dam failure.¹⁹

Paleontological Resources

Paleontological resources are fossilized remains of flora and fauna and associate 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

¹⁵ (ICF International 2016)

¹⁶ (California Department of Conservation 2015)

¹⁷ (California Department of Conservation 2021)

¹⁸ (ICF International 2016)

¹⁹ (California Department of Water Resources 2022)

significant, CEQA requires feasible measures to minimize the impact (California Code of Regulations Title 14(3) Section 15126.4(a)(1)). PRC Section 5097.5 (see above) also applies to paleontological resources. No known paleontological resources have been identified within the District.

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?

Less than Significant Impact. The Project does not contain any known Alquist-Priolo Earthquake Fault Zones, as listed by the California Geological Survey. According to the Fault Activity Map of California, no active faults are located on the Project sites. The closest fault is the Negro Jack Point fault, located approximately five miles east of the Project. Risks associated with seismic-related activity such as rupture of a fault, strong seismic ground shaking, seismic-related ground failure, landslides, and levee and dam failure would be less than significant.

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

Less than Significant Impact. Any construction sites, as defined by the State Water Resources Control Board National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP), that exceed one acre of ground disturbing activities would be required to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) which requires applications of BMPs to control run-on and runoff from construction sites. The BMPs may include physical barriers to prevent erosion and sedimentation, construction of sedimentation basins, limitations on work periods, especially during storm events, use of infiltration swales, protection of stockpiled materials, and numerous other measures that would prevent or substantially reduce erosion from occurring during construction activities in the Project area. Compliance with the BMPs in the SWPPP on sites that are over an acre of ground disturbance would reduce the Program's potential impacts associated with soil erosion and loss of topsoil during construction to 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. As identified previously in [Section 4.7.1 Baseline Conditions](#), the Project area is not located in an area that is highly susceptible to subsidence or liquefaction. Most of the Project and the surrounding area do not have any substantial grade changes to the point where the proposed infrastructure would expose people or structures to potential substantial adverse effects on- or offsite

resulting from landslides, lateral spreading, subsidence, liquefaction, or collapse. Any impact 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 soils within the District can be found in **Table 4-7**. The Project would not contain any facilities that would be affected by expansive soils nor would substantial grading change the topography such that the Project would generate substantial risks to life or property. 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 result in the installation or need for septic tanks or alternative wastewater disposal systems. Therefore, 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 with Mitigation Incorporated. No known paleontological resources have been identified within the District. However, if a paleontological resource is uncovered, incorporation of mitigation measure **GEO-1** would reduce impacts to less than significant.

4.7.3 Mitigation

GEO-1 Should paleontological resources be encountered on the Project site, all ground disturbing activities in the area shall stop. A qualified paleontologist will be contacted to assess the discovery. Mitigation may include monitoring, recording the fossil locality, data recovery and analysis, a final report. Public educational outreach may also be appropriate. Upon completion of the assessment, a report documenting methods, findings, and recommendations will be prepared and submitted to the Oakdale Irrigation District for review, and (if paleontological materials are recovered) a paleontological repository such as the University of California Museum of Paleontology.

4.8 GREENHOUSE GAS EMISSIONS

Table 4-14: 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.8.1 Baseline Conditions

Commonly identified Greenhouse Gas (GHG) emissions and sources include the following:

Carbon dioxide (CO₂) is an odorless, colorless natural greenhouse gas. CO₂ 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 (CH₄) 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 (N₂O), 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.

Carbon dioxide equivalent (CO₂e), CO₂e is the summation of CO₂, CH₄, and N₂O, multiplied by each greenhouse gases' global warming potential (GWP). For purposes of this analysis, CH₄ and N₂O are assigned a multiplier of 25 and 298, respectively, based on longevity in the atmosphere and the intensity of infrared absorbed. This is consistent with CARB's calculation and the 2007 Intergovernmental Panel on Climate Change fourth assessment report.

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 (O₃) 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 (SF₆) 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.

Globally, CO₂ increased by 40 percent from 278 ppm circa 1750 to 390.5 ppm in 2011. During the same time interval, CH₄ increased by 150 percent, from 722 ppb²⁰ to 1,803 ppb, and N₂O by 20 percent, from 271 ppb to 324.2 ppb in 2011.²⁰ GHG emissions are typically expressed in carbon dioxide-equivalents (CO₂e), based on the GHG's Global Warming Potential. The GWP is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, one ton of CH₄ has the same contribution to the greenhouse effect as approximately 21 tons of CO₂. Therefore, CH₄ is a much more potent GHG than CO₂.

The Air Quality Output Files were prepared in December 2022 and are contained in [Appendix A](#).

4.8.2 Thresholds

The District has not adopted its own GHG thresholds or prepared a Greenhouse Gas Reduction Plan that can be used as a basis for determining project significance. This IS/MND assesses GHG emissions using a threshold approach adopted by the Sacramento Metro Air Quality Management District, which requires construction emissions to not exceed 1,100 metric tons of CO₂-equivalent per year.

²⁰ (California Air Resources Board 2014)

4.8.3 Impact Analysis

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. Construction of the Project would result in GHG emissions from operation of both on-road and off-road construction equipment. As shown in **Table 4-15** below, emissions would be below the SMAQMD thresholds. Therefore, impacts would be less than significant.

Table 4-15: Short-Term Construction-Generated GHG Emissions

Basin Project	Emissions (MT CO ₂ e)
Turnouts, 12 total	67.0555
Pipeline, 12 miles	150.07
Reservoirs, 19 acres	812.9205
Total	1,030.046
<i>AB 32 Consistency Threshold for Construction Emissions*</i>	1,100

Refer to **Appendix A** for modeling results and assumptions.

* As published in the Sacramento Metro Air Quality Management District's *Guide to Air Quality Assessment in Sacramento County*. Available online at <http://airquality.org/LandUseTransportation/Documents/Ch6GHG2-26-2021.pdf>.

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

Less than Significant Impact. GHG emissions from the Project construction activities would be temporary and would not have a long-term impact on the State's ability to achieve the Scoping Plan's emission reduction targets for 2030 or beyond. Based on this, the Project would be consistent with the 2017 Scoping Plan and would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions; therefore, impacts would be less than significant.

4.9 HAZARDS AND HAZARDOUS MATERIALS

Table 4-16: 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Expose people or structures, either directly or indirectly to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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 cases and non-underground storage tank cleanup programs, including Spills-Leaks-Investigations-Cleanups sites, Department of Defense sites, and Land Disposal program. A search of the DTSC EnviroStor database and the SWRCB Geotracker performed on November 1, 2022, determined that there several facilities and/or sites throughout the Project area that have been identified as meeting the Cortese List requirements.²¹

Airports

The Oakdale Municipal Airport is located within OID's service area which is within the Project area.

Emergency Response Plan

The Stanislaus County Office of Emergency Services coordinates the development and maintenance of the Stanislaus County Emergency Operations Plan.²²

Sensitive Receptors

Sensitive receptors are people or other organisms that may have a significantly increased sensitivity or exposure to contaminants by virtue of their age and health (e.g., schools, day care centers, hospitals, nursing homes), status (e.g., sensitive or endangered species), proximity to the contamination, dwelling construction (e.g., basement), or the facilities they use (e.g., water supply well). The location of sensitive receptors must be identified in order to evaluate the potential impact of the contamination on public health and the environment. Due to the Project's large area coverage, it can be assumed that various sensitive receptors such as rural residences exist in the Project vicinity.

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. Equipment and materials used during construction activities would include fuels, oils and lubricants. The routine use or an accidental spill of hazardous materials used in construction could result in inadvertent releases, which could adversely affect construction workers, the public, and the environment.

Construction activities would be required to comply with numerous hazardous materials regulations designed to ensure that hazardous materials are transported, used, stored, and disposed of in a safe manner to protect worker safety, and to reduce the potential for a release of construction-related fuels or other hazardous materials into the environment, including stormwater and downstream receiving water bodies. Construction contractors or private landowners will evaluate the need to apply for coverage under the NPDES CGP at each construction site based on the amount of ground disturbance at each construction site, which requires the preparation and implementation of a SWPPP for construction

²¹ (California Department of Toxic Substances Control 2020); (State of California 2020)

²² See Plan here: [Stanislaus County Emergency Operations Plan - Stanislaus County \(stanoes.com\)](https://www.stanoes.com/)

activities on sites with more than one acre of ground disturbance. A Spill Prevention, Control, and Countermeasure (SPCC) Plan for Project construction would be prepared. The SPCC Plan for Project construction would address fuels, lubricants, and hydraulic fluids expected to be used in construction equipment. Such equipment would be properly maintained to minimize leaks, and to prevent spills, vehicle service and repair would be performed off-site at an appropriate facility.

Details regarding examples of BMPs designed to minimize erosion are discussed in [Section 4.10 Hydrology and Water Quality](#). The required compliance with applicable laws and regulations that govern the transportation, use, handling, and disposal of hazardous materials would limit the potential for creation of hazardous conditions due to the use or accidental release of hazardous materials, and this impact 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?

Less than Significant Impact. The Project is located within a quarter-mile of several schools, but none of the schools would be close enough to be impacted by any potential hazardous substances from the Project. Any potential accidental hazardous materials spills during construction would comply with industry BMPs and State and county regulations to ensure that impacts would be less than significant.

- d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact. Although the Project area contains several facilities and/or sites that have been identified as meeting the Cortese List requirements, construction locations would not include these areas. Therefore, 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 area is located within two miles of the Oakdale Municipal Airport. Operation of the Project would not result in people residing or working in the area other than occasional maintenance. Construction crews on-site during construction would not be significantly affected by a safety hazard or excessive noise due to its proximity to the airport. This is in part due to the noise that the construction activities would already generate. Construction crews would be accustomed to noise from the work taking place. Impacts would be less than significant.

- 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 propose 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 Stanislaus County Fire Department and Sheriff Department standards during temporary impacts 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. Impacts would be less than significant.

- 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 with Mitigation Incorporated. As discussed in more detail in [Section 4.20 Wildfire](#) , the Project area contains a significant amount of open space that is susceptible wildland fire risk. The Project area is not densely populated due to its agricultural landscape, but there are scattered farming and rural residences that have the potential to be affected from wildfires that may occur from sparks caused by construction equipment. As a BMP, implementation of mitigation measure [WLD-1](#) would lessen any potential significant impacts to a less than significant level. Implementation of the mitigation measure mentioned above, is discussed further in [Section 4.20 Wildfire](#).

4.9.3 Mitigation

See [WLD-1](#).

4.10 HYDROLOGY AND WATER QUALITY

Table 4-17: 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i. result in substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.10.1 Baseline Conditions

The Project area is located within the San Joaquin River Hydrologic Region. The San Joaquin River Hydrologic Region spans approximately 9.7 million acres. The basin includes all watersheds tributary to the San Joaquin River and the Delta south of the Sacramento River and south of the American River watershed.²³ Major reservoirs and lakes in the basin include the Pardee, New Hogan, Millerton, McClure, Don Pedro, and New Melones, but neither of these are located within Stanislaus County.

²³ (ICF International 2016)

Average annual precipitation in the Project area is approximately 13 inches annually.²⁴ The Eastern San Joaquin Subbasin and the Modesto Subbasin underly the Project area. The Eastern San Joaquin Subbasin is governed by the Eastern San Joaquin Groundwater Authority (ESJGWA). The ESJGWA prepared a GSP in November 2019 and was revised in June 2022.²⁵ The Modesto Subbasin is governed by the Stanislaus and Tuolumne Rivers Groundwater Basin Association (STRGBA) GSA. The STRGBA GSA adopted their GSP in January 2022.²⁶

Water to supply the District comes principally from the Stanislaus River under well-established adjudicated water rights. The District's distribution systems include the Goodwin Diversion Dam on the Stanislaus River below the Tulloch Dam, at which point water is diverted into the District's main canal systems.

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. Construction activities associated with the Project would involve trench excavation which would alter the conditions of the site topography, potentially resulting in impacts to water resources. Soil disturbance alters the way that precipitation is received by the landscape and can lead to conditions of erosion, runoff, or siltation on- and off-site.

The contractor or private landowner will evaluate the need to apply for a NPDES CGP SWPPP based on the determined project construction disturbance. SWPPP regulations include, measures to control erosion at Project construction sites that disturb more than one acre of ground. Such measures could include stabilized construction entrances to minimize track out of mud and soils off site; linear erosion controls installed adjacent (or perpendicular) to drainages to limit siltation of waterways; slope stabilization measures may include installation of geotextile fabric and straw wattles to protect contours, as applicable. As mentioned in **Section 4.7 Geology and Soils** and **Section 4.9 Hazards and Hazardous Materials**, the construction contractor or private landowner would evaluate the need to obtain an NPDES CGP from the SWRCB prior to beginning soil disturbing activities at their specific construction site. Among other things, the conditions of the CGP would include mandatory implementation of BMPs applicable to erosion control and preparation of a SWPPP to prevent sediment and SPCC for construction-related compounds (e.g., fuel, oil, etc.) from entering stormwater runoff. When installation of the Project's pipeline and turnouts are completed, the sites would be graded, returned to pre-Project slopes. Project design features and compliance with the NPDES CGP, including the implementation of BMPs described in the SWPPP, would ensure that the potential impact of soil erosion or the loss of topsoil during construction would be avoided and/or minimized. Additionally, proper implementation of the SWPPP would prevent construction related pollutants from entering waters or contaminating the underlying soil and groundwater.

OID estimates that up to 25,000 acre-feet of water could be conveyed through the system to OOD lands throughout the irrigation season. Although the Project has a 10-Year term, the OID Board of Directors would make the determination of surplus water availability annually each spring. Water transferred to OOD lands, which would be surplus water conserved through implementation of various improvements

²⁴ Ibid.

²⁵ See the ESJGWA GSP here: [esj-final-gsp_5nov2019_stamp.pdf \(sigov.org\)](#)

²⁶ See the STRGBA GSA GSP here: [Modesto Subbasin GSP 20220130.pdf \(strgba.org\)](#)

that resulted in overall improved water efficiency, would be used for agricultural irrigation, and would not be stored in the ground, which could impact water quality.

The Project's pipelines, turnouts, and reservoirs are proposed in locations with relatively flat terrain which would limit erosive conditions, by design. Maintenance of the Project may include excavation to assess or repair the pipeline and subsurface air vents, which could have similar impacts to those described under construction. Therefore, impacts associated with construction and operation of the project 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. Implementation of the Project would transfer surplus surface water to areas outside of the OID service area in order to support the continuity of agricultural operations. The Project would increase local groundwater supplies by allowing Project participants to reduce their reliance on groundwater pumping, utilizing said transferred surface water. Therefore, impacts 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;
- 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?

c-i – c-iv) Less than Significant Impact. The Project would include the construction of turnouts, and conveyance pipelines which are comprised of impervious surfaces, but the primary function is to transport water to permeable agricultural lands. Therefore, the addition of these components would not result in flooding. Construction activity would involve excavation and soil disturbing activities that could contribute to surface runoff. However, as described under impact analysis "a", the Project would be required to implement erosion control measures and BMPs to reduce any impacts.

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

Less than Significant Impact. The Project is not located in a tsunami or seiche zone and therefore would not release pollutants caused by tsunami or seiche inundations. The Project would not result in construction of turnouts at or near areas determined to be a floodway (i.e., the Stanislaus River). Additionally, it is standard for turnouts to be constructed along water ways. As identified in **Section 4.7 Geology and Soils**, the Project would be required to incorporate applicable BMPs to reduce any impacts of potential geological or water quality impacts. Reservoirs constructed as part of the Project would benefit from floods, as flood water could be stored in the reservoirs. These reservoirs also have the potential to reduce impacts to flooding by providing a destination for flood waters. Therefore, impacts would be less than significant.

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

Less than Significant Impact. SGMA requires GSAs to develop GSPs to avoid undesirable results and mitigate overdraft within 20 years. These groundwater dependent OOD lands have been identified in the local GSPs as a major contributor to the overdraft and utilization of surface water, when and where available, for irrigation of these lands in-lieu of groundwater pumping has been identified as the optimal solution. The proposed Project supports the Oakdale Irrigation District In-lieu and Direct Recharge Project (Project 6) identified in the Modesto Subbasin GSP.²⁷ Since the mid-1990s, OID has implemented annual transfers to OOD lands and this Project would allow these transfers to continue to occur and would combat groundwater overdraft.

The Project proposes to provide surplus surface water to groundwater-dependent areas; thus, reducing their impact to groundwater levels. OID estimates that up to 25,000 acre-feet of water could be conveyed through the system to OOD lands throughout the irrigation season. An additional supply of water, which would reduce groundwater dependency, would not conflict with sustainable applicable groundwater management plans, but would rather comply with them by combating groundwater depletion.²⁸ Impacts would be less than significant.

²⁷ See the STRGBA GSA GSP here: [Modesto Subbasin GSP 20220130.pdf \(strgba.org\)](https://www.strgba.org/Modesto-Subbasin-GSP-20220130.pdf)

²⁸ See the ESJGWA GSP here: [esj-final-gsp_5nov2019_stamp.pdf \(sjgov.org\)](https://www.sjgov.org/esj-final-gsp-5nov2019_stamp.pdf);

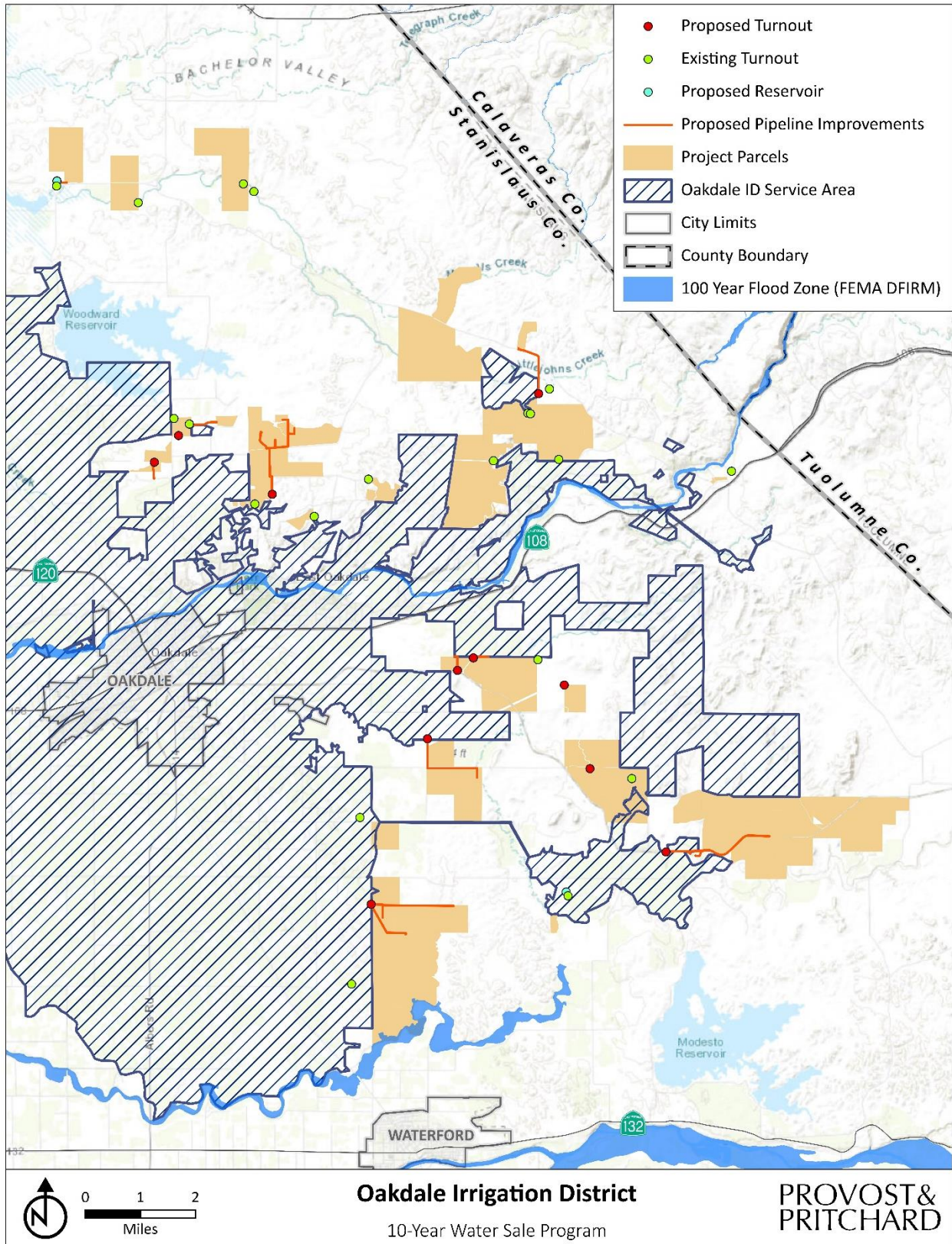


Figure 4-2: FEMA Map

4.11 LAND USE AND PLANNING

Table 4-18: Land Use and Planning Impacts

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

4.11.1 Baseline Conditions

The Project is located in the eastern region of Stanislaus County. Incorporated communities in the Project area include the City of Oakdale and Valley Home. The surrounding lands include large expanses of open space and agricultural lands.

4.11.2 Impact Analysis

a) Would the project physically divide an established community?

No Impact. The Project proposes to provide surplus surface water when available from OID to up to 11,000 irrigated acres outside the OID boundaries in northeastern Stanislaus County. Water proposed to be transferred would be transported to irrigated agricultural lands and would not physically divide an established community. 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 involves both the transfer of surplus water to out-of-district lands and the construction of additional turnouts and private pipelines and reservoirs to convey the water to lands that do not currently have a connection to OID facilities. The lands involved in the Project are currently used and planned for agricultural purposes and implementation of the Project would not change that. There would be no impact.

4.12 MINERAL RESOURCES

Table 4-19: 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.12.1 Baseline Conditions

Mineral resources in Stanislaus County include gold, marble and limestone products, and aggregate (that is, sand and gravel), among others. Aggregate mining in Stanislaus County historically occurred within the Tuolumne River active channel, as well as in off-channel sites. The predominant mineral resources in the planning area are sand and gravel.

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?

a and b) No Impact. Project elements would not result in the loss of a known mineral resource. In addition, there are no existing mines in the vicinity of proposed construction that could potentially be affected. Therefore, there would be no impact.

4.13 NOISE

Table 4-20: 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive ground borne vibration or ground borne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.13.1 Baseline Conditions

Ambient noise levels in Stanislaus County vary widely and mainly come from noise generators such as major roads, minor county roads, agricultural equipment, airports, industrial and commercial areas, and rail lines. The Project areas where construction is proposed to take place are primarily located in undeveloped/agricultural areas and are not near any significant noise sources.

According to Section 10.46.080 of the Stanislaus County Noise Ordinance, construction or maintenance activities performed by or at the direction of any public entity or public utility is exempt.²⁹

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?

Less than Significant Impact. Research of the noise ordinance indicates that temporary construction activities are exempt in Stanislaus County. Construction noise and levels vary from hour-to-hour and day-to-day, depending on the equipment in use, the operations being performed, and the distance between the source and receptor. The Project would create temporary construction noise, but the noise would be unsubstantial due to the rural location with limited sensitive receptors. Therefore, impacts would be less than significant.

²⁹ See Section 10.46.080 of the Stanislaus County Noise Ordinance here: [10.46.080 Exemptions. \(qcode.us\)](https://www.stanislaus.gov/1046080-Exemptions)

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

Less than Significant Impact. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and operation of other construction equipment, such as dozers and trucks. The source of the highest level of vibration during Project construction would be from large dozers. According to the Federal Transit Administration (FTA), vibration levels associated with large dozers are 0.089 in/sec Peak Particle Velocity (PPV) 8 and 87 Vibration Velocity Levels in Decibels (VdB) 9 at 25 feet. Vibration levels associated with jackhammers are 0.035 in/sec PPV and 79 VdB at 25 feet.³⁰

The California Department of Transportation (Caltrans) Transportation and Construction Vibration Guidance includes various vibration thresholds related to structural damage. For residential structures, Caltrans provides the Dowding Building Structure Vibration Criteria of 0.5 PPV (in/sec) to avoid risk of architectural damage.³¹ Based on FTA's recommended procedure for applying a propagation adjustment to these reference levels, vibration levels from large dozers have the potential to exceed the Caltrans recommended level of 0.5 in/sec PPV with respect to architectural damage to newer residential structures within 8 feet of Project construction.

However, the nearest residential structure would be roughly 130 feet away from the nearest proposed construction area. Therefore, no damage would occur.

To address the human response to ground borne vibration, the FTA set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. For residential uses and buildings where people normally sleep, the maximum-acceptable vibration limit is 80 VdB.³² Based on FTA's recommended procedure for applying a propagation adjustment to these reference levels, vibration levels from haul trucks could exceed FTA's maximum acceptable level of 80 VdB with respect to human response within 40 feet of Project construction. As mentioned above, the nearest residence from a proposed construction area would be approximately 130 feet away. Therefore, no residence would experience vibration levels in excess of 80 VdB during construction. Due to the minimal and intermittent nature of dozers and haul trucks, and the short duration of the construction period, the Project would not expose persons to excessive ground borne vibration levels. Impacts would be less than significant.

The Project would not result in the long-term operation of a source of ground vibration (i.e., train or highway). Maintenance activities would be similar to those already conducted for existing OID and private landowner facilities. Any impacts would be 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?

Less than Significant Impact. The Project area is located within two miles of the Oakdale Municipal Airport. The Project does not propose the construction of habitable structures that would result in people residing in the area. Therefore, impacts would be less than significant

³⁰ (John A. Volpe National Transportation Systems Center 2018)

³¹ (California Department of Transportation 2020)

³² (John A. Volpe National Transportation Systems Center 2018)

4.14 POPULATION AND HOUSING

Table 4-21: 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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.14.1 Baseline Conditions

Lands within the Project area contain both rural and open space/agricultural land. Based on the total number of parcels and their summed acreage, the average parcel size of Project parcels is 107.6 acres. As of July 2021, the estimated population of Stanislaus County is 552,999.³³ The total number of housing units within Stanislaus County is at 183,898.³⁴

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)?

No Impact. The Project would not involve the construction of any homes, business, or other uses that would result in direct or indirect population growth. The Project would facilitate an OOD water transfer of surplus surface water to irrigated farmlands for agricultural uses. Water transferred as part of the Project would not be used for any uses that could support new populations. There would be no impact.

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

No Impact. The Project would facilitate an OOD water transfer of surplus surface water to irrigated farmlands for agricultural uses and would not displace people or housing. Rural residential homes within the District and areas outside of it would not be relocated as part of the Project. Therefore, there would be no impact.

³³ (United States Census Bureau 2021)

³⁴ Ibid.

4.15 PUBLIC SERVICES

Table 4-22: 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:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i. Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
v. Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.15.1 Baseline Conditions

Fire Protection: Fire protection is provided to the Project area by Oakdale Rural Fire District and Stanislaus Consolidated Fire Protection District. The nearest County sheriff’s station is the Sheriff Station located in Riverbank, approximately 7.5 miles southwest of the nearest area proposed for construction.

Police Protection: Police Protection is provided to the Project site by Stanislaus County. The nearest County sheriff’s station is the Sheriff Station located in Riverbank, approximately 7.5 miles southwest of the nearest area proposed for construction.

Schools: School Services are provided by the Oakdale Joint Unified School District. The nearest school to the Project is Oakdale Junior High which is located within the city of Oakdale.

Parks: There are multiple parks located with the Project area. The closest park to proposed construction is Kerr Park.

Other public facilities: The nearest landfill is the Copperopolis Transfer Station approximately 8.5 miles northeast of the nearest proposed construction 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) Less than Significant Impact. Construction of the Project may temporarily increase the potential need for police and fire protection services due to general hazards associated with construction (e.g., fire ignition, materials theft, injury). However, the number of people on site at any given time during the construction period is not anticipated to be a significant amount. The increased potential need for these services would not require construction of new or physically altered government facilities. The Project would include both the allowance of water to be transferred to irrigated agricultural lands and construction of facilities such as turnouts, pipelines, and reservoirs to facilitate the transfer and therefore would not indirectly lead to population growth by expanding municipal infrastructure. No new employees would be needed for operation of the Project. Therefore, operation would not increase demand for police protection, fire protection, educational services, parks, or other facilities. No new or physically altered facilities would be needed. Overall, impacts would be less than significant.

4.16 RECREATION

Table 4-23: 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.16.1 Baseline Conditions

Stanislaus County contains several recreational facilities within both incorporated and unincorporated areas. As mentioned in [Section 4.15 Public Services](#), there are several parks within and near the Project area, with Kerr Park being the closest facility.

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 area consists of private agricultural land and existing OID facilities. There are no recreational resources or opportunities within any areas of proposed Project construction. The reservoirs would not be open to the public and would not become a secondary recreational facility.

Construction and operation of the Project would not increase the population as a result of the Project. Construction workers would not relocate to the Project area, and operation would not require new employees. Therefore, the Project would not introduce new recreational users in the Project vicinity, and the Project would not increase use of existing parks or recreational facilities. 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. Although two new reservoirs are being constructed as part of the Project, these facilities would not be open to the public or provide recreational benefits. The Project does not include new public recreational facilities or require the expansion of existing recreational facilities. There would be no impact.

4.17 TRANSPORTATION

Table 4-24: 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.17.1 Baseline Conditions

Although OID’s service area contains urbanized areas via cities, the Project parcels solely comprise of county agricultural lands containing county roads. Roads within the county tend to be less developed compared to roads within cities. These include dirt roads, farm roads, and access roads to various agricultural infrastructure for operation and maintenance purposes, whereas roadways and streets within the incorporated cities are typically much more developed. Two California State Routes (SR) run through the Project area: SR 108 and SR 120. As mentioned in [Section 4.1 Aesthetics](#), I-5, a highly traveled highway, is located approximately 22 miles from the Project area.

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)?

a and b) Less than Significant Impact. Construction traffic associated with the Project would be temporary, lasting approximately 12 months. Construction activities that are typical of the Project would be excavation of soil, grading, site preparation, etc. Any impacts to the current level of service on local roads are anticipated to be minor and periodic. During construction there would be an increase in trucks, OID staff vehicles, and tractor trailers hauling equipment to and from the Project parcels where construction would occur. Given the rural location of the construction sites and the low traffic volume of many local roads that will be utilized, these vehicles are not anticipated to increase congestion. Should it become necessary to temporarily restrict road access during equipment transportation or construction of a new private pipeline across a county roadway, a temporary traffic control plan will be developed by OID or the landowner as applicable, and an encroachment permit will be obtained from Stanislaus County.

Operational traffic for the pipelines, turnouts, and reservoirs would consist of as-needed maintenance trips that would be conducted by landowners for components on private property or with the maintenance trips that are already occurring at OID's existing facilities. There would not be a permanent adverse effect to existing roadways in the area. Impacts would be less than significant.

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

No Impact. The Project would not design or construct any new roadways. There would be no sharp curves or dangerous intersections along local roadways used for the Project that would increase traffic safety hazards. Therefore, there would be no impact.

d) Would the project result in inadequate emergency access?

Less than Significant Impact. Construction-related traffic would be spread over the duration of the construction schedule and at various locations. Therefore, daily impacts would be minimal. Temporary construction staging is not anticipated to block or interfere with emergency response vehicles. Should it become necessary to temporarily restrict road access during equipment transportation or emergency access, a temporary traffic control plan will be developed by OID and an encroachment permit will be obtained from Stanislaus County. Construction of the Project would not result in a significant short-term or long-term impacts to emergency access.

Operation of the water transfer facilities (i.e., turnouts, pipelines, reservoirs) would not result in the reconfiguration of existing roads or the construction of new roads. All existing emergency access ingress and egress points would remain unchanged, and adequate emergency access would be maintained. Impacts would be less than significant.

4.18 TRIBAL CULTURAL RESOURCES

Table 4-25: 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	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.18.1 Baseline Conditions

Public Resources Code Section 21080.3.1, et seq. (codification of AB 52, 2013-14)

Public Resources Code Section 21080.3.1, et seq. (codification of AB 52, 2013-14) requires that a lead agency, within 14 days of determining that it would 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 would be made.

The District has received written correspondence from the Chicken Ranch Rancheria of Me-Wuk Indians Tribe, pursuant to AB 52, requesting notification of proposed projects. The District mailed a letter to the

tribe via certified mail on November 29th, 2022. A follow up email was sent on December 5th ensuring the tribe received the correspondence and inquiring on consultation. The tribe confirmed receipt of such correspondence and expressed no concerns regarding the Project activities.

Native American Heritage Commission – Sacred Lands File Search

In addition to Tribal Consultation pursuant to AB 52 regulations, the NAHC in Sacramento was also contacted in November 2022 for additional information on any potential Tribal Cultural Resources in the Project area. They were provided with a brief description of the Project and a map showing its location and requested that the NAHC perform a search of the Sacred Lands File (SLF) to determine if any Native American resources have been recorded in the immediate APE. The NAHC identifies, catalogs, and protects Native American cultural resources -- ancient places of special religious or social significance to Native Americans and known ancient graves and cemeteries of Native Americans on private and public lands in California. The NAHC is also charged with ensuring California Native American tribes' accessibility to ancient Native American cultural resources on public lands, overseeing the treatment and disposition of inadvertently discovered Native American human remains and burial items, and administering the California Native American Graves Protection and Repatriation Act (CalNAGPRA), among many other powers and duties. The results of the SLF search were positive for the presence of tribal cultural resources in the quadrants where the APE is located.

In addition, NAHC provided a current list of Native American Tribal contacts to notify of the project. The 13 tribal representatives identified by NAHC were contacted in writing via United States Postal Service in a letter December 14, 2022, informing each Tribe of the Project.

1. Buena Vista Rancheria of Me-Wuk Indians, Rhonda Morningstar Pope, Chairperson
2. California Valley Miwok Tribe
3. California Valley Miwok Tribe AKA Sheep Rancheria of Me-Wuk Indians of CA
4. Lone Band of Miwok Indians, Sara Dutschke, Chairperson
5. Nashville Enterprise Miwok-Maidu-Nishinam Tribe, Cosme Valdez, Chairperson
6. North Valley Yokuts Tribe, Katherine Perez, Chairperson
7. North Valley Yokuts Tribe, Timothy Perez
8. Tule River Indian Tribe, Neil Peyron, Chairperson
9. Tule River Indian Tribe, Kerri Vera, Environmental Department
10. Wilton Rancheria, Jesus Tarango, Chairperson
11. Wilton Rancheria, Dahlton Brown, Director of Administration
12. Wilton Rancheria, Steven Hutchason, Tribal Historic Preservation Officer
13. Wuksache Indian Tribe/Eshom Valley Band, Kenneth Woodrow, Chairperson

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.

a-i – a-ii) Less than Significant Impact with Mitigation Incorporated. A search of the NAHC Sacred Lands File was completed for the APE. The search covered seven quadrants, which totaled 1,120 acres. The results of the SLF search were positive for the presence of tribal cultural resources in the quadrants where the APE is located. Additionally, a records search was conducted at the Central California Information Center, California State University, Stanislaus. This search also determined that there are no formally recorded prehistoric or historic archaeological resources within the Project area.

The District, as a public lead agency, has received formal requests for notification from the Chicken Ranch Rancheria of Me-Wuk Indians Tribe, pursuant to Public Resources Code Section 21080.3.1 (AB 52). The District consulted with the Chicken Ranch Rancheria tribe to discuss the Project and no consultation was deemed necessary. No additional concerns were discussed during email correspondence. In addition, NAHC provided a current list of Native American Tribal contacts to notify of the project. The 13 tribal representatives identified by NAHC were contacted in writing via United States Postal Service in a letter December 14, 2022, informing each Tribe of the Project. No responses have been received to date. Any comments received from these tribes during circulation will be addressed in writing by the District.

There is little chance the Project would cause a substantial adverse change to the significance of a tribal cultural resource as defined. Mitigation Measures **CUL-1 and CUL-2**, described in **Section 4.5.3** are recommended in the event cultural materials or human remains are unearthed during excavation or construction. Implementation of mitigation measures outlined above in **Section 4.5.3** would reduce impacts to tribal cultural resources to less than significant.

4.18.3 Mitigation

See **CUL-1** and **CUL-2** above in **Section 4.5.3**

4.19 UTILITIES AND SERVICE SYSTEMS

Table 4-26: 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.19.1 Baseline Conditions

As mentioned in [Section 4.6 Energy](#), PG&E supplies electricity and natural gas to the Project area.

Water to supply the District comes principally from the Stanislaus River under well-established adjudicated water rights. The District's distribution systems include the Goodwin Diversion Dam on the Stanislaus River below the Tulloch Dam, at which point water is diverted into the District's main canal systems.

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 would not require relocation or expansion of existing facilities for wastewater treatment, storm water drainage, electric power, natural gas, or telecommunications. The Project would facilitate an OOD of district water transfer to irrigated farmlands outside of OID's service. The Project would also include construction of pipelines and turnouts for the purposed of transferring water to areas

that don't already have an existing connection. Landowners would be required to obtain public agency encroachment permits as necessary for any proposed new private pipelines that cross existing utilities (i.e., SSJID, CCSF, PG&E). There would be no impact.

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

Less than Significant Impact

Water used during construction would be minor. The water being transferred as part of the Project is surplus irrigation water. As stated in the water sale program for the Project, water would only be transferred during years when OID has an allocation under its existing water rights that is surplus to the in-District irrigation demand. The OID Board decision to declare surplus water is noticed each spring at an OID Board of Directors meeting, as an action item and the Board votes to determine if surplus water is available. Water for the Project would only be transferred under OID's pre-1914 water rights, meaning that the full natural flow in the Stanislaus River exceeds in-District demand and therefore no stored water is used outside the OID boundaries. When the full natural flow drops below this threshold during the irrigation season, OOD deliveries under the Project would stop.

As discussed in the Project Description, an analysis of New Melones Reservoir hydrology with the effects of the Project's proposed water transfer was conducted and is attached in the Hydrology Transfer Memo located in [Appendix B](#). The analysis consists of a baseline operation in which there is no water transferred, and a proposed action operation in which 25,000 acre-feet is transferred in all water year types except critically dry. While the baseline conditions for this IS/MND do include some transferred water (OID has been delivering anywhere from 3,000 to 5,000 acre-feet annually based on the amount of water available that year since the mid-1990s), the baseline operation in the Hydrology Transfer Memo consisted of no transferred water for simplicity.

Compared to Baseline, results of the operation comparison primarily show a lessening of reservoir storage in New Melones Reservoir in any year the transfer occurs, and during sequential years this annual depletion can accumulate. The exception to this result occurs in wetter years when the reservoir fills and inflow exceeds downstream demand releases and additional reservoir releases are needed to reach flood control reservoir storage reservation objectives.

Minimum release requirements below Goodwin Dam are always met in both Model scenarios. Due to the additional depletion of reservoir storage in the transfer operation and the subsequent accumulation of less reservoir storage, less release in excess of minimum release requirements will occasionally occur. This outcome will occur during times when reservoir flood control reservation objectives are initially approached in a year or when reservoir management releases occur during the summer.

The results of the analysis demonstrate that the proposed Project will not have a significant effect on the storage capacity of New Melones, nor will it cause drawdown of the cold water pool more often than without the Project.

Therefore, the impacts would be less than significant. The Project would have sufficient water supplies to serve the Project without impacting in-District customers.

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?

No Impact. No wastewater would be generated as part of the Project. There would be no change to nearby wastewater facilities or operations. 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?

No Impact. The Project construction and operations would not 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. There would be no impact.

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 conform to all applicable statutes and regulations related to solid waste disposal. The Project would comply with the adopted policies related to solid waste, and would comply with all applicable federal, State, and local statutes and regulations pertaining to disposal of solid waste, including recycling. Therefore, the Project would have no impact on solid waste regulations.

4.20 WILDFIRE

Table 4-27: 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrollable spread of wildfire?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.20.1 Baseline Conditions

The Project area is primarily comprised of open space/agricultural lands. Two of the proposed pipelines and turnouts in the north and northeast region of the Project area are located in a State Responsibility Area (SRA) while the rest of the Project area is not.³⁵ CALFire assumes fire prevention and protection responsibilities in areas deemed to be an SRA. There are no areas of the Project that are considered to be in a very high fire hazard severity zone. The closest location deemed very high is located approximately five miles northeast of the Project area.³⁶

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?

Less than Significant Impact. The Project would be located within the Stanislaus County region generally in the surrounding agricultural land of the City of Oakdale. As mentioned above, there are two locations

³⁵ (California Department of Forestry and Fire Protection 2022)

³⁶ (ArcGIS n.d.)

where construction would occur within an SRA. Although in an SRA, both locations have been determined to not be within a very high fire hazard severity zone.

Stanislaus County Office of Emergency Services Fire Prevention Bureau's main purpose is to reduce the risk of fire; thus, protecting the lives, welfare, and economic vitality of our community. The open space/agricultural region of the Project is predominantly covered by either grass/shrub land or agricultural landscape. Elevation ranges from 139 feet to 358 feet. Although the Project area contains a range of elevations, the majority of the region would be predominantly flat agricultural land. The majority of residents are located within the cities of Oakdale and Valley Home.

According to the Stanislaus County Emergency Operations Plan, the authority and responsibility for evacuation and movement of citizens in times of crisis resides with the various law enforcement agencies within Stanislaus County.³⁷ For the Project area these agencies include the Stanislaus County Sheriff's Department and the California Highway Patrol. During a wildfire emergency, the Sheriff Department's decision to evacuate an area would be conducted in coordination with the appropriate local, state, and federal fire protection agencies. Primary responsibility for evacuation and movement control on state highways will reside with the California Highway Patrol. They may be supported by local law enforcement agencies, Caltrans, local public works agencies, fire agencies, state and federal cooperators, and other appropriate transportation providers. The Project would not interfere with any public evacuation plans and would have no impact on police or fire services further from existing (see [Section 4.15 Public Services](#)).

However, Project construction would be conducted across and near various county roadways which may be evacuation routes if a fire were to occur. Project construction that would occur across and near would be temporary. Traffic would be temporary and minimal; therefore, the impact would be less than significant.

- 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?

Less than Significant Impact with Mitigation Incorporated. As stated above, portions of the Project would be constructed in a SRA. In addition to the fire frequency of Stanislaus County, seasonal high winds, and grass/shrub vegetation within and near the Project area, there is potential for a fire to occur in an area surrounding the Project. If a fire were to occur during construction, the impact could be significant. In order to ensure that wildland fire impacts during construction are reduced to less than significant, implementation of Mitigation Measure **WLD-1** would be required. Mitigation Measure **WLD-1** would include standard construction fire safety protocol, including reduction of potential sources of ignition and emergency suppression equipment.

Operation and maintenance of the Project would not expose residences and occupants to increased risks associated with wildfire. Following construction, the Project would be passive and would not directly exacerbate wildfire risk. However, routine maintenance would result in vehicle use, which could have the potential to produce a spark. Mitigation Measure **WLD-1** would be implemented during maintenance to

³⁷ (Stanislaus County 2022)

ensure fire safety. Implementation **WLD-1** would ensure impacts would be less than significant with mitigation incorporated regarding wildfire risk.

- 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, 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?

Less than Significant Impact with Mitigation Incorporated. The Project would not require the installation or maintenance of any new roads, fuel breaks, emergency water sources, or power lines. As discussed above, construction and post-construction maintenance of the Project elements would require the use of motorized vehicles on existing access roads surrounding the Project. This would provide an additional form of ignition and could result in a spark in an area with moderate fire hazard severity. Implementation of **WLD-1** would reduce impacts to less than significant during installation and maintenance of the Project.

- 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?

Less than Significant Impact. The Project proposes a water transfer program and the construction of turnouts and pipelines to facilitate the water transfer to lands that are not currently connected to OID facilities. The Project would not 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. Impacts would be less than significant.

4.20.3 Mitigation Measures

WLD-1 OID and/or its contractors will abide by all fire safety measures discussed below during construction, operation, and maintenance.

- All construction vehicles will have fire suppression equipment.
- Construction personnel will park vehicles within roads, road shoulders, graveled areas, and/ or cleared areas (i.e., away from dry vegetation) wherever such surfaces are present at the construction site.
- Construction workers will receive training on the proper use of fire-fighting equipment and procedures to be followed in the event of a fire.
- No smoking will be permitted at the construction site and/or near construction vehicles.
- Before use of construction equipment that has the potential to produce a spark (e.g., welding), OID and/or its contractors would water the surrounding area prior to work.

4.21 CEQA MANDATORY FINDINGS OF SIGNIFICANCE

Table 4-28: 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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, cultural, geology and soils, hazards and hazardous materials, tribal cultural resources, and wildfire 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**.

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 with Mitigation Incorporated. CEQA Guidelines Section 15064(i) states that a lead agency shall consider whether the cumulative impact of a Project is significant and whether the

effects of the Project are cumulatively considerable. The assessment of the significance of the cumulative effects of a Project must, therefore, be conducted in connection with the effects of past Projects, other current projects, and probable future projects. The Project would facilitate a water transfer of up to 25,000 acre-feet to areas outside of OID's service area by constructing turnouts, pipelines, and reservoirs to assist in the continued operation of agricultural activities. The transfer will only occur during years when OID's allocation exceeds the in-District irrigation demand. Additionally, only water under OID's pre-1914 water rights (i.e. no water from storage) would be transferred. The Project would also have priority over future water transfers that OID may pursue. No additional roads would be constructed as a result of the Project, nor would any additional public services be required. The Project is not expected to result in direct or indirect population growth. Therefore, implementation of the Project would not result in significant cumulative impacts and all potential impacts would be reduced to less than significant through the implementation of mitigation measures and basic regulatory requirements.

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 include the construction of turnouts, pipelines, and reservoirs to allow OID water to be transferred outside of OID's service area. 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. This impact 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 Stanislaus County. The MMRP lists mitigation measures recommended in the IS/MND for the Program and identifies monitoring and reporting requirements.

Table 5-1: Mitigation, Monitoring, and Reporting Program presents the mitigation measures identified for each project approved within the Program. 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

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 Mitigation Measures						
BIO-1A	(WEAP Training): Prior to initiating construction activities (including staging and mobilization), all personnel associated with Project construction will attend mandatory Worker Environmental Awareness Program (WEAP) training, conducted by a qualified biologist, to aid workers in identifying special status resources that may occur in the APE. 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 a list of required protective measures to avoid “take.” A fact sheet conveying this information, along with photographs or illustrations of sensitive species with potential to occur onsite, will also be prepared for distribution to all contractors, their employees, and all other personnel involved with construction of the Project. All employees will sign a form documenting that they have attended WEAP training and understand the information presented to them.	Prior to initiating construction activities	Once	OID	Contractor to verify in weekly status report.	
BIO-1B	(BMPs): The Project proponent will ensure that all workers employ the following best management practices (BMPs) in order to avoid and minimize potential impacts to special status species: <ul style="list-style-type: none"> • Vehicles will observe a 15-mph speed limit while on unpaved access routes. • Workers will inspect areas beneath parked vehicles prior to mobilization. If special status species are detected beneath vehicles, 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 listed (rare, threatened, or endangered) species is prohibited. 	Daily during ground disturbing activities.	Daily	OID	Contractor to verify in weekly status report.	

Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
	The presence of any special status species and/or any wildlife mortalities will be reported to the Project's designated biologist and the appropriate regulatory agencies.					
American Badger						
BIO-2A	(Pre-construction Survey): A qualified biologist will conduct a pre-construction survey of Project areas within 30 days prior to vegetation clearing or ground disturbing activities. Goals of this survey include a search for potentially active badger dens and suitable habitat within Project areas for American badger. Environmentally sensitive areas will be flagged for avoidance. If no American badger individuals or suitable burrows are observed, no further mitigation is required.	30 days prior to vegetation clearing or ground disturbing activities.	Daily	OID	Submittal of Pre-construction survey report	
BIO-2B	(Camera Station): If potential dens with dimensions suitable for American badger (diameter of four (4) inches or greater) are detected during pre-construction surveys, each potential den will be monitored by a qualified biologist with remote camera stations for a period of three consecutive nights. If there is no activity at the den location recorded for three consecutive nights, the den can be deemed "inactive" or "unoccupied" and will be sealed or destroyed within 24 hours of the inactive findings.	Prior to initiating construction activities	Prior to initiating construction activities	OID	Verified in writing by a qualified biologist.	
BIO-2C	(Den Avoidance/Buffers): If an American badger is denning on or within 50 feet of the Project site, the Project proponent will avoid the den by a minimum 50-foot buffer. If the 50-foot buffer cannot be maintained, the Project proponent will contact CDFW for guidance on how to proceed.	Prior to initiating construction activities	Prior to initiating construction activities	OID	Biologist verifies buffer.	
BIO-2D	(Consultation/ITP): Badgers will not be evicted from dens without CDFW consultation/ coordination. In the event an active den is detected during surveys and cannot be avoided, consultation with CDFW is warranted to discuss how to implement the Project and avoid take. If take cannot be avoided, take authorization through the acquisition of an ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.	Prior to the start of construction and ground disturbing activities	Prior to the start of construction and ground disturbing activities	OID	Record of consultation and/or ITP submitted to OID	
Bald Eagle						
BIO-3A	(Pre-construction Survey): If activities must occur within breeding season (February 1 to August 31), a qualified biologist will conduct pre-construction surveys for eagle nests within 30 days 10 days prior to the start of construction. The survey will include the proposed work area and surrounding lands within one mile. Eagle nests are considered "active" upon the nest-building stage.	If activities must occur within breeding season (February 1 to August 31)	Prior to initiating construction activities	OID	Submittal of pre-construction survey.	

Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance																							
BIO-3B	(Establish Buffers): On discovery of an active eagle nest near work areas, the following no-disturbance buffers will be maintained around each nest: 0.5 mile no-disturbance buffer 660-foot no-disturbance buffer . If a 660-foot <u>0.5 mile</u> buffer zone is infeasible, the Project proponent will contact CDFW for guidance on how to proceed.	On discovery of an active eagle nest near work areas	Prior to and during the start of construction and ground disturbing activities	OID	Verified in writing by a qualified biologist.																								
BIO-3C	(Reporting): All detected eagle nests will be reported to CDFW and USFWS immediately. This includes any nest that has been used by an eagle in the past or is being used currently as a primary or alternate nest site. The discovery of any eagle carcasses and any non-lethal or lethal incidental “take” of these species will be reported to CDFW and USFWS immediately.	Daily during ground disturbing activities.	Daily	OID	Record of consultation and/or ITP submitted to OID																								
Burrowing Owl																													
BIO-4A	(Pre-construction Take Avoidance Survey): A qualified biologist will conduct a pre-construction take avoidance survey for burrowing owls and suitable burrows, in accordance with CDFW’s <i>Staff Report on Burrowing Owl Mitigation</i> (2012), within 30 days prior to the start of construction activities. The survey shall include the proposed work area and surrounding lands within 500 feet. If no burrowing owl individuals or suitable burrows are observed, no further mitigation is required.	Prior to initiating construction activities	Prior to the start of construction and ground disturbing activities	OID	Submittal of pre-construction survey.																								
BIO-4B	(Avoidance): If an active burrowing owl burrow is detected, the occurrence shall be reported to the local CDFW office and the CNDDDB, and disturbance-free buffers shall be implemented in accordance with CDFW’s 2012 Staff Report on Burrowing Owl Mitigation, as outlined in the table below: <table border="1"> <thead> <tr> <th rowspan="2">Location</th> <th rowspan="2">Time of Year</th> <th colspan="3">Level of Disturbance</th> </tr> <tr> <th>Low</th> <th>Medium</th> <th>High</th> </tr> </thead> <tbody> <tr> <td>Nesting sites</td> <td>April 1 – August 15</td> <td>200 meters</td> <td>500 meters</td> <td>500 meters</td> </tr> <tr> <td>Nesting sites</td> <td>August 16 – October 15</td> <td>200 meters</td> <td>200 meters</td> <td>500 meters</td> </tr> <tr> <td>Nesting sites</td> <td>October 16 – March 31</td> <td>50 meters</td> <td>100 meters</td> <td>500 meters</td> </tr> </tbody> </table>	Location	Time of Year	Level of Disturbance			Low	Medium	High	Nesting sites	April 1 – August 15	200 meters	500 meters	500 meters	Nesting sites	August 16 – October 15	200 meters	200 meters	500 meters	Nesting sites	October 16 – March 31	50 meters	100 meters	500 meters	Prior to initiating construction activities	Prior to the start of construction and ground disturbing activities	OID	Verified in writing by a qualified biologist.	
Location	Time of Year			Level of Disturbance																									
		Low	Medium	High																									
Nesting sites	April 1 – August 15	200 meters	500 meters	500 meters																									
Nesting sites	August 16 – October 15	200 meters	200 meters	500 meters																									
Nesting sites	October 16 – March 31	50 meters	100 meters	500 meters																									
BIO-4C	(Consultation with CDFW and Passive Relocation): If avoidance of an active burrowing owl burrow is not feasible, CDFW will be immediately consulted to determine the best course of action, which may include passive relocation during non-breeding season. Passive relocation and/or burrow exclusion will not take place without coordination with CDFW and preparation of an approved exclusion and relocation plan.	Prior to initiating construction activities	Prior to the start of construction and ground disturbing activities	OID	Record of consultation and/or ITP submitted to OID																								
California tiger salamander																													

Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
BIO-5A	(Avoidance): The Project’s construction activities should occur, if feasible, between May 1 and September 30 (outside of wet season) in an effort to avoid impacts to California tiger salamander.	Prior to initiating construction activities	Prior to initiating construction activities	OID	Submittal of construction schedule to OID.	
BIO-5B	(Pre-construction Survey): A qualified biologist will conduct a <u>pre-construction survey to identify any small mammal burrows within 30 days prior to the start of construction. The survey will include the proposed work area and a 50 ft. buffer. If Any small mammal burrows are identified during the survey, a 50 ft. no-disturbance buffer will be placed around the burrows.</u>	Prior to initiating construction activities	Prior to the start of construction and ground disturbing activities	OID	Submittal of <u>pre-construction survey</u>	
BIO-5B C	(Exclusion fencing): If the Project must occur during the wet season (May 1 – September 30), the Project should install exclusion fencing around active construction to ensure California tiger salamanders do not enter the site during construction. Exclusion fencing materials, size, and placement should follow wildlife agency guidelines appropriate for the species.	Prior to initiating construction activities	Prior to the start of construction and ground disturbing activities	OID	Verified in writing by a qualified biologist.	
BIO-5C D	(Formal Consultation): If any California tiger salamanders are observed during construction, work should stop immediately. A qualified wildlife biologist, approved to handle and remove California tiger salamander should be called to identify and remove the species. If take of any individual California tiger salamanders occurs, USFWS should be notified immediately, and the qualified biologist should remain onsite as a monitor during construction activities to provide protection of the species.	Prior to initiating construction activities	Prior to the start of construction and ground disturbing activities	OID	Record of consultation submitted to OID.	
Conservancy Fairy Shrimp, Vernal Pool Fairy Shrimp, and Vernal Pool Tadpole Shrimp						
BIO-6A	(Desktop Survey): A qualified biologist will perform a desktop survey of the APE and an additional 100-foot survey area around the designated APE to determine if appropriate habitat for vernal pool fairy shrimp or vernal pool tadpole shrimp exists within the Project area or has existed in the past. If no suitable habitat is observed, no further mitigation is required.	Prior to the start of construction and ground disturbing activities	Prior to initiating construction activities	OID	Submittal of desktop survey.	
BIO-6B	(Avoidance): On discovery of suitable habitat for special status fairy shrimp, a qualified biologist will determine appropriate construction setback (buffer zones) based on applicable CDFW and/or USFWS guidelines, if appropriate. Please refer to MM BIO-3 Vernal Pools for buffer zones. Construction buffers will be identified with flagging, fencing, or other easily visible means. If appropriate buffer zones cannot be maintained throughout Project activities the Project will not be able to proceed.	Prior to the start of construction and ground disturbing activities	Prior to initiating construction activities	OID	Verified in writing by a qualified biologist.	

Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
BIO-6C	(Project Relocation): If the Project proponent wants to avoid the permitting process, project activities will be moved to provide the appropriate buffer zone identified in MM BIO-3c.	Prior to the start of construction and ground disturbing activities	Prior to the start of construction and ground disturbing activities	OID	Submittal of new Project location.	
Crotch Bumble bee and Western Bumble Be						
BIO-7A	(Pre-Construction Survey): A qualified biologist will survey the Project work area during spring or fall prior to the start of Project activities to identify whether over-wintering, nesting, or foraging habitats of the Crotch bumble bee or Morrison bumble bee are present on or within 100 feet of the Project work area. <u>Suitable habitat includes small mammal burrows and thatched/bunch grasses.</u> If no suitable habitat is observed, no further mitigation is required.	Prior to initiating construction activities	Prior to the start of construction and ground disturbing activities	OID	Submittal of pre-construction survey	
BIO-7B	(Visual Surveys): If suitable habitat is identified in the Project work area, a qualified biologist will conduct visual surveys during the flying period between March 1 to September 1 prior to Project activity. <u>Visual surveys will focus on small mammal burrows and thatched/bunch grasses.</u> If an individual or nest is observed, no Project activities will occur until CDFW has been consulted.	Prior to the start of construction and ground disturbing activities	Prior to the start of construction and ground disturbing activities	OID	Verified in writing by a qualified biologist.	
BIO-7C	(Formal Consultation): The qualified biologist will consult with CDFW if an individual or a nest is observed. Work will not occur until CDFW determines distances for disturbance-free buffers, or a plan to protect the Crotch bumble bee/western bumble bee, including over-wintering queens, has been submitted to and approved in writing by CDFW.	Prior to the start of construction and ground disturbing activities	Prior to the start of construction and ground disturbing activities	OID	Record of consultation and/or ITP submitted to OID	
Giant Garter snake						
BIO-8A	(Pre-construction Survey): A qualified biologist shall conduct a pre-construction survey of Project areas within 30 days prior to vegetation clearing or ground disturbing activities. If evidence of a suitable habitat for giant garter snake is detected on pre-construction surveys, construction monitoring will be required.	Prior to initiating construction activities	Prior to the start of construction and ground disturbing activities	OID	Submittal of pre-construction survey	
BIO-8B	(Monitor): A qualified biologist will conduct a pre-activity clearance survey each day and remain onsite to oversee all vegetation clearing and ground disturbing activities conducted within suitable habitat for giant garter snake. The biological monitor must possess required collecting/handling permits. If a special status reptile or amphibian is observed within Project areas, the biologist will stop work order and the individual will either be allowed to leave of its own volition or will be captured by the qualified biologist and relocated out of harm's way to the nearest suitable habitat beyond the influence of the Project work area. "Take" of listed (rare, threatened, or endangered) is	Daily during construction activities	Daily during construction activities	OID	Verified in writing by a qualified biologist.	

Chapter 5- Mitigation, Monitoring, & Reporting Program
10-Year Out-of-District Water Sale Program

Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
	prohibited. If a listed species is observed within the Project area, the biologist will stop work and contact the appropriate regulatory agency (CDFW and/or USFWS) for guidance on how to proceed.					
Monarch Butterfly						
BIO-9A	(Pre-Construction Survey): A qualified biologist will survey the Project work area within 7 days prior to the start of Project activities to identify whether over-wintering or foraging habitats of the Monarch butterfly are present on or within 100 feet of the Project work area. If no individuals or suitable habitat is observed, no further mitigation is required.	Prior to initiating construction activities	Prior to initiating construction activities	OID	Submittal of pre-construction survey	
BIO-9B	(Visual Surveys): If suitable habitat is identified buffer zones of 100 feet will be provided using exclusion fencing. If habitat cannot be avoided, a qualified biologist will conduct visual surveys between October through May prior to Project activity. Surveys will not take place when daytime temperatures are below 55 degrees Fahrenheit. If an individual or colony is observed, no Project activities will occur until CDFW has been consulted.	Prior to initiating construction activities	Prior to initiating construction activities	OID	Verified in writing by a qualified biologist.	
BIO-9C	(Consultation with CDFW): The qualified biologist will consult with CDFW if an individual or a colony is observed. Work will not occur until a plan to protect the Monarch butterfly, including over-wintering colonies, has been submitted and approved in writing by CDFW.	Prior to initiating construction activities	Prior to initiating construction activities	OID	Record of consultation and/or ITP submitted to OID	
Nesting Birds						
BIO-10A	(Avoidance): The Project's construction activities will occur, if feasible, between September 16 and January 31 (outside of nesting bird season) in an effort to avoid impacts to nesting birds.	Prior to initiating construction activities	Prior to initiating construction activities	OID	Submittal of construction schedule to OID.	
BIO-10B	(Pre-construction Surveys): If activities must occur within nesting bird season (February 1 to September 15), a qualified biologist would conduct pre-construction surveys for Swainson's hawk nests onsite and within a 0.5-mile radius. This survey would be conducted in accordance with the <i>Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley</i> (Swainson's Hawk Technical Advisory Committee, 2000) or current guidance. The pre-construction survey would also provide a presence/absence survey for all other nesting birds within the APE and an additional 50 feet, no more than 7 days prior to the start of construction. All raptor nests would be considered "active" upon the nest-building stage.	If activities must occur within nesting bird season (February 1 to September 15), prior to the start of ground disturbing and construction activities	Prior to initiating construction activities	OID	Submittal of pre-construction survey	

Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
BIO-10C	(Establish Buffers): On discovery of any active nests or breeding colonies near work areas, the biologist will determine appropriate construction setback distances based on applicable CDFW and/or USFWS guidelines and/or the biology of the species in question. <u>Recommended construction buffers include 0.5 miles for Swainson’s Hawk and 300 ft. for Tricolored Blackbird.</u> Construction 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 initiating construction activities	Prior to initiating construction activities	OID	Verified in writing by a qualified biologist.	
BIO-10D	(Consultation with CDFW): In the event that a Tricolored Blackbird nesting colony <u>or Swainson’s Hawk nest</u> is detected during surveys, consultation with CDFW is warranted to discuss whether the Project can avoid take and, if take avoidance is not feasible, to acquire an incidental take permit for Tricolored Blackbird pursuant to Fish and Game Code section 2081, subdivision (b), prior to any Project activities.	Prior to initiating construction activities	Prior to the start of construction and ground disturbing activities	OID	Record of consultation and/or ITP submitted to OID	
Northern California Legless Lizard						
BIO-11A	(Avoidance): The Project’s construction activities will occur, if feasible, outside of areas that contain loose soil or leaf litter which are suitable habitats for legless lizards. If no individuals or suitable habitat is observed, no further mitigation is required.	Prior to initiating construction activities	Prior to initiating construction activities	OID	Submittal of construction schedule to OID.	
BIO-11B	(Pre-construction Surveys): If activities must occur in areas that contain loose soil and leaf litter a qualified biologist will conduct pre-construction surveys within 48 hours prior to beginning any Project activities. Any loose substrate in which lizards could bury themselves will be gently raked with a hand tool (e.g., a garden rake) to a depth of two inches to locate any lizards that could be under the surface.	Prior to initiating construction activities	Prior to the start of construction and ground disturbing activities	OID	Submittal of Pre-construction survey report.	
BIO-11C	(Consulting Agencies): On discovery of any Northern California legless lizards, the biologist will consult CDFW and/or USFWS to determine adequate buffers and mitigation since no guidelines currently exist for this species.	Prior to initiating construction activities	Prior to the start of construction and ground disturbing activities	OID	Record of consultation submitted to OID.	
San Joaquin kit fox						
BIO-12A	(Pre-Construction Survey): No less than 14 days and no more than 30 days prior to the start of construction, a pre-construction survey for San Joaquin kit fox will be conducted on and within 500 feet of proposed work areas. If no suitable habitat or potential dens are observed, no further mitigation is required.	No less than 14 days and no more than 30 days prior to the start of construction	Prior to construction	OID	Submittal of Pre-construction survey report.	

Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
BIO-12B	<p>(Establish Buffers): On discovery of any potential SJKF dens near the Project area a qualified biologist will determine appropriate construction setback distances (buffer zones) based on applicable CDFW and/or USFWS guidelines (below). If buffer distances cannot be maintained, a focused survey would be required. Construction buffers will be identified with flagging, fencing, or other easily visible means, and will be maintained until the biologist has determined that the den will no longer be impacted by construction.</p> <ol style="list-style-type: none"> 1. At least 100 feet around den(s); 2. At least 200 feet around natal dens (which SJKF young are reared); and <p>At least 500 feet around any natal dens with pups (except for any portions of the buffer zone that is already fully developed).</p>	On discovery of any potential SJKF dens near the Project area	Daily	OID	Verified in writing by a qualified biologist.	
BIO-12C	<p>(Focused Surveys): If a potential San Joaquin kit fox den is detected within 500 feet of construction activities and buffer distances cannot be maintained, a Focused Survey will be performed in accordance with the <i>USFWS 2011 Standardized Recommendations for Protection of the San Joaquin Kit Fox</i> (United States Fish & Wildlife Service 2022).</p>	If a potential San Joaquin kit fox den is detected within 500 feet of construction activities and buffer distances cannot be maintained	Daily during ground disturbing and construction activities	OID	Submittal of Focused survey report.	
BIO-12D	<p>(Cover Excavations/Mortality Reporting): Pipes or culverts with a diameter greater than 4 inches will be capped or taped closed when it is ascertained that no SJKF are present. Any SJKF found in a pipe or culvert will be allowed to escape unimpeded. The Sacramento Field Office of USFWS and the Fresno Field Office of CDFW will be notified in writing within three working days in the case of the accidental death or injury to a San Joaquin kit fox during construction. Notification must include the date, time, and location of the incident and any other pertinent information.</p>	Prior to the start of ground disturbing and construction activities	During construction and ground disturbing activities	OID	Verified in writing by a qualified biologist.	
Special Status Bat						
BIO-13A	<p>(Avoidance): The Project's construction activities will occur, if feasible, between November 1 and February 28 (outside of bat maternity season) in an effort to avoid impacts to maternity roosts.</p>	Prior to initiating construction activities	Prior to initiating construction activities	OID	Submittal of construction schedule to OID.	
BIO-13B	<p>(Pre-Construction Emergence Survey): A pre-construction emergence survey for bats will be performed if construction activities fall between March 1 and September 30 (bat maternity season). The survey will be conducted by a qualified biologist within (10) ten days prior to construction activities and only include trees or structures which are potentially suitable for bat roosts.</p>	Within 10 days prior to the start of construction	Prior to construction	OID	Submittal of Pre-construction survey report.	

Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
BIO-13C	(Establish Buffers): On discovery of any bat roosts near work areas, a qualified biologist should determine appropriate construction setback distances (buffer zones) based on applicable CDFW and/or USFWS guidelines, if appropriate. Construction buffers should be identified with flagging, fencing, or other easily visible means, and should be maintained until the biologist has determined that the roost should no longer be impacted by construction.	On discovery of any bat roosts near the Project area	Daily	OID	Verified in writing by a qualified biologist.	
BIO-13AD	(Operational Hours): Construction activities shall be limited to daylight hours to reduce potential impacts to special status bats that could be foraging onsite.	During construction activities	Daily	OID	Verified by OID	
Valley Elderberry Longhorn Beetle						
BIO-14A	(Pre-Construction Survey): A qualified biologist will conduct a pre-construction survey within the APE and an additional 100-foot survey area around the designated APE for elderberry plants suitable to host Valley elderberry longhorn beetle (VELB) in areas where vegetation removal will occur 30 days prior to the start of construction. If no individuals or suitable habitat is observed, no further mitigation is required.	Prior to ground disturbing activities and vegetation removal	Prior to construction	OID	Submittal of a Pre-construction survey.	
BIO-14B	(Avoidance): If elderberry plants are identified, construction buffers will be placed around the plant(s). Complete avoidance (i.e., no adverse effects) may be assumed when a 100-foot buffer is established and maintained around all elderberry plants. If complete avoidance of all elderberry plants cannot be maintained, then a focused survey according to USFWS's <i>Conservation Guidelines for the Valley Elderberry Longhorn Beetle</i> (United States Environmental Protection Agency 2022), will be required.	If elderberry plants are identified	Daily	OID	Verified in writing by a qualified biologist.	
BIO-14C	(Focused Survey): If elderberry plants are identified a focused survey will be performed between March and June when VELB adults are active. All plants will be inspected to determine if they have stems measuring 1.0 inch or greater in diameter at ground level. Elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level will be inspected for exit holes within the stems as they have the potential to host VELB. If the Elderberry shrubs have no stems measuring 1.0 inch or greater in diameter at ground level, they are unlikely to be habitat for the beetle because of their small size and/or immaturity. Therefore, no minimization measures are required for removal of elderberry plants with no stems measuring 1.0 inch or greater in diameter at ground level with no exit holes. If suitable VELB host plants are found and cannot be avoided, then CDFW will be consulted on how to proceed.	If elderberry plants are identified a focused survey will be performed between March and June	Prior to initiating construction activities	OID	Submittal of focused survey.	

Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
BIO-14D	(Formal Consultation): If suitable VELB host plants are detected within Project work areas during the pre-construction survey, and the plants cannot be avoided, the Project proponent will initiate consultation with CDFW and/or USFWS to determine next steps for relocation or to obtain an Incidental Take Permit (ITP).	Prior to the start of construction	Prior to initiating construction activities	OID	Record of consultation submitted to OID.	
Western Pond Turtle						
BIO-15A	(Pre-construction Survey): No more than thirty (30) days prior to the start of construction, a qualified biologist will conduct a pre-construction survey for western pond turtle within the District's Canals, as well as adjacent to the proposed work area. Pre-construction surveys will be conducted in accordance with the <i>United States Geological Survey Western Pond Turtle (Emys marmorata) Visual Survey Protocol for the Southcoast Ecoregion</i> (United States Geological Survey 2006). Surveys will be conducted outside of winter months (December – February). If no western pond turtles are observed during the pre-construction survey, then construction activities may begin. If construction is delayed or halted for more than 90 days, another pre-construction survey for western pond turtle will be conducted. If the surveys result in the identification of a special status species, the qualified biologist should determine if appropriate buffers can be implemented to avoid impacts to the individual(s) or if further surveys are required to avoid impacts to potential nesting sites.	No more than thirty (30) days prior to the start of construction	Prior to construction	OID	Submittal of Pre-construction survey report.	
BIO-15B	(Monitor): If species observations are found, a qualified biologist will conduct a pre-activity clearance survey each day and remain onsite to oversee all vegetation clearing and ground disturbing activities conducted within suitable habitat for western pond turtle. If a listed species is observed within the Project area, the biologist will stop work and allow the species to leave the site of its own volition or contact the appropriate regulatory agency (CDFW and/or USFWS) for guidance on how to proceed.	If species observations are found	During construction and ground disturbing activities	OID	Submittal of pre-activity clearance survey.	
BIO-15C	(ITP): In the event western pond turtles are detected during surveys and cannot be avoided, consultation with CDFW is warranted to discuss how to implement the Project and avoid take. If take cannot be avoided, take authorization through the acquisition of an ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.	In the event western pond turtles are detected during surveys and cannot be avoided	During construction and ground disturbing activities	OID	Record of consultation submitted to OID	
Western Spadefoot						

Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
BIO-16A	(Pre-construction Survey): A qualified biologist will conduct a preconstruction survey within thirty (30) days prior to the start of construction. The goal of this survey will be to identify if any suitable breeding or upland habitat is present within the APE and an additional 100-foot survey area around the designated APE. If no individuals or suitable habitat is observed, no further mitigation is required.	Within thirty (30) days prior to the start of construction	Prior to construction	OID	Submittal of Pre-construction survey report.	
BIO-16B	(Avoidance): On discovery of any suitable habitat near work areas, the biologist will determine appropriate construction setback distances based on applicable CDFW and/or USFWS guidelines for western spadefoot. Construction buffers will be identified with flagging, fencing, or other easily visible means, and will be maintained until the end of the Project. If appropriate construction buffers cannot be maintained a focused survey will be required to determine if western spadefoots are found within the Project area or 100 feet from the Project.	On discovery of any suitable habitat near work areas	During construction and ground disturbing activities	OID	Verified in writing by a qualified biologist.	
BIO-16C	(Focused Survey): If appropriate buffers cannot be maintained, a qualified biologist will conduct a focused survey during the known peak breeding months of this species (February-March), prior to the start of construction. Transects will be walked throughout the entire APE and surrounding lands within 100 feet and vantage points will be used to survey for standing water. If no western spadefoots adults or larvae are observed during the survey, then construction activities may begin. If the survey results in the identification of this special status species, a qualified biologist will consult CDFW to determine if appropriate buffers can be implemented to avoid impacts to individual(s) during construction.	If appropriate buffers cannot be maintained, a qualified biologist will conduct a focused survey during the known peak breeding months of this species (February-March)	Prior to initiating construction activities	OID	Submittal of focused survey.	
BIO-16D	(Monitor): If species observations are found, a qualified biologist will conduct a pre-activity clearance survey each day and remain onsite to oversee all vegetation clearing and ground disturbing activities conducted within suitable habitat for western spadefoot. If a listed species is observed within the Project area, the biologist will stop work and allow the species to leave the site of its own volition or contact the appropriate regulatory agency (CDFW and/or USFWS) for guidance on how to proceed.	Prior to the start of ground disturbing and construction activities	Prior to initiating construction activities	OID	Submittal of pre-activity clearance survey.	
BIO-16E	(Formal Consultation): If western spadefoots are detected during surveys and cannot be avoided, consultation with CDFW is warranted to discuss how to implement the Project and avoid take. If take cannot be avoided, take authorization through the	Prior to the start of ground disturbing and construction activities	Prior to initiating construction activities	OID	Record of consultation submitted to OID.	

Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
	acquisition of an ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.					
Special Status Plant Species						
BIO-17A	(Pre-Construction Survey): A qualified botanist/biologist will conduct focused botanical surveys for Ahart's dwarf rush, beaked clarkia, Colusa grass, delta button-celery, dwarf downingia, Greene's tuctoria, hairy Orcutt grass, Hartweg's golden sunburst, heartscale, Hoover's calycadenia, Merced monardella, Pincushion navarettia, San Joaquin Valley Orcutt grass, spiny-sepaled button-celery, Stanislaus monkeyflower, subtle orache, succulent owl's-clover, Tuolumne button-celery, and veiny monardella according to CDFW's Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (2018) for areas where ground disturbance will occur and prior to the start of construction.	Prior to the start of ground disturbing and construction activities	Prior to construction	OID	Submittal of preconstruction survey report.	
BIO-17B	(Avoidance): If special status plants are identified during a survey, a <u>50 ft.</u> disturbance-free buffer and use of exclusion fencing will be placed around the area so as not to disturb the plants or their root system.	If special status plants are identified during a survey	During construction and ground disturbing activities	OID	Verified by a qualified biologist.	
BIO-17C	(Formal Consultation): If rare plant individuals or populations or sensitive natural communities are detected within Project work areas during the focused botanical survey, and the plants cannot be avoided, the Project proponent will initiate consultation with CDFW and/or USFWS to determine next steps for relocation or to obtain an Incidental Take Permit (ITP).	If rare plant individuals or populations or sensitive natural communities are detected within Project work areas during the focused botanical survey	Prior to initiating construction activities	OID	Record of consultation submitted to OID.	
Sensitive Natural Communities						
BIO-18A	(Desktop Survey): A qualified biologist will perform a desktop survey of the project area to determine if Northern Hardpan Vernal Pool, other vernal pools, riparian habitat, Critical Habitat, or other sensitive natural communities exist within the Program area or has existed in the past. If no suitable habitat is observed, no further mitigation is required.	Prior to the start of ground disturbing and construction activities	Prior to the start of ground disturbing and construction activities	OID	Submittal of preconstruction survey report.	
BIO-18B	(Pre-construction Survey): If areas with suitable habitat were found during the Desktop Survey a qualified biologist will conduct a pre-construction survey of Project areas prior to approving the Project.	Prior to the start of ground disturbing and construction activities	Prior to construction	OID	Submittal of preconstruction survey report.	
BIO-18C	(Avoidance): On discovery of a sensitive natural community, or in the presence of designated Critical Habitat a qualified biologist will determine appropriate construction setback	On discovery of a sensitive natural community	During construction and ground disturbing activities	OID	Qualified biologist will verify buffers.	

Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
	distances (buffer zones) and/or based on applicable CDFW and/or USFWS guidelines. A qualified biologist will determine if this is adequate or if site-specific buffers must be implemented. Construction buffers will be identified with flagging, fencing, or other easily visible means. If appropriate buffer zones cannot be maintained throughout Program activities the Program proponent will need to obtain all necessary permits required by federal, state, and local regulatory agencies.					
Regulated Waters, Wetlands, and Water Quality						
BIO-19A	(Desktop Survey): A qualified biologist will perform a desktop survey of the project area to determine if potential jurisdictional waters or wetlands as defined by Section 404 of the Clean Water Act are present within the Project area or have existed in the past. If no potential jurisdictional waters/wetlands are observed, no further mitigation is required.	Prior to the start of ground disturbing and construction activities	Prior to construction	OID	Submittal of Desktop Survey	
BIO-19B	(Delineation): If areas with suitable habitat were found during the Desktop Survey a qualified biologist will conduct a delineation of Project areas to identify potential jurisdictional waters/wetlands prior to approving the Project.	If areas with suitable habitat were found during	Prior to construction	OID	Verified in writing by a qualified biologist.	
BIO-19C	(Permits and regulations): If potential jurisdictional waters or wetlands are determined to be within the APE or impacted by Project activities, the proponent will ensure all required permits are obtained with all appropriate federal, state, and local regulatory agencies.	If potential jurisdictional waters or wetlands are determined to be within the APE or impacted by Project activities	Prior to construction	OID	Submittal of required permits to OID.	
Wildlife Movement Corridors and Native Wildlife Nursery Sites						
BIO-20A	(Pre-construction Survey): A qualified biologist will conduct a pre-construction survey of construction areas prior to approval. This survey will look for wildlife movement corridors and native wildlife nursery sites. If no suitable habitat is observed, no further mitigation is required.	Prior to the start of ground disturbing and construction activities	Prior to construction	OID	Submittal of preconstruction survey report.	
BIO-20B	(Operational Hours): Construction activities will be limited to daylight hours to reduce potential impacts to wildlife movement corridors.	Daily during ground disturbing activities.	Daily during ground disturbing activities.	OID	Contractor to verify in weekly status report.	
BIO-20C	(Wildlife Access): At no point will access 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 will be identified by a qualified biologist and maintained throughout the construction schedule timeframe.	During construction and ground disturbing activities	Daily during ground disturbing activities.	OID	Contractor to verify in weekly status report.	

Chapter 5- Mitigation, Monitoring, & Reporting Program
10-Year Out-of-District Water Sale Program

Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
BIO-20D	(Cover Excavations): Pipeline/culvert/siphon excavations and vertical pipes shall be covered each night to prevent wildlife from falling in and becoming trapped or injured during migratory or dispersal movements.	Every night during construction activities	During construction and ground disturbing activities	OID	Contractor to verify in weekly status report.	
Cultural Resources						
CUL-1	(Archaeological Resources): In the unlikely event that archaeological resources (sites, features or artifacts) are unearthed or exposed during any stage of Project construction activities, work in the area of discovery will cease until the area is evaluated by a qualified archaeologist. If mitigation is warranted, the project proponent will abide by recommendations of the archaeologist on site.	Daily during ground disturbing activities.	Daily during ground disturbing activities.	OID	Verification of consultation with a qualified archaeologist.	
CUL-2	(Human Remains): In the unlikely event that any human remains are discovered on the Project site, the appropriate County Coroner (Stanislaus County) must be notified of the discovery (California Health and Safety Code, Section 7050.5) and all activities in the immediate area of the find or in any nearby area reasonably suspected to overlie adjacent human remains must cease until appropriate and lawful measures have been implemented. If the Coroner determines that the remains are not recent, but rather of Native American origin, the Coroner will notify the Native American Heritage Commission (NAHC) in Sacramento within 24 hours to permit the NAHC to determine the Most Likely Descendent of the deceased Native American.	Daily during ground disturbing activities.	Daily during ground disturbing activities.	OID	Verification of consultation with Stanislaus County.	
Geology and Soils						
GEO-1	Should paleontological resources be encountered on the Project site, all ground disturbing activities in the area shall stop. A qualified paleontologist shall be contacted to assess the discovery. Mitigation may include monitoring, recording the fossil locality, data recovery and analysis, a final report. Public educational outreach may also be appropriate. Upon completion of the assessment, a report documenting methods, findings, and recommendations shall be prepared and submitted to the Oakdale Irrigation District for review, and (if paleontological materials are recovered) a paleontological repository, such as the University of California Museum of Paleontology.	Upon discovery	Upon discovery	OID	Record of consultation with a qualified paleontologist submitted to OID.	
Hazards and Hazardous Materials						
	See WLD-1 outlined in Wildfire.					
Tribal Cultural Resources						
	See CUL-1 outlined above in Cultural Resources.					
	See CUL-2 outlined above in Cultural Resources.					

Item	Mitigation Measure	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
Wildfire						
WLD-1	OID and/or its contractors shall abide by all fire safety measures discussed below during construction, operation, and maintenance. <ul style="list-style-type: none"> • All construction vehicles shall have fire suppression equipment • Construction personnel shall park vehicles within roads, road shoulders, graveled areas, and/ or cleared areas (i.e., away from dry vegetation) wherever such surfaces are present at the construction site. • Construction workers shall receive training on the proper use of fire-fighting equipment and procedures to be followed in the event of a fire. • No smoking shall be permitted at the construction site and/or near construction vehicles. • Before use of construction equipment that has the potential to produce a spark (e.g., welding), OID and/or its contractors would water the surrounding area prior to work. 	Daily, during construction	Daily	OID	Contractor to verify in weekly status report.	
<i>Table Notes</i>						

CHAPTER 6 REFERENCES

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Appendix A: CalEEMod Output Files

19 Acre Reservoir - Stanislaus County, Annual

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

**19 Acre Reservoir
Stanislaus County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	19.00	Acre	19.00	827,640.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	46
Climate Zone	3			Operational Year	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

- Project Characteristics -
- Land Use -
- Construction Phase - Updated schedule
- Off-road Equipment - Updated equipment
- Off-road Equipment -
- Off-road Equipment -
- Off-road Equipment -
- Grading - Updated acres of grading
- Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	300.00	230.00

19 Acre Reservoir - Stanislaus County, Annual

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

tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	PhaseEndDate	9/13/2024	4/26/2024
tblConstructionPhase	PhaseEndDate	7/19/2024	3/1/2024
tblConstructionPhase	PhaseEndDate	5/26/2023	4/14/2023
tblConstructionPhase	PhaseEndDate	8/16/2024	3/29/2024
tblConstructionPhase	PhaseEndDate	4/14/2023	3/17/2023
tblConstructionPhase	PhaseStartDate	8/17/2024	3/30/2024
tblConstructionPhase	PhaseStartDate	5/27/2023	4/15/2023
tblConstructionPhase	PhaseStartDate	4/15/2023	3/18/2023
tblConstructionPhase	PhaseStartDate	7/20/2024	3/2/2024
tblConstructionPhase	PhaseStartDate	4/1/2023	3/6/2023
tblGrading	AcresOfGrading	20.00	90.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

19 Acre Reservoir - Stanislaus County, Annual

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

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.3286	2.2612	3.1204	8.7800e-003	0.6845	0.0842	0.7686	0.2176	0.0789	0.2965	0.0000	798.5987	798.5987	0.0742	0.0418	812.9205
2024	0.2799	0.5583	0.8660	2.3200e-003	0.1262	0.0204	0.1466	0.0340	0.0192	0.0531	0.0000	210.5281	210.5281	0.0212	0.0101	214.0575
Maximum	0.3286	2.2612	3.1204	8.7800e-003	0.6845	0.0842	0.7686	0.2176	0.0789	0.2965	0.0000	798.5987	798.5987	0.0742	0.0418	812.9205

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.3286	2.2612	3.1204	8.7800e-003	0.5587	0.0842	0.6428	0.1635	0.0789	0.2424	0.0000	798.5984	798.5984	0.0742	0.0418	812.9202
2024	0.2799	0.5583	0.8660	2.3200e-003	0.1262	0.0204	0.1466	0.0340	0.0192	0.0531	0.0000	210.5280	210.5280	0.0212	0.0101	214.0574
Maximum	0.3286	2.2612	3.1204	8.7800e-003	0.5587	0.0842	0.6428	0.1635	0.0789	0.2424	0.0000	798.5984	798.5984	0.0742	0.0418	812.9202

19 Acre Reservoir - Stanislaus County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	15.52	0.00	13.75	21.53	0.00	15.49	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-6-2023	6-5-2023	0.7748	0.7748
2	6-6-2023	9-5-2023	0.7912	0.7912
3	9-6-2023	12-5-2023	0.7936	0.7936
4	12-6-2023	3-5-2024	0.7529	0.7529
5	3-6-2024	6-5-2024	0.3038	0.3038
		Highest	0.7936	0.7936

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0708	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.4000e-004	3.4000e-004	0.0000	0.0000	3.6000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	26.8017	26.8017	4.3400e-003	5.3000e-004	27.0668
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0708	0.0000	1.7000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	26.8021	26.8021	4.3400e-003	5.3000e-004	27.0671

19 Acre Reservoir - Stanislaus County, Annual

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

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0708	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.4000e-004	3.4000e-004	0.0000	0.0000	3.6000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	26.8017	26.8017	4.3400e-003	5.3000e-004	27.0668
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0708	0.0000	1.7000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	26.8021	26.8021	4.3400e-003	5.3000e-004	27.0671

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/6/2023	3/17/2023	5	10	
2	Grading	Grading	3/18/2023	4/14/2023	5	20	
3	Building Construction	Building Construction	4/15/2023	3/1/2024	5	230	

19 Acre Reservoir - Stanislaus County, Annual

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

4	Paving	Paving	3/2/2024	3/29/2024	5	20
5	Architectural Coating	Architectural Coating	3/30/2024	4/26/2024	5	20

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 90

Acres of Paving: 19

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 49,658 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Grading	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

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

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	70.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	348.00	136.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7254	16.7254	5.4100e-003	0.0000	16.8606
Total	0.0133	0.1376	0.0912	1.9000e-004	0.0983	6.3300e-003	0.1046	0.0505	5.8200e-003	0.0563	0.0000	16.7254	16.7254	5.4100e-003	0.0000	16.8606

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

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.7000e-004	3.3900e-003	1.0000e-005	1.1200e-003	1.0000e-005	1.1200e-003	3.0000e-004	1.0000e-005	3.0000e-004	0.0000	0.8915	0.8915	2.0000e-005	2.0000e-005	0.8992
Total	3.9000e-004	2.7000e-004	3.3900e-003	1.0000e-005	1.1200e-003	1.0000e-005	1.1200e-003	3.0000e-004	1.0000e-005	3.0000e-004	0.0000	0.8915	0.8915	2.0000e-005	2.0000e-005	0.8992

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0383	0.0000	0.0383	0.0197	0.0000	0.0197	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7253	16.7253	5.4100e-003	0.0000	16.8606
Total	0.0133	0.1376	0.0912	1.9000e-004	0.0383	6.3300e-003	0.0447	0.0197	5.8200e-003	0.0255	0.0000	16.7253	16.7253	5.4100e-003	0.0000	16.8606

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

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.7000e-004	3.3900e-003	1.0000e-005	1.1200e-003	1.0000e-005	1.1200e-003	3.0000e-004	1.0000e-005	3.0000e-004	0.0000	0.8915	0.8915	2.0000e-005	2.0000e-005	0.8992
Total	3.9000e-004	2.7000e-004	3.3900e-003	1.0000e-005	1.1200e-003	1.0000e-005	1.1200e-003	3.0000e-004	1.0000e-005	3.0000e-004	0.0000	0.8915	0.8915	2.0000e-005	2.0000e-005	0.8992

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1079	0.0000	0.1079	0.0383	0.0000	0.0383	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.1794	0.1475	3.0000e-004		7.7500e-003	7.7500e-003		7.1300e-003	7.1300e-003	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713
Total	0.0171	0.1794	0.1475	3.0000e-004	0.1079	7.7500e-003	0.1157	0.0383	7.1300e-003	0.0454	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713

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

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.5000e-004	5.6500e-003	2.0000e-005	1.8600e-003	1.0000e-005	1.8700e-003	5.0000e-004	1.0000e-005	5.0000e-004	0.0000	1.4859	1.4859	4.0000e-005	4.0000e-005	1.4987
Total	6.5000e-004	4.5000e-004	5.6500e-003	2.0000e-005	1.8600e-003	1.0000e-005	1.8700e-003	5.0000e-004	1.0000e-005	5.0000e-004	0.0000	1.4859	1.4859	4.0000e-005	4.0000e-005	1.4987

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0421	0.0000	0.0421	0.0149	0.0000	0.0149	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.1794	0.1475	3.0000e-004		7.7500e-003	7.7500e-003		7.1300e-003	7.1300e-003	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713
Total	0.0171	0.1794	0.1475	3.0000e-004	0.0421	7.7500e-003	0.0499	0.0149	7.1300e-003	0.0221	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713

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

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	4.5000e-004	5.6500e-003	2.0000e-005	1.8600e-003	1.0000e-005	1.8700e-003	5.0000e-004	1.0000e-005	5.0000e-004	0.0000	1.4859	1.4859	4.0000e-005	4.0000e-005	1.4987
Total	6.5000e-004	4.5000e-004	5.6500e-003	2.0000e-005	1.8600e-003	1.0000e-005	1.8700e-003	5.0000e-004	1.0000e-005	5.0000e-004	0.0000	1.4859	1.4859	4.0000e-005	4.0000e-005	1.4987

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1455	1.3306	1.5026	2.4900e-003		0.0647	0.0647		0.0609	0.0609	0.0000	214.4194	214.4194	0.0510	0.0000	215.6946
Total	0.1455	1.3306	1.5026	2.4900e-003		0.0647	0.0647		0.0609	0.0609	0.0000	214.4194	214.4194	0.0510	0.0000	215.6946

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

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0127	0.5157	0.1571	2.2900e-003	0.0753	3.1700e-003	0.0785	0.0218	3.0400e-003	0.0248	0.0000	220.1520	220.1520	1.0100e-003	0.0333	230.0855
Worker	0.1389	0.0971	1.2130	3.4800e-003	0.3999	2.1800e-003	0.4021	0.1063	2.0100e-003	0.1083	0.0000	318.8640	318.8640	8.2800e-003	8.5200e-003	321.6107
Total	0.1516	0.6129	1.3701	5.7700e-003	0.4752	5.3500e-003	0.4806	0.1280	5.0500e-003	0.1331	0.0000	539.0160	539.0160	9.2900e-003	0.0418	551.6962

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1455	1.3306	1.5026	2.4900e-003		0.0647	0.0647		0.0609	0.0609	0.0000	214.4191	214.4191	0.0510	0.0000	215.6943
Total	0.1455	1.3306	1.5026	2.4900e-003		0.0647	0.0647		0.0609	0.0609	0.0000	214.4191	214.4191	0.0510	0.0000	215.6943

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

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0127	0.5157	0.1571	2.2900e-003	0.0753	3.1700e-003	0.0785	0.0218	3.0400e-003	0.0248	0.0000	220.1520	220.1520	1.0100e-003	0.0333	230.0855
Worker	0.1389	0.0971	1.2130	3.4800e-003	0.3999	2.1800e-003	0.4021	0.1063	2.0100e-003	0.1083	0.0000	318.8640	318.8640	8.2800e-003	8.5200e-003	321.6107
Total	0.1516	0.6129	1.3701	5.7700e-003	0.4752	5.3500e-003	0.4806	0.1280	5.0500e-003	0.1331	0.0000	539.0160	539.0160	9.2900e-003	0.0418	551.6962

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0331	0.3025	0.3638	6.1000e-004		0.0138	0.0138		0.0130	0.0130	0.0000	52.1661	52.1661	0.0123	0.0000	52.4744
Total	0.0331	0.3025	0.3638	6.1000e-004		0.0138	0.0138		0.0130	0.0130	0.0000	52.1661	52.1661	0.0123	0.0000	52.4744

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

3.4 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0200e-003	0.1255	0.0374	5.5000e-004	0.0183	7.8000e-004	0.0191	5.2900e-003	7.4000e-004	6.0400e-003	0.0000	52.6829	52.6829	2.4000e-004	7.9500e-003	55.0593
Worker	0.0312	0.0207	0.2711	8.2000e-004	0.0973	5.0000e-004	0.0978	0.0259	4.6000e-004	0.0263	0.0000	74.9618	74.9618	1.8000e-003	1.9000e-003	75.5744
Total	0.0342	0.1461	0.3085	1.3700e-003	0.1156	1.2800e-003	0.1169	0.0311	1.2000e-003	0.0324	0.0000	127.6447	127.6447	2.0400e-003	9.8500e-003	130.6337

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0331	0.3025	0.3638	6.1000e-004		0.0138	0.0138		0.0130	0.0130	0.0000	52.1660	52.1660	0.0123	0.0000	52.4744
Total	0.0331	0.3025	0.3638	6.1000e-004		0.0138	0.0138		0.0130	0.0130	0.0000	52.1660	52.1660	0.0123	0.0000	52.4744

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3.4 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0200e-003	0.1255	0.0374	5.5000e-004	0.0183	7.8000e-004	0.0191	5.2900e-003	7.4000e-004	6.0400e-003	0.0000	52.6829	52.6829	2.4000e-004	7.9500e-003	55.0593
Worker	0.0312	0.0207	0.2711	8.2000e-004	0.0973	5.0000e-004	0.0978	0.0259	4.6000e-004	0.0263	0.0000	74.9618	74.9618	1.8000e-003	1.9000e-003	75.5744
Total	0.0342	0.1461	0.3085	1.3700e-003	0.1156	1.2800e-003	0.1169	0.0311	1.2000e-003	0.0324	0.0000	127.6447	127.6447	2.0400e-003	9.8500e-003	130.6337

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1885
Paving	0.0249					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0348	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1885

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3.5 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	4.0000e-004	5.1900e-003	2.0000e-005	1.8600e-003	1.0000e-005	1.8700e-003	5.0000e-004	1.0000e-005	5.0000e-004	0.0000	1.4361	1.4361	3.0000e-005	4.0000e-005	1.4478
Total	6.0000e-004	4.0000e-004	5.1900e-003	2.0000e-005	1.8600e-003	1.0000e-005	1.8700e-003	5.0000e-004	1.0000e-005	5.0000e-004	0.0000	1.4361	1.4361	3.0000e-005	4.0000e-005	1.4478

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1884
Paving	0.0249					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0348	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1884

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3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	4.0000e-004	5.1900e-003	2.0000e-005	1.8600e-003	1.0000e-005	1.8700e-003	5.0000e-004	1.0000e-005	5.0000e-004	0.0000	1.4361	1.4361	3.0000e-005	4.0000e-005	1.4478
Total	6.0000e-004	4.0000e-004	5.1900e-003	2.0000e-005	1.8600e-003	1.0000e-005	1.8700e-003	5.0000e-004	1.0000e-005	5.0000e-004	0.0000	1.4361	1.4361	3.0000e-005	4.0000e-005	1.4478

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1726					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5569
Total	0.1744	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5569

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

3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7900e-003	1.8500e-003	0.0242	7.0000e-005	8.7000e-003	5.0000e-005	8.7400e-003	2.3100e-003	4.0000e-005	2.3500e-003	0.0000	6.7016	6.7016	1.6000e-004	1.7000e-004	6.7563
Total	2.7900e-003	1.8500e-003	0.0242	7.0000e-005	8.7000e-003	5.0000e-005	8.7400e-003	2.3100e-003	4.0000e-005	2.3500e-003	0.0000	6.7016	6.7016	1.6000e-004	1.7000e-004	6.7563

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1726					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5568
Total	0.1744	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5568

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3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7900e-003	1.8500e-003	0.0242	7.0000e-005	8.7000e-003	5.0000e-005	8.7400e-003	2.3100e-003	4.0000e-005	2.3500e-003	0.0000	6.7016	6.7016	1.6000e-004	1.7000e-004	6.7563
Total	2.7900e-003	1.8500e-003	0.0242	7.0000e-005	8.7000e-003	5.0000e-005	8.7400e-003	2.3100e-003	4.0000e-005	2.3500e-003	0.0000	6.7016	6.7016	1.6000e-004	1.7000e-004	6.7563

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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.523257	0.051970	0.166194	0.158016	0.032160	0.007890	0.013191	0.016111	0.000841	0.000303	0.024837	0.001374	0.003856

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	289674	26.8017	4.3400e-003	5.3000e-004	27.0668
Total		26.8017	4.3400e-003	5.3000e-004	27.0668

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	289674	26.8017	4.3400e-003	5.3000e-004	27.0668
Total		26.8017	4.3400e-003	5.3000e-004	27.0668

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0708	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.4000e-004	3.4000e-004	0.0000	0.0000	3.6000e-004
Unmitigated	0.0708	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.4000e-004	3.4000e-004	0.0000	0.0000	3.6000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0173					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0535					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.4000e-004	3.4000e-004	0.0000	0.0000	3.6000e-004
Total	0.0708	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.4000e-004	3.4000e-004	0.0000	0.0000	3.6000e-004

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0173					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0535					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.4000e-004	3.4000e-004	0.0000	0.0000	3.6000e-004
Total	0.0708	0.0000	1.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.4000e-004	3.4000e-004	0.0000	0.0000	3.6000e-004

7.0 Water Detail

7.1 Mitigation Measures Water

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

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

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7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

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

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	2.00	1000sqft	0.05	2,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	46
Climate Zone	3			Operational Year	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MW hr)	203.98	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -
 Land Use -
 Construction Phase -
 Architectural Coating - No parking area
 Area Coating - No parking area

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	120.00	0.00
tblAreaCoating	Area_Parking	120	0
tblConstructionPhase	PhaseEndDate	6/21/2023	6/7/2023
tblConstructionPhase	PhaseEndDate	6/7/2023	5/24/2023
tblConstructionPhase	PhaseEndDate	1/18/2023	1/4/2023

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tblConstructionPhase	PhaseEndDate	6/14/2023	5/31/2023
tblConstructionPhase	PhaseEndDate	1/16/2023	1/2/2023
tblConstructionPhase	PhaseStartDate	6/15/2023	6/1/2023
tblConstructionPhase	PhaseStartDate	1/19/2023	1/5/2023
tblConstructionPhase	PhaseStartDate	1/17/2023	1/3/2023
tblConstructionPhase	PhaseStartDate	6/8/2023	5/25/2023
tblConstructionPhase	PhaseStartDate	1/14/2023	1/2/2023

2.0 Emissions Summary

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-2-2023	4-1-2023	0.2296	0.2296
2	4-2-2023	7-1-2023	0.1529	0.1529
		Highest	0.2296	0.2296

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.3000e-004	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0648	0.0648	1.0000e-005	0.0000	0.0654
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.3000e-004	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0648	0.0648	1.0000e-005	0.0000	0.0655

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.3000e-004	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0648	0.0648	1.0000e-005	0.0000	0.0654
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.3000e-004	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0648	0.0648	1.0000e-005	0.0000	0.0655

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/2/2023	1/2/2023	5	1	
2	Grading	Grading	1/3/2023	1/4/2023	5	2	
3	Building Construction	Building Construction	1/5/2023	5/24/2023	5	100	

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4	Paving	Paving	5/25/2023	5/31/2023	5	5
5	Architectural Coating	Architectural Coating	6/1/2023	6/7/2023	5	5

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0.05

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

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Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7000e-004	3.0900e-003	1.9600e-003	0.0000		1.1000e-004	1.1000e-004		1.0000e-004	1.0000e-004	0.0000	0.4275	0.4275	1.4000e-004	0.0000	0.4309
Total	2.7000e-004	3.0900e-003	1.9600e-003	0.0000	2.7000e-004	1.1000e-004	3.8000e-004	3.0000e-005	1.0000e-004	1.3000e-004	0.0000	0.4275	0.4275	1.4000e-004	0.0000	0.4309

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

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0161	0.0161	0.0000	0.0000	0.0162
Total	1.0000e-005	1.0000e-005	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0161	0.0161	0.0000	0.0000	0.0162

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7000e-004	3.0900e-003	1.9600e-003	0.0000		1.1000e-004	1.1000e-004		1.0000e-004	1.0000e-004	0.0000	0.4275	0.4275	1.4000e-004	0.0000	0.4309
Total	2.7000e-004	3.0900e-003	1.9600e-003	0.0000	2.7000e-004	1.1000e-004	3.8000e-004	3.0000e-005	1.0000e-004	1.3000e-004	0.0000	0.4275	0.4275	1.4000e-004	0.0000	0.4309

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3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0161	0.0161	0.0000	0.0000	0.0162
Total	1.0000e-005	1.0000e-005	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0161	0.0161	0.0000	0.0000	0.0162

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3100e-003	0.0000	5.3100e-003	2.5700e-003	0.0000	2.5700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3000e-004	0.0102	5.5500e-003	1.0000e-005		4.2000e-004	4.2000e-004		3.9000e-004	3.9000e-004	0.0000	1.2381	1.2381	4.0000e-004	0.0000	1.2481
Total	9.3000e-004	0.0102	5.5500e-003	1.0000e-005	5.3100e-003	4.2000e-004	5.7300e-003	2.5700e-003	3.9000e-004	2.9600e-003	0.0000	1.2381	1.2381	4.0000e-004	0.0000	1.2481

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3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.1000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0515	0.0515	0.0000	0.0000	0.0520
Total	3.0000e-005	2.0000e-005	2.1000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0515	0.0515	0.0000	0.0000	0.0520

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3100e-003	0.0000	5.3100e-003	2.5700e-003	0.0000	2.5700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3000e-004	0.0102	5.5500e-003	1.0000e-005		4.2000e-004	4.2000e-004		3.9000e-004	3.9000e-004	0.0000	1.2381	1.2381	4.0000e-004	0.0000	1.2481
Total	9.3000e-004	0.0102	5.5500e-003	1.0000e-005	5.3100e-003	4.2000e-004	5.7300e-003	2.5700e-003	3.9000e-004	2.9600e-003	0.0000	1.2381	1.2381	4.0000e-004	0.0000	1.2481

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3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.1000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0515	0.0515	0.0000	0.0000	0.0520
Total	3.0000e-005	2.0000e-005	2.1000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0515	0.0515	0.0000	0.0000	0.0520

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0316	0.3209	0.3549	5.7000e-004		0.0160	0.0160		0.0147	0.0147	0.0000	50.1042	50.1042	0.0162	0.0000	50.5093
Total	0.0316	0.3209	0.3549	5.7000e-004		0.0160	0.0160		0.0147	0.0147	0.0000	50.1042	50.1042	0.0162	0.0000	50.5093

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3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.1000e-004	1.3100e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3216	0.3216	1.0000e-005	1.0000e-005	0.3247
Total	1.6000e-004	1.1000e-004	1.3100e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3216	0.3216	1.0000e-005	1.0000e-005	0.3247

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0316	0.3209	0.3549	5.7000e-004		0.0160	0.0160		0.0147	0.0147	0.0000	50.1042	50.1042	0.0162	0.0000	50.5093
Total	0.0316	0.3209	0.3549	5.7000e-004		0.0160	0.0160		0.0147	0.0147	0.0000	50.1042	50.1042	0.0162	0.0000	50.5093

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

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.1000e-004	1.3100e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3216	0.3216	1.0000e-005	1.0000e-005	0.3247
Total	1.6000e-004	1.1000e-004	1.3100e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3216	0.3216	1.0000e-005	1.0000e-005	0.3247

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.5300e-003	0.0138	0.0176	3.0000e-005		6.6000e-004	6.6000e-004		6.2000e-004	6.2000e-004	0.0000	2.3498	2.3498	6.8000e-004	0.0000	2.3669
Paving	7.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.6000e-003	0.0138	0.0176	3.0000e-005		6.6000e-004	6.6000e-004		6.2000e-004	6.2000e-004	0.0000	2.3498	2.3498	6.8000e-004	0.0000	2.3669

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

3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.0000e-004	1.1800e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2894	0.2894	1.0000e-005	1.0000e-005	0.2922
Total	1.5000e-004	1.0000e-004	1.1800e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2894	0.2894	1.0000e-005	1.0000e-005	0.2922

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.5300e-003	0.0138	0.0176	3.0000e-005		6.6000e-004	6.6000e-004		6.2000e-004	6.2000e-004	0.0000	2.3498	2.3498	6.8000e-004	0.0000	2.3669
Paving	7.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.6000e-003	0.0138	0.0176	3.0000e-005		6.6000e-004	6.6000e-004		6.2000e-004	6.2000e-004	0.0000	2.3498	2.3498	6.8000e-004	0.0000	2.3669

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3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.0000e-004	1.1800e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2894	0.2894	1.0000e-005	1.0000e-005	0.2922
Total	1.5000e-004	1.0000e-004	1.1800e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2894	0.2894	1.0000e-005	1.0000e-005	0.2922

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8000e-004	3.2600e-003	4.5300e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6393
Total	4.8000e-004	3.2600e-003	4.5300e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6393

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3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8000e-004	3.2600e-003	4.5300e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6393
Total	4.8000e-004	3.2600e-003	4.5300e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6393

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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.523257	0.051970	0.166194	0.158016	0.032160	0.007890	0.013191	0.016111	0.000841	0.000303	0.024837	0.001374	0.003856

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	700	0.0648	1.0000e-005	0.0000	0.0654
Total		0.0648	1.0000e-005	0.0000	0.0654

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	700	0.0648	1.0000e-005	0.0000	0.0654
Total		0.0648	1.0000e-005	0.0000	0.0654

6.0 Area Detail

6.1 Mitigation Measures Area

Turnout Construction - Stanislaus County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.3000e-004	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005
Unmitigated	1.3000e-004	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005
Total	1.3000e-004	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005

Turnout Construction - Stanislaus County, Annual

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005
Total	1.3000e-004	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005

7.0 Water Detail

7.1 Mitigation Measures Water

Turnout Construction - Stanislaus County, Annual

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

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Turnout Construction - Stanislaus County, Annual

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

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

Turnout Construction - Stanislaus County, Annual

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

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

Turnout Construction - Stanislaus County, Annual

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

The maximum pounds per day in row 11 is summed over overlapping phases, but the maximum tons per phase in row 34 is not summed over overlapping phases.

Road Construction Emissions Model, Version 9.0.1

Daily Emission Estimates for -> Pipeline														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.49	7.73	4.43	5.22	0.22	5.00	1.23	0.19	1.04	0.01	1,241.32	0.33	0.02	1,254.19
Drainage/Utilities/Sub-Grade	0.49	7.73	4.38	5.22	0.22	5.00	1.23	0.19	1.04	0.01	1,239.36	0.33	0.02	1,252.14
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (pounds/day)	0.49	7.73	4.43	5.22	0.22	5.00	1.23	0.19	1.04	0.01	1,241.32	0.33	0.02	1,254.19
Total (tons/construction project)	0.06	1.02	0.58	0.69	0.03	0.66	0.16	0.02	0.14	0.00	163.72	0.04	0.00	165.42

Notes:
 Project Start Year -> 2023
 Project Length (months) -> 12
 Total Project Area (acres) -> 7
 Maximum Area Disturbed/Day (acres) -> 1
 Water Truck Used? -> Yes

Phase	Total Material Imported/Exported Volume (yd ³ /day)		Daily VMT (miles/day)			
	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	0	0
Grading/Excavation	326	0	2	0	280	0
Drainage/Utilities/Sub-Grade	234	0	1	0	280	0
Paving	0	0	0	0	0	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Pipeline														
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.03	0.51	0.29	0.34	0.01	0.33	0.08	0.01	0.07	0.00	81.93	0.02	0.00	75.09
Drainage/Utilities/Sub-Grade	0.03	0.51	0.29	0.34	0.01	0.33	0.08	0.01	0.07	0.00	81.80	0.02	0.00	74.97
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum (tons/phase)	0.03	0.51	0.29	0.34	0.01	0.33	0.08	0.01	0.07	0.00	81.93	0.02	0.00	75.09
Total (tons/construction project)	0.06	1.02	0.58	0.69	0.03	0.66	0.16	0.02	0.14	0.00	163.72	0.04	0.00	150.07

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Appendix B: Biological Evaluation Report

Biological Evaluation

OAKDALE IRRIGATION DISTRICT

10-YEAR OUT-OF-DISTRICT WATER SALES PROGRAM

DECEMBER 2022

Roman Endicott, Biologist

PROVOST & PRITCHARD CONSULTING GROUP | 455 W. FIR AVE, CLOVIS CA 93611



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I. Introduction

The following technical report, prepared by Provost & Pritchard Consulting Group, in compliance with the California Environmental Quality Act (CEQA) and includes a description of the biological resources present or with potential to occur within the proposed 10-Year Out of District Water Sales Program (Project) and surrounding areas, and evaluates potential Project-related impacts to those resources.

Project Description

Oakdale Irrigation District (District) wishes to provide a method for eligible lands to contract with the District for out-of-district water service for 10 years to put the District's conserved water to beneficial use and avoid the need for annual out-of-district water sales contracts. The Project is intended to allow some growers to utilize the surplus surface water in lieu of pumping groundwater, which would increase the beneficial use of the surface water in the area and assist with meeting the requirements of the Sustainable Groundwater Management Act (SGMA). The Project would be limited to lands that are already irrigated and developed and can receive District water from existing and proposed temporary or permanent delivery facilities within District rights-of-way. The activities which require ground disturbance include the construction of several turnouts within District right-of-way. Landowners will be responsible for the construction of pipelines to receive the water from District facilities.

The Project is located in Stanislaus County, California (see **Figure 1** and **Figure 2**). The biological evaluation for the Project is split into two separate assessments:

- Project Area I (referred to as the Area of Potential Effect (APE)) - Project activities that are known by the District and where a reconnaissance-level survey was performed to physically identify those specific impacts which The APE includes multiple turnouts totaling approximately eight acres with an additional 50-foot survey area around each turnout location (see Proposed Turnouts in **Figure 3**); and
- Project Area II (referred to as the Landowner Participant Area (LPA)) - Remaining locations within the District's Program boundary where Project activities are unknown and would be implemented by the landowner once they have been approved into the Program. Potential impacts in these areas were identified using historical and current aerial photography and resource databases only. A reconnaissance-level survey was not performed in the remaining Program boundary (see Project Parcels in **Figure 3**).

Report Objectives

Construction activities such as that proposed by the Project could potentially damage biological resources or modify habitats that are crucial 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:

1. The presence of sensitive biological resources onsite, or with the potential to occur onsite.
2. The federal, State, and local regulations regarding these resources.
3. 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:

1. Summarize all site-specific information related to existing biological resources.

2. Make reasonable inferences about the biological resources that could occur onsite based on habitat suitability and the proximity of the site to a species' known range.
3. Summarize all State and federal natural resource protection laws that may be relevant to the APE.
4. Identify and discuss Project impacts to biological resources likely to occur onsite within the context of CEQA and/or State or federal laws.
5. Identify and publish a set of avoidance and mitigation measures that would reduce impacts to a less-than-significant level (as identified by CEQA) and are generally consistent with recommendations of the resource agencies for affected biological resources.

Oakdale Irrigation District

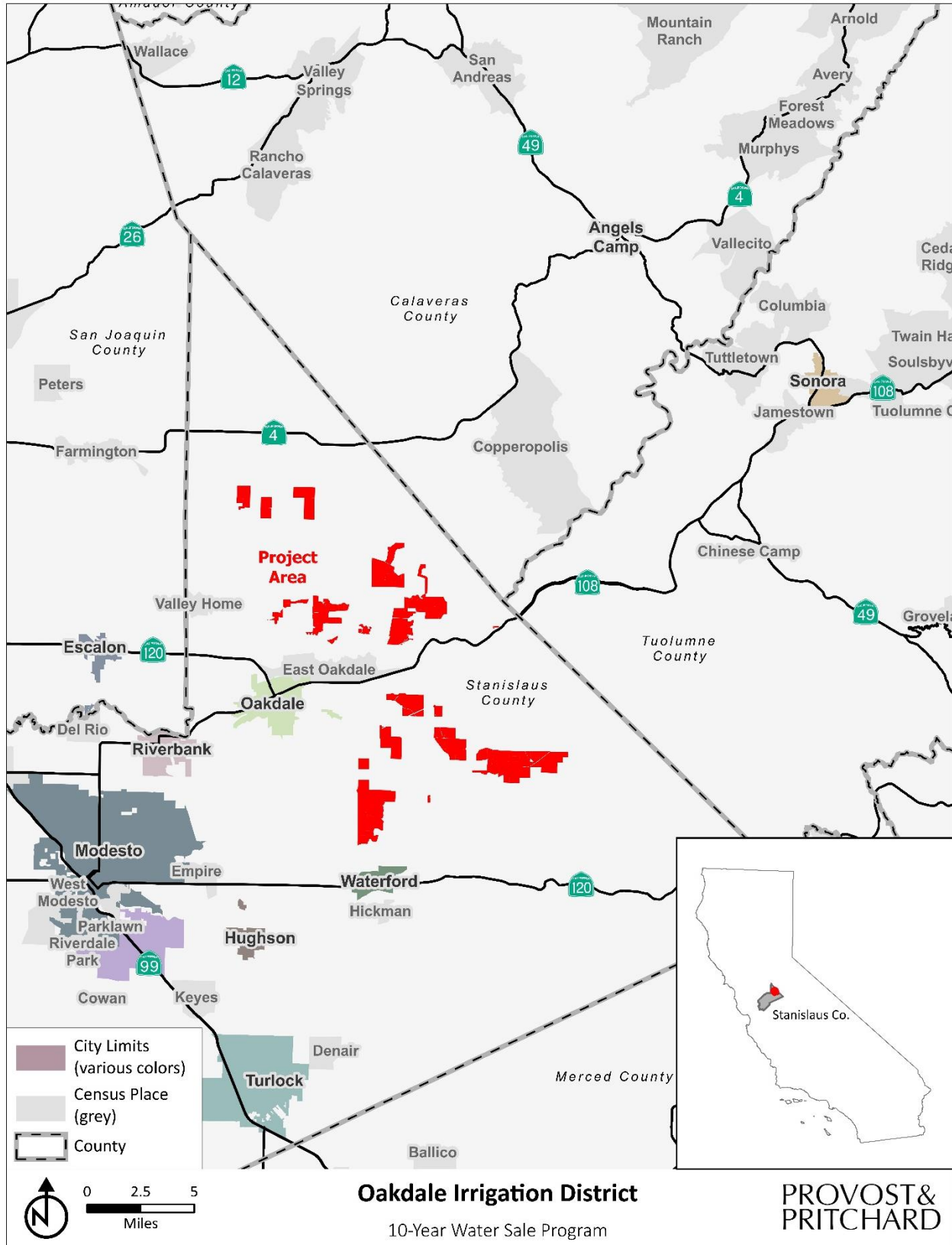


Figure 1. Regional Location

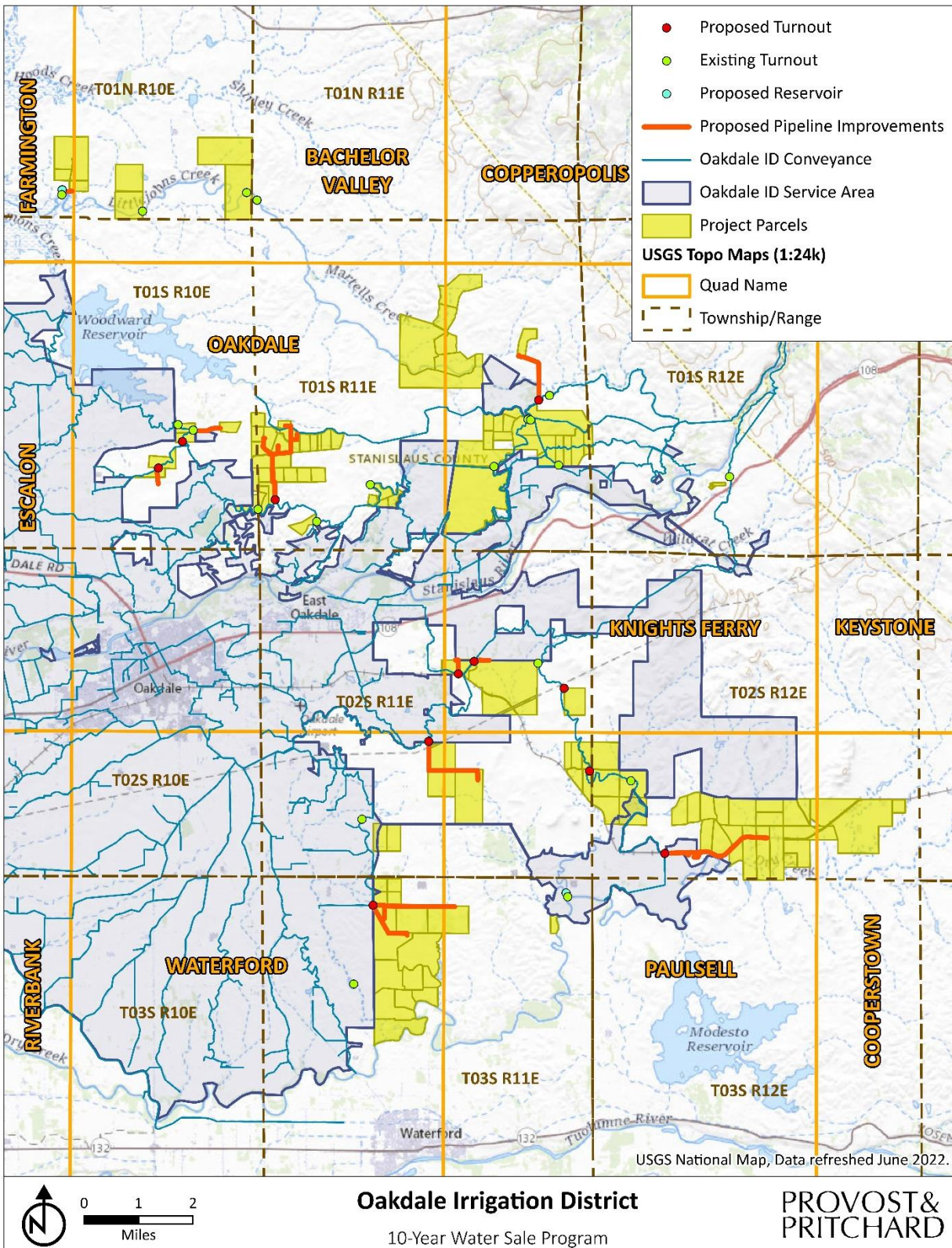


Figure 2. Topographic Quadrangle Map

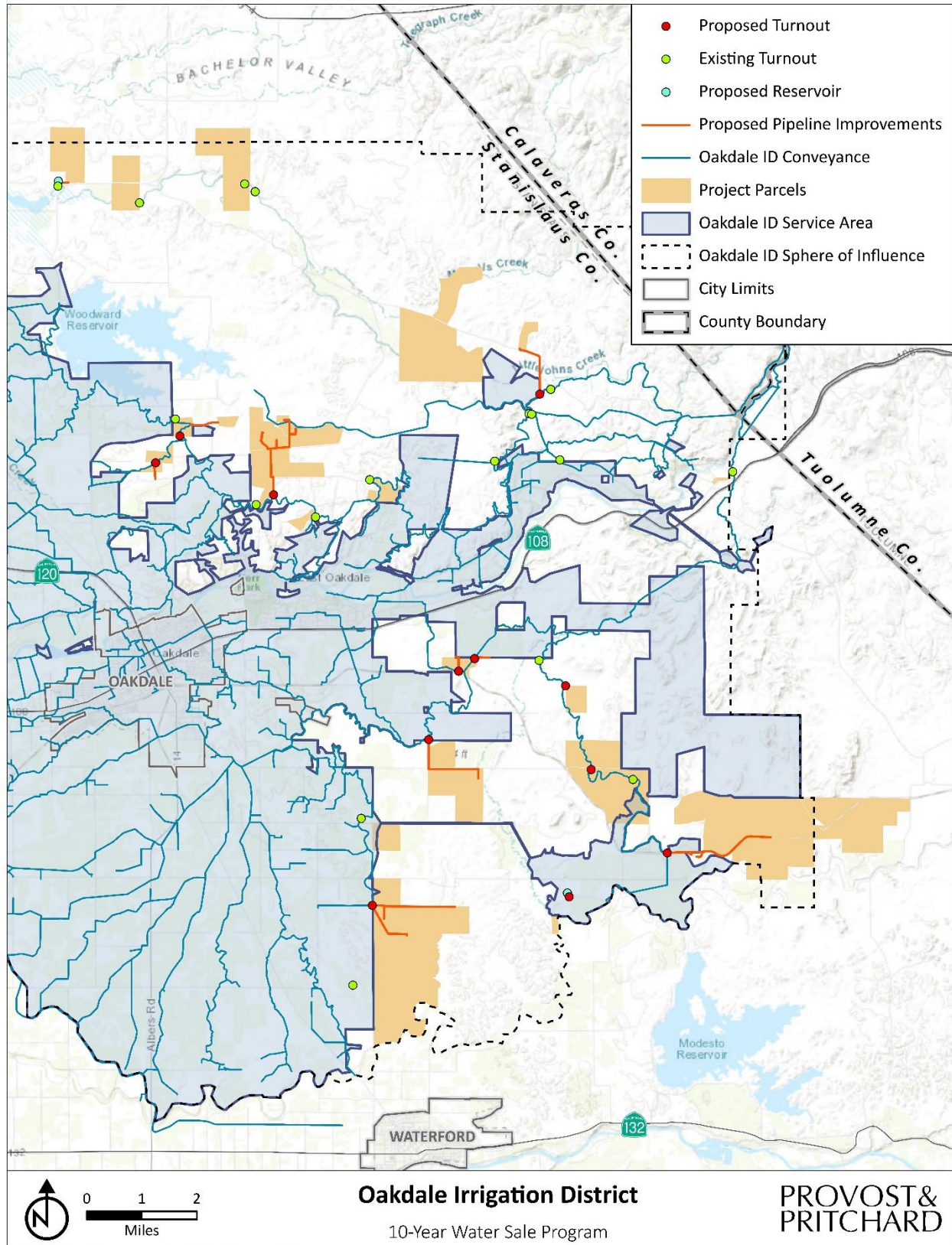


Figure 3. Area of Potential Effect

II. Project Area I - Area of Potential Effect

Study Methodology

A reconnaissance-level field survey of the APE (**Figure 3**) was conducted on November 2, 2022, by Provost & Pritchard biologist, Shaylea Stark. The survey consisted of walking and driving thoroughly through the APE while identifying and noting land uses, biological habitats and communities, plant and animal species encountered and assessed for suitable habitats of various wildlife species.

The biologist conducted an analysis of potential Project-related impacts to biological resources based on the resources known to exist or with potential to exist within the APE. Sources of information used in preparation of this analysis included: the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB); the California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Vascular Plants of California; CalFlora's online database of California native plants; the Jepson Herbarium online database (Jepson eFlora); United States Fish and Wildlife Service (USFWS) Environmental Conservation Online System (ECOS); Information for Planning and Consultation (IPaC) system; the NatureServe Explorer online database; the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Plants Database; CDFW California Wildlife Habitat Relationships (CWHR) database; the California Herps online database; and various manuals, reports, and references related to plants and animals of the San Joaquin Valley region.

The field investigation 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 the Project. Furthermore, the field survey was sufficient to generally describe those features of the Project that could be subject to the jurisdiction of federal and/or State agencies, such as the United States Army Corps of Engineers (USACE), CDFW, Regional Water Quality Control Board (RWQCB) and State Water Resources Control Board (SWRCB) and used to support CEQA documents.

Existing Conditions

Regional Setting

Topography

The APE is located in Stanislaus County within the San Joaquin Valley, in various locations surrounding Oakdale, California (see [Figure 1](#) and [Figure 2](#)). This area lies just east of the foothills of the Sierra Nevada Mountain Range. The topography is relatively flat with elevations ranging from approximately 200 to 300 feet.

Climate

Like most of California, the APE experiences a Mediterranean climate. Warm, dry summers are followed by cool, moist winters. Summer temperatures range between 70- and 80-degrees Fahrenheit (F), but can exceed 90-degrees F. Winter minimum temperatures are near 40-degrees F. The average annual precipitation is approximately 21 inches, falling mainly from October to April (Weather Spark, 2022).

Hydrology

The Project area lies within multiple watersheds. The principal drainage comes from the mainstem of the Stanislaus River. The watersheds begin as rainfall events or snowmelt from the west slopes of the Sierra Nevada Mountain Range, which collect into the Stanislaus River and feed into New Melones Lake, where the Stanislaus River is intercepted by New Melones Dam. Downstream of New Melones Lake, the river flows west into the Tulloch Reservoir and again into the Goodwin Dam Reservoir. It is at Goodwin Dam that water is distributed into District canals which make their way to the APE.

The APE lies within four watersheds, Lone Tree Creek; Hydrologic Unit Code (HUC): 1804005103, Littlejohns Creek; HUC: 1804005102, Lower Stanislaus River; HUC: 1804001007, Dry Creek; HUC: 1804000913 and seven subwatersheds, Upper Lone Tree Creek; HUC: 180400510301, Peachys Creek-Littlejohns Creek; HUC: 180400510203, Rodden Creek-Stanislaus River; HUC: 180400100702, Town of Oakdale-Stanislaus River; HUC: 180400100703, Cashman Creek; HUC: 180400091305, Town of Oakdale-Dry Creek; HUC: 180400091306, and Dry Creek; HUC: 180400091307.

Soils

Seventeen soil mapping units representing 13 soil types were identified within the APE are listed in [Table 1](#). The soils are displayed with their core properties in the table below.

Table 1. List of Soils Located Onsite and Their Basic Properties

Soil	Soil Map Unit	Percent of APE	Hydric Unit	Hydric Minor Units	Drainage	Permeability	Runoff
<i>Alamo</i>	Clay, 0 to 2 percent slopes	5.8%	Yes	No	Poorly drained	Very slow	Very high
<i>Honcut</i>	Fine sandy loam, 0 to 1 percent slopes	9.9%	No	No	Well drained	Moderately rapid	Very low runoff
<i>Hopeton</i>	Clay loam, 0 to 3 percent slopes	2.1%	No	No	Moderately well drained	Medium permeability	High
<i>Montpellier</i>	Coarse sandy loam, 3 to 8 percent slopes	3.6%	No	No	Well drained	Moderately slow permeability	High
<i>Pentz</i>	Gravelly loam, 8 to 30 percent slopes	12.1%	No	No	Well drained	Medium permeability	Low runoff

Soil	Soil Map Unit	Percent of APE	Hydric Unit	Hydric Minor Units	Drainage	Permeability	Runoff
Pentz-Peters	Association, 2 to 8 percent slopes	3.9%	No	No	Well drained	Medium permeability	Medium
Peters	Clay, 2 to 8 percent slopes	0.0%	No	Yes	Well drained	High permeability	Very high
	Clay, 8 to 15 percent slopes	3.3%	No	No	Well drained	High permeability	Very high
	Cobbly clay, 8 to 15 percent slopes	6.9%	No	No	Well drained	High permeability	High
Peters-Pentz	Complex, 0 to 8 percent slopes	0.9%	No	No	Well drained	Medium permeability	Medium
	Complex, 8 to 15 percent slopes	5.7%	No	No	Well drained	Medium permeability	Medium
	Association, 2 to 8 percent slopes	12.3%	No	No	Well drained	Medium permeability	Medium
Psammentic Haploxerolls-Mollic Fluvaquents-Riverwash	Complex, 0 to 8 percent slopes	6.9%	Yes	-	-	-	-
Raynor	Clay, 0 to 3 percent slopes	3.4%	No	No	Well drained	Low permeability	High
San Joaquin	Sandy loam, 2 to 5 percent slopes	4.0%	No	No	Moderately well drained	Very slow permeability	Medium
Terrace Escarpments	Loamy sand, 30 to 50 percent slopes	3.5%	No	-	Excessively drained	-	Very high
Whitney	Sandy loams, 3 to 8 percent slopes	15.7%	No	No	Well drained	Moderately rapid permeability	Medium

Two of the major soil mapping units and none of the minor soil mapping units were identified as hydric. The major and minor soils which are hydric make up approximately 12.7% of the soil in the APE (NRCS, 2022). 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.

The complete Natural Resources Conservation Service (NRCS) Web Soil Survey report is available in [Appendix E](#) at the end of this document.

Biotic Habitats

OID Distribution Canals

At the time of survey, the OID irrigation season had just ended, and some water was still present within the canals. The species identified in and around the canals included American Pipet (*Anthus rubescens*), American Robin (*Turdus migratorius*), Black Pheobe (*Sayornis nigricans*), Brewers Blackbird (*Euphagus cyanocephalus*), California Scrub Jay (*Apbelocoma californica*), Cooper’s Hawk (*Accipiter cooperii*), House Finch (*Carpodacus mexicanus*), Killdeer (*Charadrius vociferus*), Lesser Goldfinch (*Carduelis psaltria*), Loggerhead Shrike (*Lanius ludovicianus*), Mourning Dove (*Zenaida macroura*), Northern Flicker (*Colaptes auratus*), Northern Harrier (*Circus hudsonius*), Northern Mockingbird (*Mimus polyglottos*), Red-tailed Hawk (*Buteo jamaicensis*), Red-winged Blackbird (*Agelaius phoeniceus*),

Ruby-crowned Kinglet (*Regulus calendula*), Savannah Sparrow (*Passerculus sandwichensis*), Turkey Vulture (*Cathartes aura*), Western Meadowlark (*Sturnella neglecta*), and White-crowned Sparrow (*Zonotrichia leucophrys*).

Plant species observed in and around the canals include oat grasses (*Avena* sp.), mustard (*Brassica* sp.), broadleaf cattail (*Typha latifolia*), brome grasses (*Bromus* sp.), cheeseweed mallow (*Malva parviflora*), common sow thistle (*Sonchus oleraceus*), curly dock (*Rumex crispus*), dove weed (*Murdannia nudiflora*), field horsetail (*Equisetum arvense*), flax-leaved horseweed (*Conyza bonariensis*), Fremont's cottonwood (*Populus fremontii*), Italian thistle (*Carduus pycnocephalus*), Jersey cudweed (*Helichrysum luteoalbum*), pepperweed (*Lepidium latifolium*), *Rubus* sp., *Salix* sp., soft rush (*Juncus effusus*), spiny cocklebur (*Xanthium spinosum*), valley oak (*Quercus lobata*), yellow star thistle (*Centaurea solstitialis*), and perennial shrubs (*Yucca* sp.).

Agricultural

The area surrounding the APE consisted primarily of agriculture lands and cattle and dairy heifers. This habitat included active fruit and nut orchards, field and row crops, as well as fallow fields. Agricultural lands included structures, equipment, and rural houses, along with farm animals, domestic pets, and ornamental landscape.

Open Space

Open space areas included herbaceous, shrub, tree, and grassland communities. Herbaceous plants, such as grasses and wildflowers, do not produce woody tissue, are green and leaf-like in appearance or texture, and generally die back at the end of each growing season. Shrubs are short woody plants with two or more stems growing from the base. Trees are scattered throughout the Program area including oak woodlands and riparian areas and can be used by a multitude of species for roosting, nesting, and food sources. In addition to those species discussed above the area also included invasive grasses and perennial veldtgrass (*Ehrharta calycina*), rice cutgrass (*Leersia oryzoides*), hairy crabgrass (*Digitaria sanguinalis*), and smooth crabgrass (*Digitaria ischaemum*).

Representative photographs of the site at the time of the survey are available in **Appendix A** at the end of this document.

Natural Communities of Special Concern

Natural communities of special concern are those that are of limited distribution, distinguished by significant biological diversity, or home to special status species. CDFW is responsible for the classification and mapping of all-natural communities in California. Just as the special status plant and animal species, these natural communities of special concern can be found within the CNDDDB.

According to CNDDDB, there are four occurrences of Northern Hardpan Vernal Pool in the region. They are located approximately seven miles southeast of the APE, three miles north of the APE, 11 miles northwest of the APE, and 12 miles northwest of the APE. No natural communities of special concern were observed during the biological survey. Project activities will not impact these natural communities of special concern due to their distance from the APE.

Designated Critical Habitat of the APE

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 and that may require special management and protection. According to CNDDDB and IPaC, there is one turnout which is located within designated critical habitat of Colusa grass (*Neostapfia colusana*), Greene's tuctoria (*Tuctoria greenei*), and vernal pool tadpole shrimp (*Lepidurus packardii*).

The Stanislaus River is not designated as Critical Habitat by USFWS, but CDFW and other local agencies would have an obligation to protect native fish species within the river. Although no construction would occur in the Stanislaus River, the water transferred under the proposed Project could reduce the excess spill flow from New Melones Reservoir in some years. OID has completed an analysis of the New Melones Reservoir Hydrology

(see **Appendix B**) which indicates that regardless of the proposed 25,000 acre-foot water transfer, the flow requirements below Goodwin Dam would be met in all years and the cold-water pool would not be drawn down more often than without the Project. Therefore, the Project would not negatively impact habitat for Chinook Salmon, Steelhead, or other fish species.

Wildlife Movement Corridors

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, and rivers and creeks supporting riparian vegetation.

The APE does not contain features that would be likely to function as wildlife movement corridors. The areas are open and isolated and construction activities would not impede the dispersal or movement of wildlife.

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. As the human population grows, urban expansion encroaches on the already-limited suitable habitat. This results in sensitive species becoming increasingly more vulnerable to extirpation. State and federal regulations have provided the CDFW and the USFWS with a mechanism 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 plants and animals are referred to as “special status species.” This survey was conducted outside of the blooming season for most plants. Further investigation of special status plants is recommended to occur during the plants’ blooming seasons.

A thorough search of the CNDDDB for published accounts of special status plant and animal species was conducted for the *Oakdale* and *Knights Ferry* 7.5-minute quadrangles that contain the APE, and for the 14 surrounding quadrangles: *Paulsell*, *Waterford*, *Riverbank*, *Escalon*, *Farmington*, *Bachelor Valley*, *Copperopolis*, *New Melones Dam*, *Keystone*, *Cooperstown*, *Turlock Lake*, *Montpelier*, *Denair*, and *Ceres*. These species, and their potential to occur within the APE, are listed in **Table 2** and **Table 3** on the following pages. Raw data obtained from CNDDDB is available in **Appendix C** at the end of this document. 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 are known to be within the APE. **Figure 2** shows the Project’s 7.5-minute quadrangle, according to United States Geological Survey Topographic Maps.

Table 2. List of Special Status Animals with Potential to Occur Onsite and/or in the Vicinity

Species	Status	Habitat	Occurrence on Project Site
Bald Eagle <i>(Haliaeetus leucocephalus)</i>	CE, CFP	Resides in old growth forests as well as lower montane coniferous forests. Nests are generally found in large, old-growth trees within a mile of water. Nests and winters along ocean shores, lake margins, and rivers.	Unlikely. The APE lacked the preferred habitat of this species. There were no large trees present within the APE or vicinity and the closest large water body is Woodward Reservoir which is approximately one mile from the APE and does not have any recorded observations of this species associated with it. The only recorded observation of this species occurred at Turlock Lake approximately nine miles southeast of the APE in 1992.

Species	Status	Habitat	Occurrence on Project Site
Burrowing Owl (<i>Athene cunicularia</i>)	CSC	Resides in open, dry annual or perennial grasslands, deserts, and scrublands with low growing vegetation. Nests underground in existing burrows created by mammals, most often ground squirrels.	Possible. This species has been known to nest in the banks of canals and ditches. The nearest recorded observation of this species occurred approximately 1.5 miles from the APE in 1991.
California Horned Lark (<i>Eremophila alpestris actia</i>)	CWL	Frequents open habitats, including short-grass prairie, mountain meadows, open coastal plains, fallow grain fields, and alkali flats. Found primarily in coastal regions, including Sonoma and San Diego Counties.	Possible. Suitable habitat for this species is present. There are fallow fields adjacent to the APE. The only recorded observation of this species occurred approximately four miles east of the APE on an unknown date.
California tiger salamander (<i>Ambystoma californiense</i>)	FT, CT, CWL	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 1500 feet in elevation.	Unlikely. The APE lacked suitable habitat for this species. There are no vernal pools or wetlands within the APE. The APE is located on hardpacked soil and there were no burrows present within the APE at the time of the survey. The nearest recorded observation of this species occurred adjacent to the APE in 2013.
Chinook salmon (<i>Oncorhynchus tshawytscha</i>) - Central Valley fall run	FSC	In California, restricted to the Sacramento River and San Joaquin River valley bottoms and a few of the lesser tributaries.	Absent. Although water within the District's Canals comes from the Stanislaus River, this species could not occur within the Canals. This is because the water is distributed into the canals upstream of Goodwin Dam, which is impassable by this species since populations are located downstream from the dam. OID completed an analysis of New Melones Reservoir hydrology (see Appendix B) to review any potential incidental impacts to New Melones Reservoir storage from the transfer. The results of that analysis indicate that while the need for spill from New Melones may be incrementally reduced in some years due to the Project, the flow requirements below Goodwin Dam are always met and the cold-water pool is not reached more often than without the Project.
Conservancy fairy shrimp (<i>Branchinecta conservatio</i>)	FE	Endemic to the grasslands of the northern two-thirds of the Central Valley. Found in large, turbid pools.	Unlikely. The APE lacked suitable habitat for this species. There are no vernal pools or wetlands within the APE. There are no recorded observations of this species within the 16-quad search.
Crotch bumble bee (<i>Bombus crotchii</i>)	CCE	Occurs throughout coastal California, as well as east to the Sierra-Cascade crest, and south in to Mexico. Food plant genera include <i>Antirrhinum</i> , <i>Phacelia</i> , <i>Clarkia</i> , <i>Dendromecon</i> , <i>Eschscholzia</i> , and <i>Eriogonum</i> .	Unlikely. This species is uncommon in this region. They are more common on the coast, foothills, and southern California. None of their food sources were identified within the APE. This species has not been seen in the region in over 50 years. The nearest recorded observation of this species occurred

Species	Status	Habitat	Occurrence on Project Site
<p>Delta smelt (<i>Hypomesus transpacificus</i>)</p>	<p>FT, CE</p>	<p>This pelagic and euryhaline species is Endemic to the Sacramento-San Joaquin River Delta, upstream through Contra Costa, Sacramento, San Joaquin, and Solano Counties.</p>	<p>somewhere in the vicinity of Modesto in 1968.</p> <p>Absent. Although water within the District’s Canals comes from the Stanislaus River, this species could not occur within the Canals. This is because the water is distributed into the canals upstream of Goodwin Dam, which is impassable by this species since populations are located downstream from the dam. The APE is also outside of the typical range of this species. There are no recorded observations of this species within the 16-quad search.</p>
<p>Green sturgeon (<i>Acipenser medirostris</i>)</p>	<p>FT</p>	<p>Spawns in the Sacramento, Feather, and Yuba Rivers. Presence in upper Stanislaus and San Joaquin Rivers may indicate spawning. Non-spawning adults occupy marine/estuarine waters. Delta Estuary is important for rearing juveniles.</p>	<p>Absent. Although water within the District’s Canals comes from the Stanislaus River, this species could not occur within the Canals. This is because the water is distributed into the canals upstream of Goodwin Dam, which is impassable by this species since populations are located downstream from the dam. The nearest recorded observation of this species occurred in the Stanislaus River in 2017. OID completed an analysis of New Melones Reservoir hydrology (see Appendix B) to review any potential incidental impacts to New Melones Reservoir storage from the transfer. The results of that analysis indicate that while the need for spill from New Melones may be incrementally reduced in some years due to the Project, the flow requirements below Goodwin Dam are always met and the cold-water pool is not reached more often than without the Project.</p>
<p>Hardhead (<i>Mylopharodon conocephalus</i>)</p>	<p>CSC</p>	<p>Occurs in low- to mid-elevation streams in the Sacramento-San Joaquin drainage. Clear, deep pools with sand-gravel-boulder bottoms and slow-moving water is required. This species is often sympatric with Sacramento pikeminnow and Sacramento sucker. Hardhead are typically absent from streams occupied by centrarchids and from heavily altered habitats.</p>	<p>Absent. Although water within the District’s Canals comes from the Stanislaus River, this species could not occur within the Canals. This is because the water is distributed into the canals upstream of Goodwin Dam, which is impassable by this species since populations are located downstream from the dam. The nearest recorded observations of this species occurred in the Stanislaus River and Tuolumne River in 2008. OID completed an analysis of New Melones Reservoir hydrology (see Appendix B) to review any potential incidental impacts to New Melones Reservoir storage from the transfer. The results of that analysis indicate that while the need for spill from New Melones may be incrementally reduced in some years</p>

Species	Status	Habitat	Occurrence on Project Site
			due to the Project, the flow requirements below Goodwin Dam are always met and the cold-water pool is not reached more often than without the Project.
Least Bell's Vireo <i>(Vireo bellii pusillus)</i>	FE, CE	This migratory species breeds in southern California. Breeding habitat consists of dense, low, shrubby, riparian vegetation in the vicinity of water or dry river bottoms. By the early 1980s, this species was extirpated from most of its historic range in California, including the Central Valley. This species now occurs exclusively along the coast of southern California (USFWS, 1998).	Absent. The APE is outside of the current known range of this species. This species has been extirpated from the region. The only recorded observation of this species in the region occurred approximately 10 miles southeast of the APE in 1919.
Loggerhead Shrike <i>(Lanius ludovicianus)</i>	CSC	Frequents open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low herbaceous cover. In the Central Valley, nests in riparian areas, desert scrub, and agricultural hedgerows.	Present. This species was observed passing through the APE during the biological survey. There are no recorded observations of this species recorded within the 16-quad search.
Monarch Butterfly <i>(Danaus plexippus)</i>	FC	Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby. Larval host plants consist of milkweeds (<i>Asclepias</i> sp.). Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico.	Unlikely. There is marginal roosting habitat for this species within the APE and surrounding area. No milkweeds were observed within the APE during the biological survey. There are no recorded observations of this species recorded within the 16-quad search.
Mountain Plover <i>(Charadrius montanus)</i>	CSC	Breeds on open plains at moderate elevations. Winters in short-grass plains and fields, plowed or fallow fields, and sandy deserts. Prefers flat, bare ground with burrowing rodents.	Unlikely. The APE contains marginal overwintering habitat and no nesting habitat. The APE is outside of the current known range of this species. The only recorded observation of this species occurred approximately 10 miles southeast of the APE in 2002.
Northern California legless lizard <i>(Anniella pulchra)</i>	CSC	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.	Unlikely. The soil within the APE was hardpacked and generally unsuitable for this species. The nearest recorded observation of this species occurred approximately seven miles west of the APE in 2002.
Northern Harrier <i>(Circus hudsonius)</i>	CSC	Nests and forges in various grasslands, including salt grass in desert sinks, riparian scrub, and wetland edges. Nests constructed on the ground from sticks in wet areas, usually on the edge of marshes.	Present. This species was observed passing through the APE during the biological survey. There are no recorded observations of this species recorded within the 16-quad search.
Pallid bat <i>(Antrozous pallidus)</i>	CSC	Found in grasslands, chaparral, and woodlands, where it feeds on ground- and vegetation-dwelling arthropods, and occasionally takes insects in flight. Prefers to roost in rock crevices, but may also use tree	Possible. The preferred roosting habitat of this species is absent from the APE, so this species is not expected to roost within the APE. This species could be found foraging within the APE. The nearest recorded observation of this species

Species	Status	Habitat	Occurrence on Project Site
		cavities, caves, bridges, and other man-made structures.	occurred approximately one mile from the APE in 1999.
Red Hills Roach <i>(Hesperoleucus symmetricus serpentinus)</i>	CSC	Found in small, spring fed intermittent creeks streams flowing through serpentine outcrops near Sonora. It may be confined to pools and perennial stream reaches during summer and drought.	Absent. Suitable habitat for this species is absent from the APE and vicinity. The APE is outside of the typical range of this species. The nearest recorded observation of this species occurred approximately 12 miles east of the APE in 1999.
San Joaquin kit fox <i>(Vulpes macrotis mutica)</i>	FE, CT	Underground dens with multiple entrances in alkali sink, valley grassland, and woodland in valleys and adjacent foothills.	Unlikely. This species has never been within the vicinity of the Project. There were no mammal burrows observed within the APE during the biological survey. There are no recorded observations of this species within the 16-quad search.
Steelhead – Central Valley DPS <i>(Oncorhynchus mykiss irideus pop.11)</i>	FT	This winter-run fish begins migration to fresh water during peak flows during December and February. Spawning season is typically from February to April. After hatching, fry move to deeper, mid-channel habitats in late summer and fall. In general, both juveniles and adults prefer complex habitat boulders, submerged clay and undercut banks, and large woody debris.	Absent. Although water within the District’s Canals comes from the Stanislaus River, this species could not occur within the Canals. This is because the water is distributed into the canals upstream of Goodwin Dam, which is impassable by this species since populations are located downstream from the dam. The nearest recorded observation of this species occurred in the Stanislaus River and Tuolumne River in 2014. OID completed an analysis of New Melones Reservoir hydrology (see Appendix B) to review any potential incidental impacts to New Melones Reservoir storage from the transfer. The results of that analysis indicate that while the need for spill from New Melones may be incrementally reduced in some years due to the Project, the flow requirements below Goodwin Dam are always met and the cold-water pool is not reached more often than without the Project.
Swainson’s Hawk <i>(Buteo swainsoni)</i>	CT	Nests in large trees in open areas adjacent to grasslands, grain or alfalfa fields, or livestock pastures suitable for supporting rodent populations.	Possible. There are large trees, such as eucalyptus, in the region that this species could use to nest. The nearest recorded observation of this species occurred adjacent to the APE in 2011 but is listed as possibly extirpated. There are 11 occurrences of this species in the 16-quad search.
Townsend’s big-eared bat <i>(Corynorhinus townsendii)</i>	CSC	Occurs in a variety of habitats, but prefers cool, dark roost sites, and are often found in caves and mines. They roost in the open, hanging from walls and ceilings. Western populations typically forage on moths in areas of dense foliage.	Possible. The preferred roosting habitat of this species is absent from the APE, so this species is not expected to roost within the APE. This species could be found foraging within the APE. The nearest recorded observation of this species occurred approximately three miles east of the APE in 1937.
Tricolored Blackbird <i>(Agelaius tricolor)</i>	CT, CSC	Nests colonially near fresh water in dense cattails or tules, or in thickets	Possible. The preferred habitat of this species is present within the APE. Dense

Species	Status	Habitat	Occurrence on Project Site
		of riparian shrubs. Forages in grassland and cropland. Large colonies are often found on dairy farm forage fields.	cattails and Red-winged Blackbird were observed within the APE. The nearest recorded observation of this species occurred approximately three miles west of the APE in 1980.
Valley elderberry longhorn beetle <i>(Desmocerus californicus dimorphus)</i>	FT	Lives in mature elderberry shrubs of the Central Valley and foothills. Adults are active March to June.	Unlikely. No elderberry shrubs were observed within the APE or surrounding area. The nearest recorded occurrence of this species occurred approximately 1.5 miles from the APE in 2009.
Vernal pool fairy shrimp <i>(Branchinecta lynchi)</i>	FT	Occupies vernal pools, clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools.	Unlikely. The APE lacked suitable habitat for this species. There are no vernal pools or wetlands within the APE. The nearest recorded observation of this species occurred approximately 250 feet from the APE in 2013.
Vernal pool tadpole shrimp <i>(Lepidurus packardii)</i>	FE	Occurs in vernal pools, clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools.	Unlikely. Although one of the proposed turnouts contains designated Critical Habitat for this species, the APE was unsuitable for this species. There are no vernal pools or wetlands within the APE. The nearest recorded observation of this species occurred approximately 250 feet from the APE in 2013.
Western mastiff bat <i>(Eumops perotis californicus)</i>	CSC	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.	Possible. The preferred roosting habitat of this species is absent from the APE, so this species is not expected to roost within the APE. This species could be found foraging within the APE. The nearest recorded observation of this species occurred approximately one mile from the APE in
Western pond turtle <i>(Emys marmorata)</i>	CSC	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.	Possible. This species is known to occur within canals and ditches. The nearest recorded observation of this species occurred approximately one mile from the APE in 1993.
Western red bat <i>(Lasiurus blossevillii)</i>	CSC	Roosts primarily in trees, 2–40 ft above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	Possible. It is unlikely this species would be found roosting within the APE because roosting habitat for this species is marginal within the APE. It is possible this species could be found foraging within the APE. The nearest recorded observation of this species occurred approximately one mile from the APE in 1999.
Western spadefoot <i>(Spea hammondi)</i>	CSC	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 pools or	Possible. The preferred habitat of this species is present within the APE. This species could potentially breed within the canals or ditches within the APE. The nearest recorded observation of this species occurred approximately 0.5 miles north of the APE in 1999.

Species	Status	Habitat	Occurrence on Project Site
		temporary wetlands, lasting a minimum of three weeks, which do not contain bullfrogs, fish, or crayfish are necessary for breeding.	
Yellow Breasted Chat <i>(Icteria virens)</i>	CSC	Inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	Possible. Riparian thickets of blackberry were observed within the APE. This species could potentially nest within the APE. The nearest recorded observation of this species occurred approximately three miles north of the APE in 1987.

Table 3. List of Special Status Plants with Potential to Occur Onsite and/or in the Vicinity

Species	Status	Habitat	Occurrence on Project Site
Beaked clarkia <i>(Clarkia rostrata)</i>	CNPS 1B	Found in woodlands and valley foothill grasslands on the west slope of the Sierra Nevada range, between 200 and 3000 feet in elevation. Blooms April – May.	Possible. There are multiple observations of this species in the region. Suitable habitat for this species is present within the APE. The nearest recorded observation of this species occurred approximately two miles east of the APE in 1938.
Chinese Camp brodiaea <i>(Brodiaea pallida)</i>	FT, CE, CNPS 1B	Found in valley and foothill grassland, and cismontane woodland. Often in rocky, intermittent streambeds. Associated with serpentinite. At elevations between 540 and 1265 feet. Blooms May - June.	Absent. The APE is outside of the lower elevational range of this species. The nearest recorded observation of this species occurred approximately five miles northeast of the APE in 2005.
Colusa grass <i>(Neostapfia colusana)</i>	FT, CE, CNPS 1B	Found in vernal pools in the San Joaquin Valley at elevations below 410 feet. Blooms May – August.	Unlikely. Although there is designated Critical Habitat for this species within one of the proposed turnouts, there is no vernal pool habitat within the APE. The nearest recorded observation of this species occurred approximately two miles northeast of the APE in 1987.
Congdon’s lomatium <i>(Lomatium congdonii)</i>	CNPS 1B	Occurs in cismontane woodland and chaparral. Especially in serpentine soils with serpentine chaparral plants and grey pines. Elevation 1100 to 2050 feet. Blooms March - June.	Absent. The APE is outside of the lower elevational range of this species. The nearest recorded observation of this species occurred approximately 9.5 miles east of the APE in 1955.
Delta button-celery <i>(Eryngium racemosum)</i>	CE, CNPS 1B	Found in riparian scrublands in floodplains near the California Delta at elevations between 10 and 100 feet. Blooms June – August.	Unlikely. The APE is outside of the typical habitat of this species. The APE is not located on a seasonal floodplain. The only recorded observation of this species within the 16-quad search occurred approximately 10 miles southeast of the APE in 1989. CNDDDB comments that the sighting may have been based on atypical <i>Eryngium castrense</i> .

Species	Status	Habitat	Occurrence on Project Site
Dwarf downingia <i>(Downingia pusilla)</i>	CNPS 2B	Found in vernal pools in valley and foothill grassland communities at elevations below 1600 feet. Blooms March – May.	Unlikely. There is no vernal pool habitat within the APE. The nearest recorded observation of this species occurred approximately 2.5 miles east of the APE in 1937.
Forked hare-leaf <i>(Lagophylla dichotoma)</i>	CNPS 1B	Found in cismontane woodland, and valley and foothill grassland communities at elevations between 600 feet and 1100 feet.	Absent. The APE is outside of the lower elevational range of this species. The nearest recorded observation of this species occurred approximately two miles east of the APE in 1938.
Greene’s tuctoria <i>(Tuctoria greenei)</i>	FE, CR, CNPS 1B	Found in the San Joaquin Valley and other parts of California in vernal pools within valley grassland, wetland, and riparian communities at elevations below 3500 feet. Blooms May – September.	Possible. There is riparian habitat within the APE. One of the proposed turnouts contains designated Critical Habitat for this species. All recorded observation of this species within the 16-quad search are listed as extirpated or possibly extirpated. This species was last seen adjacent to the APE in 1980 but was extirpated due to the habitat being planted with barley.
Hairy Orcutt grass <i>(Orcuttia pilosa)</i>	FE, CE, CNPS 1B	Found in vernal pools in valley grassland, wetland, and riparian communities at elevations below 650 feet. Blooms May – September.	Unlikely. There is no vernal pool habitat within the APE. The only extant recorded observation of this species within the 16-quad search occurred approximately six miles south of the APE in 2018.
Hartweg’s golden sunburst <i>(Pseudobahia bahifolia)</i>	FE, CE, CNPS 1B	Found in valley and foothill grassland and cismontane woodland communities in clay soils that are often acidic. Occurs predominantly on northern slopes, but also along shady creeks and near vernal pools at elevations between 300 feet and 650 feet. Blooms March – May.	Possible. The APE contains clay soil and riparian habitat. The nearest extant recorded observation of this species occurred approximately five miles east of the APE.
Heartscale <i>(Atriplex cordulata var. cordulata)</i>	CNPS 1B	Found in the San Joaquin Valley and Sacramento Valley in saline or alkaline soils within shadescale scrub, valley grassland, and wetland-riparian communities at elevations below 230 feet. Blooms June–July.	Unlikely. The APE does not contain suitable habitat or soil for this species. There are no saline or alkaline soils within the APE. The only recorded observation of this species within the 16-quad search occurred approximately 12 miles south of the APE in 1936.
Hoover’s calycadenia <i>(Calycadenia hooveri)</i>	CNPS 1B	Found in valley and foothill grassland and cismontane woodland communities on exposed, rocky, barren soil at elevations between 300 feet and 1300 feet. Blooms June – September.	Possible. The APE contains soil that could potentially support this species. The nearest recorded observation of this species occurred approximately five miles east of the APE in 2016.
Hoover’s cryptantha <i>(Cryptantha hooveri)</i>	CNPS 1A	Presumed extirpated in California. Found in valley and foothill grassland and inland dunes in coarse sand at elevations below 250 feet. Blooms Mar – May.	Unlikely. This species has not been observed in the region in over 80 years. There was no soil observed within the APE which could support this species. The only recorded observation of this species within the 16-quad search occurred

Species	Status	Habitat	Occurrence on Project Site
			approximately eight miles southeast of the APE in 1937 and is listed as possibly extirpated.
Hoover's spurge (<i>Euphorbia hooveri</i>)	FT, CNPS 1B	Found in the San Joaquin Valley and Sacramento Valley in vernal pools within valley grassland, freshwater wetland, and riparian communities at elevations below 800 feet. Blooms July – September.	Unlikely. There is no vernal pool habitat within the APE. The nearest recorded observation of this species occurred approximately six miles south of the APE in 2018.
Legenere	CNPS 1B	Found in wetlands and vernal pool beds at elevations between 5 and 2900 feet. Blooms April - June.	Unlikely. There is no vernal pool habitat within the APE. The only recorded observation of this species within the 16-quad search occurred approximately 2.5 miles west of the APE in 1937 and is listed as extirpated.
Mariposa cryptantha (<i>Cryptantha mariposae</i>)	CNPS 1B.3	Usually occurs in chaparral communities. Can be found on rocky, semi barren ridges, dry slopes, and serpentine outcrops at elevations between 650 feet and 2135 feet. Blooms April - June.	Absent. The APE is outside of the lower elevational range of this species. The only recorded observation of this species within the 16-quad search occurred approximately 13 miles east of the APE in 1998.
Merced monardella (<i>Monardella leucocephala</i>)	CNPS 1A	Found in the San Joaquin Valley, associated with valley and foothill grasslands. Grows along rivers in moist, sandy soils at elevations between 164 feet and 328 feet. Blooms May – July.	Possible. This species could occur within the riparian habitat within the APE. Both of the recorded observations of this species within the 16-quad search are listed as extirpated.
Patterson's navarretia (<i>Navarretia paradoxiclara</i>)	CNPS 1B	Found in open, seasonally wet meadows and seeps. Associated with drainages, openings, serpentinite, and vernal mesic soils. At elevations between 500 and 1400 feet. Blooms May - June.	Absent. The APE is outside of the lower elevational range of this species. The only recorded observation of this species within the 16-quad search occurred approximately 11.5 miles east of the APE in 2009.
Rawhide Hill onion (<i>Allium tuolumnense</i>)	CNPS 1B	Found in cismontane woodland. Restricted to serpentine soil, usually in grey pine chaparral. Associated with steep, rocky, south facing slopes or small drainages. Found at elevations between 1000 and 1970 feet. Blooms March - May.	Absent. The APE is outside of the lower elevational range of this species. The only recorded observation of this species within the 16-quad search
Red Hills cryptantha (<i>Cryptantha spithamaea</i>)	CNPS 1B	Found in chaparral and cismontane woodland communities. Associated with serpentinite, streambeds, and openings at elevations between 900 and 1500 feet. Blooms April - May.	Absent. The APE is outside of the lower elevational range of this species. The nearest recorded observation of this species occurred approximately 12 miles east of the APE in 2015.
Red Hills ragwort (<i>Senecio clelandii</i> var. <i>heterophyllus</i>)	CNPS 1B	Found in cismontane woodland communities. Associated with ultramafic and drying serpentine soils. Is often found along streams. At elevations between 850 and 1265 feet. Blooms May - July.	Absent. The APE is outside of the lower elevational range of this species. The only recorded observation of this species within the 16-quad search occurred

Species	Status	Habitat	Occurrence on Project Site
			approximately 12 miles east of the APE in 2015.
Red Hills soaproot (<i>Chlorogalum grandiflorum</i>)	CNPS 1B	Found in cismontane woodland, chaparral, and lower montane coniferous forest communities. Occurs frequently on serpentine or gabbro soils, as well as non-ultramafic substrates. Can be found on historically disturbed sites. At elevations between 800 and 5550 feet. Blooms May - June.	Absent. The APE is outside of the lower elevational range of this species. The nearest recorded observation of this species occurred approximately 12 miles east of the APE in 2003.
Red Hills vervain (<i>Verbena californica</i>)	FT, CT, CNPS 1B	Occurs in cismontane woodland, as well as valley and foothill grassland communities. Associated with mesic sites on serpentine, usually serpentine seeps, or creeks. At elevations between 850 and 1310 feet. Blooms May - September.	Absent. The APE is outside of the lower elevational range of this species. The only recorded observation of this species occurred approximately 12 miles east of the APE in 2015.
San Joaquin Valley Orcutt grass (<i>Orcuttia inaequalis</i>)	FT, CE, CNPS 1B	Found in the eastern San Joaquin Valley and the Sierra Nevada foothills in vernal pools within valley grassland, freshwater wetland, and wetland-riparian communities at elevations below 2600 feet. Blooms April – September.	Unlikely. There is no vernal pool habitat within the APE. All recorded observation of this species within the 16-quad search are listed as extirpated. This species was last seen
Shaggyhair lupine (<i>Lupinus spectabilis</i>)	CNPS 1B	Chaparral, cismontane woodland. Open rocky slopes of serpentine. Mostly on serpentine chaparral surrounded by grey pine woodland at elevations between 855 and 2705 feet.	Absent. The APE is outside of the lower elevational range of this species. The only recorded observation of this species within the 16-quad search occurred approximately 13 miles northeast of the APE in 1998.
Spiny-sepaled button-celery (<i>Eryngium spinosepalum</i>)	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 feet and 4160 feet. Blooms April–July.	Possible. This species could occur within the canals or ditches within the APE. The only recorded observation of this species within the 16-quad search occurred approximately nine miles northeast of the APE in 1994.
Stanislaus monkeyflower (<i>Erythranthe marmorata</i>)	CNPS 1B	Found in cismontane woodland and lower montane coniferous forest communities at elevations between 330 and 3000 feet. Blooms March - May.	Unlikely. The APE is outside of the lower elevational range of this species. There are no woodland or coniferous communities within the APE. The nearest recorded observation of this species occurred approximately two miles from the APE in 1895.
Subtle orache (<i>Atriplex subtilis</i>)	CNPS 1B	Found in the San Joaquin Valley in saline depressions in alkaline soils within valley and foothill grassland communities at elevations below 330 feet. Blooms June–October.	Unlikely. The APE does not contain suitable soil for this species. There are no saline or alkaline soils within the APE. The only recorded observation of this species within the 16-quad search occurred approximately 12.5 miles south of the APE in 1936.

Species	Status	Habitat	Occurrence on Project Site
Succulent owl's-clover (<i>Castilleja campestris</i> var. <i>succulenta</i>)	FT, CE, CNPS 1B	Found in vernal pools, often in acidic soils at elevations below 2500 feet. Blooms April – July.	Unlikely. There is no vernal pool habitat within the APE. The nearest recorded observation of this species occurred approximately five miles east of the APE in 1977.
Tuolumne button-celery (<i>Eryngium pinnatisectum</i>)	CNPS 1B	Found in cismontane woodland and lower montane coniferous forest communities, and vernal pools. Associated with volcanic soils, wetlands, and mesic sites within other natural communities at elevations between 230 and 3000 feet. Blooms May - August.	Unlikely. The preferred habitat of this species is absent within the APE. There are no woodland or vernal pool communities within the APE. There are no volcanic soils, wetlands, or mesic sites within the APE. The nearest recorded observation of this species occurred approximately 8.5 miles northeast of the APE in 2007.
Veiny monardella (<i>Monardella venosa</i>)	CNPS 1B	Found in valley grassland, foothill grassland, and cismontane woodland communities. Occurs in heavy clay, mostly with grassland associates. At elevations between 200 and 1350 feet. Blooms May - July.	Possible. There is clay soil present within the APE. The nearest recorded observation of this species occurred approximately 12.5 miles northeast of the APE in 1998.

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	CFP	California Fully Protected
FSC	Federal Species of Concern	CSC	California Species of Concern
		CWL	California Watch List
		CCE	California Endangered (Candidate)
		CR	California Rare

CNPS LISTING

1A	Plants Presumed Extinct in California.	2B	Plants Rare, Threatened, or Endangered in California, but more common elsewhere.
1B	Plants Rare, Threatened, or Endangered in California and elsewhere.		

Impacts and Mitigation

Significance Criteria

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 State and/or federally listed as threatened or endangered 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 2012), “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 (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, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

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.”

Relevant Goals, Policies, and Laws

Stanislaus County General Plan

The Stanislaus County General Plan Policy Document contains the following goals and policies related to the Project:

Conservation/Open Space Element

Policy Three

1. Review all development requests to ensure that sensitive areas (e.g., riparian habitats, vernal pools, rare plants, flyways, etc.) are left undisturbed or that mitigation measures acceptable to appropriate state and federal agencies are included in the project.
2. In known sensitive areas, the State Department of Fish and Wildlife shall be notified as required by the California Native Plant Protection Act; the U.S. Fish and Wildlife Service also shall be notified.
3. All discretionary projects that will potentially impact riparian habitat and/or vernal pools or other sensitive areas shall include mitigation measures for protecting that habitat.
4. All discretionary projects within an adopted Airport Influence Area (AIA) that have the potential to create habitat, habitat conservation, or species protection shall be reviewed by the Airport Land Use Commission.

5. Implementation of this policy shall not be extended to the level of an unconstitutional "taking" of property.
6. Any ground disturbing activities on lands previously undisturbed that will potentially impact riparian habitat and/or vernal pools or other sensitive areas shall include mitigation measures for protecting that habitat, as required by the State Department of Fish and Wildlife.

Threatened and Endangered Species

Permits may be required from the USFWS and/or CDFW if activities associated with a project have the potential to result in the "take" of a species listed as threatened or endangered under the federal and/or state Endangered Species Acts. Take is defined by the State of California 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 federal Endangered Species Act to include "harm" (16 USC, Section 1532(19), 50 CFR, Section 17.3). CDFW and USFWS are responsible agencies under CEQA and National Environmental Policy Act (NEPA). Both agencies review CEQA and NEPA documents in order to determine the adequacy of their treatment of endangered species issues and to make project-specific recommendations for their conservation.

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 federal Endangered Species Act (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.

Migratory Birds

The Federal 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 actually 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 bird covered by the MBTA (Section 3513), as well as any other native non-game bird (Section 3800).

Birds of Prey

Birds of prey are protected in California under provisions of 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 federal Bald and Golden Eagle Protection Act (16 USC 668), which makes it unlawful to kill birds or their eggs.

Nesting Birds

In California, protection is afforded to 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.

Wetlands and other “Jurisdictional Waters”

Natural drainage channels and adjacent wetlands may be considered “Waters of the United States” or “jurisdictional waters” subject to the jurisdiction of the USACE. The extent of jurisdiction has been defined in the Code of Federal Regulations but has also been subject to interpretation of the federal courts. Jurisdictional waters generally include:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
- All impoundments of waters otherwise defined as Waters of the United States under the definition;
- Tributaries of waters identified in paragraphs (a)(1)-(4) (i.e. the bulleted items above).

As determined by the United States Supreme Court in its 2001 Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers (SWANCC) decision, channels and wetlands isolated from other jurisdictional waters cannot be considered jurisdictional on the basis of their use, hypothetical or observed, by migratory birds. Similarly, in its 2006 consolidated Carabell/Rapanos decision, the Supreme Court ruled that a significant nexus between a wetland and other navigable waters must exist for the wetland itself to be considered a navigable and therefore jurisdictional water. Furthermore, the Supreme Court clarified that the United States Environmental Protection Agency (USEPA) and the USACE will not assert jurisdiction over ditches excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

The USACE regulates the filling or grading of Waters of the United States. under the authority of Section 404 of the Clean Water Act. The extent of jurisdiction within drainage channels is defined by “ordinary high-water marks” on opposing channel banks. All activities that involve the discharge of dredge or fill material into Waters of the United States are subject to the permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that results in no net loss of wetland functions or values. No permit can be issued until the RWQCB issues a Section 401 Water Quality Certification (or waiver of such certification) verifying that the proposed activity will meet State water quality standards.

Under the Porter-Cologne Water Quality Control Act of 1969, the SWRCB has regulatory authority to protect the water quality of all surface water and groundwater in the State of California (“Waters of the State”). Nine RWQCBs oversee water quality at the local and regional level. The RWQCB for a given region regulates discharges of fill or pollutants into Waters of the State through the issuance of various permits and orders. Discharges into Waters of the State that are also Waters of the United States require a Section 401 Water Quality Certification from the RWQCB as a prerequisite to obtaining certain federal permits, such as a Section 404 Clean Water Act permit. Discharges into all Waters of the State, even those that are not also Waters of the United States., 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 Pollution 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 Water of the United States. may require a NPDES permit.

CDFW has jurisdiction over the bed and bank of natural drainages and lakes according to provisions of Section 1601 and 1602 of the California Fish and Game Code. Activities that may substantially modify such waters

through the diversion or obstruction of their natural flow, change or use of any material from their bed or bank, or the deposition of debris require a notification of a Lake or Streambed Alteration. If CDFW determines that the activity may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will be prepared. Such an agreement typically stipulates that certain measures will be implemented to protect the habitat values of the lake or drainage in question.

Potentially Significant Project-Related Impacts and Mitigation

Species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations by CDFW or USFWS that have the potential to be impacted by the Project include Burrowing Owl, California Horned Lark, Loggerhead Shrike, Northern Harrier, pallid bat, Swainson's Hawk, Townsend's big eared bat, Tricolored Blackbird, western mastiff bat, western pond turtle, western red bat, western spadefoot, Yellow Breasted Chat, beaked clarkia, Greene's tuctoria, Hartweg's golden sunburst, Hoover's calycadenia, Merced monardella, spiny-sepaled button-celery, and veiny monardella. Discussion and corresponding mitigation measures are provided below.

General Mitigation Measures

Prior to the start of construction, all personnel associated with construction of the Project will be trained to be able to identify these candidate, sensitive, or special status species in order to prevent impacts to sensitive resources; therefore, the following general mitigation measures will be implemented:

Mitigation Measure BIO-1a (WEAP Training): Prior to initiating construction activities (including staging and mobilization), all personnel associated with Project construction will attend mandatory Worker Environmental Awareness Program (WEAP) training, conducted by a qualified biologist, to aid workers in identifying special status resources that may occur in the APE. 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 a list of required protective measures to avoid "take." A fact sheet conveying this information, along with photographs or illustrations of sensitive species with potential to occur onsite, will also be prepared for distribution to all contractors, their employees, and all other personnel involved with construction of the Project. All employees 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 ensure 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.
- Workers will inspect areas beneath parked vehicles prior to mobilization. If special status species are detected beneath vehicles, 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 listed (rare, threatened, or endangered) species is prohibited.
- The presence of any special status species and/or any wildlife mortalities will be reported to the Project's designated biologist and the appropriate regulatory agencies.

Project-Related Mortality and/or Disturbance of Burrowing Owl

The APE contains suitable nesting and/or foraging habitat for Burrowing Owls. Construction activities that adversely affect the nesting success of Burrowing Owls or result in the mortality of individual birds constitute a violation of State and federal laws and are considered a significant impact under CEQA. Burrowing Owls nesting within the APE during construction have the potential to be injured or killed by Project-related activities. In addition to the direct “take” of Burrowing Owls, Burrowing Owls within the APE or adjacent areas could be disturbed by Project-related activities resulting in den abandonment.

Implementation of the following measures will reduce potential impacts to Burrowing Owl to a less than significant level under CEQA and NEPA and will ensure compliance with State and federal laws protecting this species.

Mitigation. The following measures would be implemented prior to the start of construction:

Mitigation Measure BIO-2a (Pre-construction Take Avoidance Survey): A qualified biologist shall conduct a pre-construction take avoidance survey for burrowing owls and suitable burrows, in accordance with CDFW’s *Staff Report on Burrowing Owl Mitigation* (2012), within 30 days prior to the start of construction activities. The survey shall include the proposed work area and surrounding lands within 500 feet. If no burrowing owl individuals or suitable burrows are observed, no further mitigation is required.

Mitigation Measure BIO-2b (Avoidance): If an active burrowing owl burrow is detected, the occurrence shall be reported to the local CDFW office and the CNDDB, and disturbance-free buffers shall be implemented in accordance with CDFW’s 2012 Staff Report on Burrowing Owl Mitigation, as outlined in the table below:

Location	Time of Year	Level of Disturbance		
		Low	Medium	High
Nesting sites	April 1 – August 15	200 meters	500 meters	500 meters
Nesting sites	August 16 – October 15	200 meters	200 meters	500 meters
Nesting sites	October 16 – March 31	50 meters	100 meters	500 meters

BIO-2c (Consultation with CDFW and Passive Relocation): If avoidance of an active burrowing owl burrow is not feasible, CDFW will be immediately consulted to determine the best course of action, which may include passive relocation during non-breeding season. Passive relocation and/or burrow exclusion will not take place without coordination with CDFW and preparation of an approved exclusion and relocation plan.

Project-Related Mortality and/or Disturbance of Nesting Raptors, Migratory Birds, and other Special Status Birds

The APE contains suitable nesting and/or foraging habitat for a variety of avian species. The survey was conducted outside nesting bird season, so no active nests were observed. It is possible that during nesting bird season, numerous species of birds could use the APE for nesting, as suitable nesting habitat is present. These bird species include California Horned Lark, Loggerhead Shrike, Northern Harrier, Swainson’s Hawk, Tricolored Blackbird, and Yellow-breasted Chat. Birds nesting within the APE during construction have the potential to be injured or killed by Project-related activities. In addition to the direct “take” of nesting birds, nesting birds within the APE or adjacent areas could be disturbed by Project-related activities resulting in nest abandonment. Projects that adversely affect the nesting success of raptors and migratory birds or result in the

mortality of individual birds are considered a violation of State and federal laws and are considered a potentially significant impact under CEQA.

Implementation of the following measures will reduce potential impacts to nesting raptors, migratory birds, and special status birds to a less than significant level under CEQA and will ensure compliance with State and federal laws protecting these avian species.

Mitigation. The following measures would be implemented prior to the start of construction:

Mitigation Measure BIO-3a (Avoidance): The Project's construction activities will occur, if feasible, between September 16 and January 31 (outside of nesting bird season) in an effort to avoid impacts to nesting birds.

Mitigation Measure BIO-3b (Pre-construction Surveys): If activities must occur within nesting bird season (February 1 to September 15), a qualified biologist would conduct pre-construction surveys for Swainson's hawk nests onsite and within a 0.5-mile radius. This survey would 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 pre-construction survey would also provide a presence/absence survey for all other nesting birds within the APE and an additional 50 feet, no more than 7 days prior to the start of construction. All raptor nests would be considered "active" upon the nest-building stage.

Mitigation Measure BIO-3c (Establish Buffers): On discovery of any active nests or breeding colonies near work areas, the biologist will determine appropriate construction setback distances based on applicable CDFW and/or USFWS guidelines and/or the biology of the species in question. Construction 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.

BIO-3d (Consultation with CDFW): In the event that a Tricolored Blackbird nesting colony is detected during surveys, consultation with CDFW is warranted to discuss whether the Project can avoid take and, if take avoidance is not feasible, to acquire an incidental take permit for Tricolored Blackbird pursuant to Fish and Game Code section 2081, subdivision (b), prior to any Project activities.

Project-Related Mortality and/or Disturbance of Bats

The APE is surrounded by orchards and grasslands, which provide foraging habitat for bat species in the region. No special status bat species would be expected to roost within the APE, however, bats foraging within the APE could potentially be impacted by construction activities.

Mitigation. The following measures will be implemented prior to the start of construction:

Mitigation Measure BIO-4a (Operational Hours): Construction activities shall be limited to daylight hours to reduce potential impacts to special status bats that could be foraging onsite.

Project-Related Mortality and/or Disturbance to Northwestern Pond Turtles

Western pond turtles were once a single species known as *Actinemys marmorata* but was split into two distinct species by Spinks et al. in 2014. The two distinct species are now known as northwestern pond turtles (*Actinemys marmorata*) and southwestern pond turtles (*Actinemys pallida*). The northwestern pond turtle (NPT) range extends from Washington State south and inland through California's San Joaquin Valley. The southwestern Pond turtle (SPT) range extends from the south of the San Francisco Bay along the central California coast to Baja California (Spinks PQ, 2014). The top four threats for NPT are predation by nonnative species, pathogens, land alterations, and drought. The top three threats for SPT were drought, predation by nonnative species,

floods, and land alteration (Manzo S, 2021). The APE lies within the San Joaquin Valley where only NPT inhabit. NPT habitat features for nesting, overwintering, dispersal, and basking and can occur in the APE. These features include aquatic and terrestrial habitats such as ponded areas, irrigation canals, riparian, and upland habitat. NPT are known to nest in the spring or early summer within 100 meters of a water body, although nest sites as far away as 500 meters have also been reported. Noise, vegetation removal, movement of workers, construction, and ground disturbance as a result of Project activities have the potential to significantly impact NPT populations. Without appropriate avoidance and minimization measures for NPT, potentially significant impacts associated with Project activities could include nest reduction, inadvertent entrapment, reduced reproductive success, reduction in health or vigor of eggs and/or young, and direct mortality.

Mitigation. The following measures will be implemented prior to the start of construction:

Mitigation Measure BIO-5a (*Pre-construction Survey*): No more than thirty (30) days prior to the start of construction, a qualified biologist will conduct a pre-construction survey for NPT within the District's Canals, as well as adjacent to the proposed work area. Pre-construction surveys will be conducted in accordance with the *United States Geological Survey Western Pond Turtle (Emys marmorata) Visual Survey Protocol for the Southcoast Ecoregion* (United States Geological Survey, 2006). Surveys will be conducted outside of winter months (December – February). If no NPT are observed during the pre-construction survey, then construction activities may begin. If construction is delayed or halted for more than 90 days, another pre-construction survey for NPT will be conducted. If the surveys result in the identification of a special status species, the qualified biologist should determine if appropriate buffers can be implemented to avoid impacts to the individual(s) or if further surveys are required to avoid impacts to potential nesting sites.

Mitigation Measure BIO-5b (*Monitor*): If species observations are found, a qualified biologist will conduct a pre-activity clearance survey each day and remain onsite to oversee all vegetation clearing and ground disturbing activities conducted within suitable habitat for NPT. If a listed species is observed within the Project area, the biologist will stop work and allow the species to leave the site of its own volition or contact the appropriate regulatory agency (CDFW and/or USFWS) for guidance on how to proceed.

Mitigation Measure BIO-5c (*ITP*): In the event NPT are detected during surveys and cannot be avoided, consultation with CDFW is warranted to discuss how to implement the Project and avoid take. If take cannot be avoided, take authorization through the acquisition of an ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.

Project-Related Mortality and/or Disturbance to Western Spadefoot

Habitats within the APE and surrounding area were determined to be suitable for western spadefoot, a California Species of Special Concern. Construction activities occurring within occupied habitat could result in injury, mortality, displacement, disturbance, or inhibit the movement of this species. Implementation of mitigation measure **BIO-1a** listed above, requires each employee, worker, or visitor onsite to attend a mandatory training session, including printed educational materials regarding the conservation status of special status amphibians with potential to occur onsite, laws protecting these species, penalties for violation of those laws, and a list of required protective measures that must be employed to avoid “take” or other significant impacts. Additionally, mitigation measure **BIO-1b** requires implementation of BMPs on the work site which would avoid and minimize potential impacts to special status species.

Mitigation. The following measures will be implemented prior to the start of construction:

Mitigation Measure BIO-6a (*Pre-construction Survey*): A qualified biologist will conduct a preconstruction survey within thirty (30) days prior to the start of construction. The goal of this survey

will be to identify if any suitable breeding or upland habitat is present within the APE and an additional 100-foot survey area around the designated APE. If no individuals or suitable habitat is observed, no further mitigation is required.

Mitigation Measure BIO-6b (*Avoidance*): On discovery of any suitable habitat near work areas, the biologist will determine appropriate construction setback distances based on applicable CDFW and/or USFWS guidelines for western spadefoot. Construction buffers will be identified with flagging, fencing, or other easily visible means, and will be maintained until the end of the Project. If appropriate construction buffers cannot be maintained a focused survey will be required to determine if western spadefoots are found within the Project area or 100 feet from the Project.

Mitigation Measure BIO-6c (*Focused Survey*): If appropriate buffers cannot be maintained, a qualified biologist will conduct a focused survey during the known peak breeding months of this species (February-March), prior to the start of construction. Transects will be walked throughout the entire APE and surrounding lands within 100 feet and vantage points will be used to survey for standing water. If no western spadefoots adults or larvae are observed during the survey, then construction activities may begin. If the survey results in the identification of this special status species, a qualified biologist will consult CDFW to determine if appropriate buffers can be implemented to avoid impacts to individual(s) during construction.

Mitigation Measure BIO-6d (*Monitor*): If species observations are found, a qualified biologist will conduct a pre-activity clearance survey each day and remain onsite to oversee all vegetation clearing and ground disturbing activities conducted within suitable habitat for western spadefoot. If a listed species is observed within the Project area, the biologist will stop work and allow the species to leave the site of its own volition or contact the appropriate regulatory agency (CDFW and/or USFWS) for guidance on how to proceed.

Mitigation Measure BIO-6e (*Formal Consultation*): If western spadefoots are detected during surveys and cannot be avoided, consultation with CDFW is warranted to discuss how to implement the Project and avoid take. If take cannot be avoided, take authorization through the acquisition of an ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.

Project-Related Impacts to Special Status Plant Species

In reviewing the CNDDDB, the following special status plant species were identified to occur within or adjacent to the APE: beaked clarkia, Greene's tuctoria, Hartweg's golden sunburst, Hoover's calycadenia, Merced monardella, spiny-sepaled button-celery, and veiny monardella. The survey of the APE was conducted outside the blooming season for these plants. It is recommended a more detailed survey be conducted within the blooming season.

Projects that adversely affect special status plants or result in the mortality of special status plants are considered a violation of State and federal laws and are considered a potentially significant impact under CEQA. Implementation of the following measures will reduce potential impacts to special status plants to a less than significant level under CEQA and will ensure compliance with State and Federal laws protecting these plant species.

Mitigation. The following measures will be implemented prior to the start of construction:

Mitigation Measure BIO-7a (*Pre-Construction Survey*): A qualified botanist/biologist will conduct focused botanical surveys for beaked clarkia, Greene's tuctoria, Hartweg's golden sunburst, Hoover's calycadenia, Merced monardella, spiny-sepaled button-celery, and veiny monardella, according to CDFW's Protocols for Surveying and Evaluating Impacts to Special Status Native Plant

Populations and Sensitive Natural Communities (2018) for areas where ground disturbance will occur and prior to the start of construction.

Mitigation Measure BIO-7b (Avoidance): If special status plants are identified during a survey, a disturbance-free buffer and use of exclusion fencing will be placed around the area so as not to disturb the plants or their root system.

Mitigation Measure BIO-7c (Formal Consultation): If rare plant individuals or populations or sensitive natural communities are detected within Project work areas during the focused botanical survey, and the plants cannot be avoided, the Project proponent will initiate consultation with CDFW and/or USFWS to determine next steps for relocation or to obtain an Incidental Take Permit (ITP).

Project-Related Impacts to Critical Habitat

According to IPaC, designated Critical Habitat for Colusa Grass, Greene's Tuctoria, and Vernal Pool Tadpole Shrimp is present at one of the turnouts within the APE. Implementation of the following measures will reduce potential impacts to designated Critical Habitat to a less than significant level under CEQA and will ensure compliance with the State and Federal laws protecting these areas.

Mitigation. The following measures will be implemented prior to the start of construction:

Mitigation Measure BIO-8a (Formal Consultation): The Project proponent will initiate consultation with CDFW and/or USFWS to determine next steps for construction within designated Critical Habitat.

Less than Significant Project-Related Impacts

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, 18 are considered absent from or unlikely to occur within the APE due to past or ongoing disturbance and/or the absence of suitable habitat. These species include: Bald Eagle, California tiger salamander, Chinook salmon, conservancy fairy shrimp, Crotch bumble bee, delta smelt, green sturgeon, hardhead, least Bell's Vireo, monarch butterfly, mountain plover, Northern California Legless Lizard, Red Hill's roach, San Joaquin kit fox, Steelhead, valley elderberry longhorn beetle, vernal pool fairy shrimp, and vernal pool tadpole shrimp.

Since it is unlikely that these species would occur onsite, implementation of the Project should have no impact on these 18 special status species through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted.

Project-Related Impacts to Special Status Plant Species Absent From, or Unlikely to Occur on, the Project Site

Of the 31 regionally occurring special status plant species, 24 are considered absent from or unlikely to occur within the APE due to past or ongoing disturbance and/or the absence of suitable habitat. These species include: Chinese Camp brodiaea, Colusa grass, Congdon's Lomatium, delta button-celery, dwarf downingia, forked hare-leaf, hairy Orcutt grass, heartscale, Hoover's cryptantha, Hoover's spurge, Legenere, Mariposa cryptantha, Patterson's navarretia, Rawhide Hill onion, Red Hills cryptantha, Red Hills ragwort, Red Hills soaproot, Red Hills vervain, San Joaquin Valley Orcutt grass, shaggyhair lupine, Stanislaus monkeyflower, subtle orache, succulent owl's clover, and Tuolumne button-celery.

Since it is unlikely that these species would occur onsite, implementation of the Project should have no impact on these 24 special status species through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted.

Project-Related Impacts to Special Status Fishes Absent From, or Unlikely to Occur on, the Project Site

Historically, steelhead and Chinook salmon distribution extended into the headwaters of the Stanislaus River. Dam construction and water diversion for mining and irrigation purposes first began during the Gold Rush (mid-1800s). Goodwin Dam, constructed in 1913, was probably the first permanent barrier to significantly affect salmonid access to upstream habitat. Historically, Goodwin Dam had a fishway which allowed salmonids to access the reach of Stanislaus River up to the Melones Dam. Historical records note, however, that salmonids could seldom pass Goodwin Dam, even when the fishway existed (United States Department of Interior, Bureau of Reclamation, 2007). The fishway was destroyed by falling boulders in the early- to mid-1900s. Observations noted in the CNDDB indicate fish are unable to travel past Goodwin Dam. Recorded observations of these species occurred in the region downstream of Goodwin Dam.

At the time of the survey, special status fishes are not considered present or likely to occur within the APE since water within the APE flows from water that is upstream from Goodwin Dam. Mitigation measures are not warranted.

Project-Related Impacts to Riparian Habitat and Natural Communities of Special Concern

There are no CNDDB-designated “natural communities of special concern” recorded within the APE or vicinity. Mitigation is not warranted.

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

The District’s Canals are not likely to be considered Waters of the United States or Waters of the State and fall under the Jurisdiction of USACE or the Regional Water Quality Control Board (RWQCB).

Typical wetlands, vernal pools, and other sensitive natural communities were not observed (California Department of Fish and Wildlife, 2012) within the APE during the biological survey. Since construction would involve ground disturbance over an area greater than one acre, the Project would also be required 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 (SWPPP) to ensure construction activities do not adversely affect water quality.

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

The APE does not contain features that would be likely to function as wildlife movement corridors. The Project is located in an open region. Construction of the turnouts would occur in small, isolated areas and would not inhibit wildlife from dispersing through the area. Therefore, the Project would have no impact on wildlife movement corridors. Mitigation measures are not warranted.

Local Policies or Habitat Conservation Plans

The Project appears to be consistent with the goals and policies of the Stanislaus County. There are no known habitat conservation plans (HCPs) or a Natural Community Conservation Plan (NCCP) in the Project vicinity. Mitigation measures are not warranted.

III. Project Area II – Landowner Participation Area

Study Methodology

The following analysis of the LPA is not intended to be a detailed biological analysis of each individual private construction site, but rather to provide suitable mitigation measures that address potential impacts of all special status species which could possibly occur within the LPA. It will be the responsibility of the landowners of the participating parcels to conduct an independent biological pre-construction survey to determine which mitigation measures are necessary to incorporate to avoid potential impacts during construction.

A thorough search of the California Department of Fish and Wildlife (CDFW), California Natural Diversity Database (CNDDDB), the United States Fish and Wildlife Service (USFWS), Information for Planning and Consultation (IPaC), iNaturalist, California Herps, the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Plants Database, and California Native Plant Society (CNPS) were reviewed for potential special status plant and animal species that may be found in and around the LPA. Viewing of the LPA was achieved by utilizing historical and current aerial imagery.

Existing Conditions

Regional Setting

Soils

Thirty-two soil mapping units representing 21 soil types were identified within the proposed pipeline and reservoir areas. The soils are displayed with their core properties in the table below.

Table 4. List of Soils Located Onsite and Their Basic Properties

Soil	Soil Map Unit	Percent of APE	Hydric Unit	Hydric Minor Units	Drainage	Permeability	Runoff
<i>Alamo</i>	Clay, 0 to 2 percent slopes	0.7%	Yes	No	Poorly drained	Very slow permeability	Very high runoff
<i>Amador</i>	Sandy loam, 2 to 15 percent slopes	4.9%	No	No	Well drained	High permeability	-
<i>Archerdale-Hicksville</i>	Association, 0 to 2 percent slopes	1.5%	No	No	Moderately well drained to well drained	Slow permeability	Moderately slow runoff
<i>Bear Creek</i>	Clay loam, 0 to 3 percent slopes	0.9%	No	No	Moderately well drained	-	Medium runoff
<i>Cometa</i>	Sandy loam, 2 to 8 percent slopes	3.2%	No	Yes	Well drained	Very slow permeability	High runoff
<i>Greenfield</i>	Sandy loam, 0 to 3 percent slopes	4.3%	No	No	Well drained	Moderately rapid permeability	Very low runoff
<i>Hicksville</i>	Loam, 0 to 8 percent slopes, occasionally flooded	0.1%	No	No	Moderately well drained	Moderately slow permeability	Medium runoff
<i>Hopeton</i>	Clay loam, 0 to 3 percent slopes	0%	No	No	Moderately well drained	-	High runoff

Soil	Soil Map Unit	Percent of APE	Hydric Unit	Hydric Minor Units	Drainage	Permeability	Runoff
Keyes	Cobbly clay loam, 0 to 8 percent slopes	4.8%	No	Yes	Well drained	Very slow permeability	Very high runoff
Montpelier	Coarse sandy loam, 0 to 8 percent slopes	0.4%	No	No	Well drained	Moderately slow permeability	Medium runoff
	Coarse sandy loam, 3 to 8 percent slopes	3.1%	No	No	Well drained	Moderately slow permeability	High runoff
Paulsell	Clay, 0 to 1 percent slopes	1.6%	Yes	No	Somewhat poorly drained	-	High runoff
Pentz	Gravelly loam, 3 to 8 percent slopes	0.1%	No	No	Well drained	High permeability	Low runoff
	Gravelly loam, 8 to 30 percent slopes	1.9%	No	No	Well drained	High permeability	Low runoff
	Loam, moderately deep, 8 to 15 percent slopes	0.7%	No	No	Well drained	High permeability	Low runoff
Peters	Clay, 8 to 15 percent slopes	0.1%	No	No	Well drained	Moderately low permeability	Very high runoff
	Cobbly clay, 0 to 8 percent slopes	13.8%	No	No	Well drained	Moderately low permeability	High runoff
	Cobbly clay, 8 to 15 percent slopes	3.1%	No	No	Well drained	Moderately low permeability	Very high runoff
Peters-Pentz	Complex, 0 to 8 percent slopes	1.5%	No	No	Well drained	Medium permeability	Medium runoff
	Association, 2 to 8 percent slopes	4.2%	No	No	Well drained	Medium permeability	Medium runoff
	Association, 2 to 15 percent slopes	12.5%	No	No	Well drained	Medium permeability	Medium runoff
	Association, 2 to 50 percent slopes	1.9%	No	No	Well drained	Medium permeability	Medium runoff
Psammentic Haploxerolls -Mollic Fluvaquents-Riverwash	Complex, 0 to 8 percent slopes	0.1%	No	Yes	-	-	-
Raynor	Clay, 0 to 3 percent slopes	4.4%	No	No	Well drained	-	High runoff
	Clay, 3 to 8 percent slopes	1.2%	No	No	Well drained	-	Very high runoff
	Cobbly clay, 0 to 8 percent slopes	2.8%	No	No	Well drained	-	Very high runoff
Ryer	Clay, 0 to 1 percent slopes	3.8%	No	No	Well drained	Slow permeability	High runoff

Soil	Soil Map Unit	Percent of APE	Hydric Unit	Hydric Minor Units	Drainage	Permeability	Runoff
<i>San Joaquin</i>	Sandy loam, 2 to 5 percent slopes	10.7%	No	No	Moderately well drained	Very slow permeability	Medium runoff
<i>Terrace escarpments</i>		1.0%	No	No	Excessively drained	-	Very high runoff
<i>Whitney</i>	Sandy loams, 3 to 8 percent slopes	8.4%	No	No	Well drained	Moderate to moderately rapid permeability	Medium
	Sandy loams, 8 to 15 percent slopes	1.3%	No	No	Well drained	Moderate to moderately rapid permeability	Medium runoff
<i>Whitney and Rocklin</i>	Sandy loams, 3 to 8 percent slopes	1.0%	No	No	Well drained	Moderate permeability	Moderate runoff

Two of the major soil components and three of the minor soil components were identified as hydric. 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.

The full soil report can be found in **Appendix F** in at the end of this document.

Biotic Habitat

There are several habitat types which are present in the LPA. The network of OID Distribution Canals and streams within the LPA are known to support riparian or emergent vegetation such as broadleaf cattail (*Typha latifolia*), as well as weedy herbaceous vegetation. The LPA also contains a high number of agricultural lands, as well as cattle and dairy heifers. This habitat likely includes active fruit and nut orchards, field and row crops, fallow fields, farm animals, domestic pets, structures, equipment, rural houses, and ornamental landscape. There are also open areas present with the LPA which support herbaceous, shrub, tree, and grassland communities. These communities can be used by a multitude of species for roosting, nesting, and foraging. Lastly, there are wetlands and vernal pools within the LPA which provide important nesting and foraging areas for a variety of water birds and breeding habitat for many terrestrial or semi-aquatic animals such as frogs, salamanders, and turtles.

Special Status Species

A CNDDDB search was conducted, which included the United States Geologic Survey (USGS) areas encompassing the *Farmington, Bachelor Valley, Knights Ferry, Oakdale, Escalon, Waterford, Paulsell, and Cooperstown* 7.5-minute quadrangles that contain the LPA in its entirety, and for the 18 surrounding quadrangles: *Peters, Linden, Valley Springs SW, Jenny Lind, Salt Spring Valley, Copperopolis, New Melones Dam, Keystone, Chinese Camp, La Grange, Snelling, Turlock Lake, Montpelier, Denair, Ceres, Riverbank, Salida, and Avena*. The full CNDDDB and IPaC species list can be found in **Appendix G** and **Appendix H** at the end of this document. A field survey was conducted for the proposed turnouts, which are in the LPA. Viewing of the rest of the LPA was achieved using satellite and historical imagery.

There are 35 special status animal species and 37 special status plant species found within the 26-quad search. These species are explained further in **Table 5** and **Table 6** below.

Table 5. List of Special Status Animals with Potential to Occur Onsite and/or in the Vicinity.

Species	Status	Habitat	Occurrence on Project Site
American badger (<i>Taxidea taxus</i>)	CSC	Grasslands, savannas, and mountain meadows near timberline are preferred. Most abundant in drier open spaces of shrub and grassland. Burrows in soil.	Possible. There is suitable habitat for this species within the LPA.
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	CE, CFP	Resides in old growth forests as well as lower montane coniferous forests. Nests are generally found in large, old-growth trees within a mile of water. Nests and winters along ocean shores, lake margins, and rivers.	Possible. There could potentially be suitable habitat for this species within the LPA. There are water bodies and large trees nearby that could support this species.
Burrowing Owl (<i>Athene cunicularia</i>)	CSC	Resides in open, dry annual or perennial grasslands, deserts, and scrublands with low growing vegetation. Nests underground in existing burrows created by mammals, most often ground squirrels.	Possible. There is suitable habitat for this species within the LPA. This species has been known to nest in the banks of canals and ditches, open undisturbed fields, and grasslands.
California Horned Lark (<i>Eremophila alpestris actia</i>)	CWL	Frequents open habitats, including short-grass prairie, mountain meadows, open coastal plains, fallow grain fields, and alkali flats. Found primarily in coastal regions, including Sonoma and San Diego Counties.	Possible. There is suitable habitat for this species within the LPA. There are open areas which could attract this species.
California tiger salamander (<i>Ambystoma californiense</i>)	FT, CT, CWL	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 1500 feet in elevation.	Possible. There is suitable habitat for this species within the LPA. There are known vernal pools within the LPA.
Chinook salmon (<i>Oncorhynchus tshawytscha</i>) - Central Valley fall run	FSC	In California, restricted to the Sacramento River and San Joaquin River valley bottoms and a few of the lesser tributaries.	Absent. Although water within the District’s Canals comes from the Stanislaus River, this species could not occur within the Canals. Water is distributed into the canals at Goodwin Dam, and this species is only located downstream of this structure. The fish ladder at the Goodwin Dam has been destroyed by rockfall, so there is no potential for passage of this species upstream past the dam. OID completed an analysis of New Melones Reservoir hydrology (see Appendix B) to review any potential incidental impacts to New Melones Reservoir storage from the transfer. The results of that analysis indicate that while the need for spill from New Melones may be incrementally reduced in some years due to the Project, the flow requirements below Goodwin Dam are always

Species	Status	Habitat	Occurrence on Project Site
			met and the cold-water pool is not reached more often than without the Project.
Conservancy fairy shrimp <i>(Branchinecta conservatio)</i>	FE	Endemic to the grasslands of the northern two-thirds of the Central Valley. Found in large, turbid pools.	Possible. There is suitable habitat for this species within the LPA. There are known vernal pools within the LPA.
Crotch bumble bee <i>(Bombus crotchii)</i>	CCE	Occurs throughout coastal California, as well as east to the Sierra-Cascade crest, and south in to Mexico. Food plant genera include Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.	Possible. There is suitable habitat for this species within the LPA.
Delta smelt <i>(Hypomesus transpacificus)</i>	FT, CE	This pelagic and euryhaline species is Endemic to the Sacramento-San Joaquin River Delta, upstream through Contra Costa, Sacramento, San Joaquin, and Solano Counties.	Absent. Although water within the District's Canals comes from the Stanislaus River, this species could not occur within the Canals. Water is distributed into the canals at Goodwin Dam, and this species is only located downstream of this structure. The fish ladder at the Goodwin Dam has been destroyed by rockfall, so there is no potential for passage of this species upstream past the dam. The LPA is also outside of the typical range of this species. There are no recorded observations of this species within the 16-quad search.
Foothill yellow-legged frog <i>(Rana boylei)</i>	CCT, CSC	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. The LPA is outside of the typical range of this species. Habitat for this species is marginal.
Giant gartersnake <i>(Thamnophis gigas)</i>	FT, CT	Occurs in marshes, sloughs, drainage canals, irrigation 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.	Possible. There is suitable habitat for this species within the LPA. This species could occur within waterbodies or uplands within the LPA.
Green sturgeon <i>(Acipenser medirostris)</i>	FT	Spawns in the Sacramento, Feather, and Yuba Rivers. Presence in upper Stanislaus and San Joaquin Rivers may indicate spawning. Non-spawning adults occupy marine/estuarine waters. Delta Estuary is important for rearing juveniles.	Absent. Although water within the District's Canals comes from the Stanislaus River, this species could not occur within the Canals. Water is distributed into the canals at Goodwin Dam, and this species is only located downstream of this structure. The fish ladder at the Goodwin Dam has been destroyed

Species	Status	Habitat	<i>Occurrence on Project Site</i>
			<p>by rockfall, so there is no potential for passage of this species upstream past the dam. The nearest recorded observation of this species occurred in the Stanislaus River in 2017. OID completed an analysis of New Melones Reservoir hydrology (see Appendix B) to review any potential incidental impacts to New Melones Reservoir storage from the transfer. The results of that analysis indicate that while the need for spill from New Melones may be incrementally reduced in some years due to the Project, the flow requirements below Goodwin Dam are always met and the cold-water pool is not reached more often than without the Project.</p>
<p>Hardhead <i>(Mylopharodon conocephalus)</i></p>	<p>CSC</p>	<p>Occurs in low- to mid-elevation streams in the Sacramento-San Joaquin drainage. Clear, deep pools with sand-gravel-boulder bottoms and slow-moving water is required. This species is often sympatric with Sacramento pikeminnow and Sacramento sucker. Hardhead are typically absent from streams occupied by centrarchids and from heavily altered habitats.</p>	<p>Absent. Although water within the District’s Canals comes from the Stanislaus River, this species could not occur within the Canals. Water is distributed into the canals at Goodwin Dam, and this species is only located downstream of this structure. The fish ladder at the Goodwin Dam has been destroyed by rockfall, so there is no potential for passage of this species upstream past the dam. The nearest recorded observations of this species occurred in the Stanislaus River and Tuolumne River in 2008. OID completed an analysis of New Melones Reservoir hydrology (see Appendix B) to review any potential incidental impacts to New Melones Reservoir storage from the transfer. The results of that analysis indicate that while the need for spill from New Melones may be incrementally reduced in some years due to the Project, the flow requirements below Goodwin Dam are always met and the cold-water pool is not reached more often than without the Project.</p>
<p>Least Bell’s Vireo <i>(Vireo bellii pusillus)</i></p>	<p>FE, CE</p>	<p>This migratory species breeds in southern California. Breeding habitat consists of dense, low, shrubby, riparian vegetation in the vicinity of water or dry river bottoms. By the early 1980s, this species was extirpated from most of its historic range in California,</p>	<p>Absent. The LPA is outside of the current known range of this species. This species has been extirpated from the region. The only recorded observation of this species in the region occurred approximately 10 miles southeast of the LPA in 1919.</p>

Species	Status	Habitat	Occurrence on Project Site
		including the Central Valley. This species now occurs exclusively along the coast of southern California (USFWS, 1998).	
Loggerhead Shrike <i>(Lanius ludovicianus)</i>	CSC	Frequents open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low herbaceous cover. In the Central Valley, nests in riparian areas, desert scrub, and agricultural hedgerows.	Present. This species was observed passing through the LPA during the biological survey.
Monarch Butterfly <i>(Danaus plexippus)</i>	FC	Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby. Larval host plants consist of milkweeds (<i>Asclepias</i> sp.). Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico.	Possible. There could be potential habitat for this species within the LPA.
Mountain Plover <i>(Charadrius montanus)</i>	CSC	Breeds on open plains at moderate elevations. Winters in short-grass plains and fields, plowed or fallow fields, and sandy deserts. Prefers flat, bare ground with burrowing rodents.	Possible. There is suitable habitat for this species within the LPA. This species could occur within the open areas in the LPA.
Northern California legless lizard <i>(Anniella pulchra)</i>	CSC	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.	Possible. There is suitable habitat for this species within the LPA. This species could occur within the loose soil of leaf litter in the LPA.
Northern Harrier <i>(Circus hudsonius)</i>	CSC	Nests and forges in various grasslands, including salt grass in desert sinks, riparian scrub, and wetland edges. Nests constructed on the ground from sticks in wet areas, usually on the edge of marshes.	Present. This species was observed passing through the LPA during the biological survey.
Osprey <i>(Pandion haliaetus)</i>	CWL	Found at the ocean shore, bays, freshwater lakes, and larger streams. Builds large nests in tree-tops within 15 miles of a good fish-producing body of water.	Possible. There is suitable habitat for this species within the LPA. This species could occur in large trees within the LPA since there are waterbodies in the region.
Pallid bat <i>(Antrozous pallidus)</i>	CSC	Found in grasslands, chaparral, and woodlands, where it feeds on ground- and vegetation-dwelling arthropods, and occasionally takes insects in flight. Prefers to roost in rock crevices, but may also use tree cavities, caves, bridges, and other man-made structures.	Possible. There is suitable habitat for this species within the LPA. This species could be found roosting in trees or in structures and foraging within open areas in the LPA.
Red Hills Roach <i>(Hesperoleucus symmetricus serpentinus)</i>	CSC	Found in small, spring fed intermittent creeks streams flowing through serpentine outcrops near Sonora. It may be confined to pools and perennial stream reaches during summer and drought.	Absent. The LPA is outside of the typical range of this species.

Species	Status	Habitat	Occurrence on Project Site
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	FE, CT	Underground dens with multiple entrances in alkali sink, valley grassland, and woodland in valleys and adjacent foothills.	Possible. There could be potential habitat for this species within the LPA. This species could be found within open areas in the LPA.
Steelhead – Central Valley DPS (<i>Oncorhynchus mykiss irideus</i> pop.11)	FT	This winter-run fish begins migration to fresh water during peak flows during December and February. Spawning season is typically from February to April. After hatching, fry move to deeper, mid-channel habitats in late summer and fall. In general, both juveniles and adults prefer complex habitat boulders, submerged clay and undercut banks, and large woody debris.	Absent. Although water within the District’s Canals comes from the Stanislaus River, this species could not occur within the Canals. Water is distributed into the canals at Goodwin Dam, and this species is only located downstream of this structure. The fish ladder at the Goodwin Dam has been destroyed by rockfall, so there is no potential for passage of this species upstream past the dam. The nearest recorded observation of this species occurred in the Stanislaus River and Tuolumne River in 2014. OID completed an analysis of New Melones Reservoir hydrology (see Appendix B) to review any potential incidental impacts to New Melones Reservoir storage from the transfer. The results of that analysis indicate that while the need for spill from New Melones may be incrementally reduced in some years due to the Project, the flow requirements below Goodwin Dam are always met and the cold-water pool is not reached more often than without the Project.
Swainson’s Hawk (<i>Buteo swainsoni</i>)	CT	Nests in large trees in open areas adjacent to grasslands, grain or alfalfa fields, or livestock pastures suitable for supporting rodent populations.	Possible. There is suitable habitat for this species within the LPA. This species could be found in large trees within the LPA.
Townsend’s big-eared bat (<i>Corynorhinus townsendii</i>)	CSC	Occurs in a variety of habitats, but prefers cool, dark roost sites, and are often found in caves and mines. They roost in the open, hanging from walls and ceilings. Western populations typically forage on moths in areas of dense foliage.	Possible. There is potential habitat for this species within the LPA. This species would not be expected to roost within the LPA, but there is high quality foraging habitats within the LPA which this species could utilize.
Tricolored Blackbird (<i>Agelaius tricolor</i>)	CT, CSC	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 on dairy farm forage fields.	Possible. There is suitable habitat for this species within the LPA. There is nesting habitat such as dense cattails within the LPA.
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	FT	Lives in mature elderberry shrubs of the Central Valley and foothills. Adults are active March to June.	Possible. There is potential habitat for this species within the LPA. There could be elderberry shrubs within the LPA for this species to utilize.

Species	Status	Habitat	Occurrence on Project Site
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	FT	Occupies vernal pools, clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools.	Possible. There is suitable habitat for this species within the LPA. There are known vernal pools within the LPA.
Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>)	FE	Occurs in vernal pools, clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools.	Possible. There is suitable habitat for this species within the LPA. There is Critical Habitat for this species within the LPA.
Western mastiff bat (<i>Eumops perotis californicus</i>)	CSC	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.	Possible. There is suitable habitat for this species within the LPA. This species could potentially roost in structures or forage within the LPA.
Western pond turtle (<i>Emys marmorata</i>)	CSC	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.	Possible. There is suitable habitat for this species within the Program area. This species is known to occur within canals and ditches.
Western red bat (<i>Lasiurus blossevillii</i>)	CSC	Roosts primarily in trees, 2–40 ft above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	Possible. There is suitable habitat for this species within the LPA. This species could potentially roost in structures or forage within the LPA.
Western spadefoot (<i>Spea hammondi</i>)	CSC	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 pools or temporary wetlands, lasting a minimum of three weeks, which do not contain bullfrogs, fish, or crayfish are necessary for breeding.	Possible. There is suitable habitat for this species within the LPA. This species could potentially breed within the canals or ditches within the LPA.
Yellow Breasted Chat (<i>Icteria virens</i>)	CSC	Inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	Possible. There is suitable habitat for this species within the LPA. Riparian thickets of blackberry were observed within the LPA where this species could potentially nest.

Table 6. List of Special Status Plants with Potential to Occur Onsite and/or in the Vicinity.

<i>Species</i>	<i>Status</i>	<i>Habitat</i>	<i>Occurrence on Project Site</i>
Ahart's dwarf rush <i>(Juncus leiospermus</i> <i>var. ahartii)</i>	CNPS 1B	Located within valley and foothill grasslands. Restricted to the edges of vernal pools at elevations between 100 and 750 feet. Blooms March - May	Possible. There is suitable habitat for this species within the LPA. There are vernal pools and grasslands in the LPA.
Beaked clarkia <i>(Clarkia rostrata)</i>	CNPS 1B	Found in woodlands and valley foothill grasslands on the west slope of the Sierra Nevada range, between 200 and 3000 feet in elevation. Blooms April – May.	Possible. There are multiple observations of this species in the region. There is suitable habitat for this species in the LPA.
Chinese Camp brodiaea <i>(Brodiaea pallida)</i>	FT, CE, CNPS 1B	Found in valley and foothill grassland, and cismontane woodland. Often in rocky, intermittent streambeds. Associated with serpentinite. At elevations between 540 and 1265 feet. Blooms May - June.	Absent. The LPA is outside of the lower elevational range of this species.
Colusa grass <i>(Neostapfia colusana)</i>	FT, CE, CNPS 1B	Found in vernal pools in the San Joaquin Valley at elevations below 410 feet. Blooms May – August.	Possible. There is suitable habitat for this species within the LPA. There is Critical Habitat for this species located within the LPA.
Congdon's lomatium <i>(Lomatium congdonii)</i>	CNPS 1B	Occurs in cismontane woodland and chaparral. Especially in serpentine soils with serpentine chaparral plants and grey pines. Elevation 1100 to 2050 feet. Blooms March - June.	Absent. The LPA is outside of the lower elevational range of this species.
Delicate bluecup <i>(Githopsis tenella)</i>	CNPS 1B	Found in foothill areas surrounding the San Joaquin Valley, growing in mesic sites. Habitats include chaparral and cismontane woodlands at elevations between 3610 feet and 6233 feet. Blooms May – June.	Absent. The LPA is outside of the lower elevational range of this species.
Delta button-celery <i>(Eryngium racemosum)</i>	CE, CNPS 1B	Found in riparian scrublands in floodplains near the California Delta at elevations between 10 and 100 feet. Blooms June – August.	Possible. There could be potential habitat for this species within the LPA.
Dwarf downingia <i>(Downingia pusilla)</i>	CNPS 2B	Found in vernal pools in valley and foothill grassland communities at elevations below 1600 feet. Blooms March – May.	Possible. There is suitable habitat for this species within the LPA. There are known vernal pools within the LPA.
Forked hare-leaf <i>(Lagophylla dichotoma)</i>	CNPS 1B	Found in cismontane woodland, and valley and foothill grassland communities at elevations between 600 feet and 1100 feet.	Absent. The LPA is outside of the lower elevational range of this species.
Greene's tuctoria <i>(Tuctoria greenei)</i>	FE, CR, CNPS 1B	Found in the San Joaquin Valley and other parts of California in vernal pools within valley grassland, wetland, and riparian communities at elevations below 3500 feet. Blooms May – September.	Possible. There is suitable habitat for this species within the LPA. This species could occur within the riparian habitat within the LPA. There is Critical Habitat for this species located in the LPA.
Hairy Orcutt grass <i>(Orcuttia pilosa)</i>	FE, CE, CNPS 1B	Found in vernal pools in valley grassland, wetland, and riparian communities at elevations below 650 feet. Blooms May – September.	Possible. There is suitable habitat for this species within the LPA. There are known vernal pools within the LPA.

<i>Species</i>	<i>Status</i>	<i>Habitat</i>	<i>Occurrence on Project Site</i>
Hartweg’s golden sunburst <i>(Pseudobahia bahifolia)</i>	FE, CE, CNPS 1B	Found in valley and foothill grassland and cismontane woodland communities in clay soils that are often acidic. Occurs predominantly on northern slopes, but also along shady creeks and near vernal pools at elevations between 300 feet and 650 feet. Blooms March – May.	Possible. There is suitable habitat for this species within the LPA. This species could occur within the clay soil and riparian habitat in the LPA.
Heartscale <i>(Atriplex cordulata var. cordulata)</i>	CNPS 1B	Found in the San Joaquin Valley and Sacramento Valley in saline or alkaline soils within shadescale scrub, valley grassland, and wetland-riparian communities at elevations below 230 feet. Blooms June–July.	Possible. There could be potential habitat for this species within the LPA.
Hoover’s calycadenia <i>(Calycadenia hooveri)</i>	CNPS 1B	Found in valley and foothill grassland and cismontane woodland communities on exposed, rocky, barren soil at elevations between 300 feet and 1300 feet. Blooms June – September.	Possible. There is suitable habitat for this species within the LPA. The LPA contains soil that could potentially support this species.
Hoover’s cryptantha <i>(Cryptantha hooveri)</i>	CNPS 1A	Presumed extirpated in California. Found in valley and foothill grassland and inland dunes in coarse sand at elevations below 250 feet. Blooms Mar – May.	Unlikely. This species has not been observed in the region in over 80 years. It is presumed to be extirpated in California.
Hoover’s spurge <i>(Euphorbia hooveri)</i>	FT, CNPS 1B	Found in the San Joaquin Valley and Sacramento Valley in vernal pools within valley grassland, freshwater wetland, and riparian communities at elevations below 800 feet. Blooms July – September.	Possible. There is suitable habitat for this species within the LPA. This species could occur within vernal pools, grasslands, wetlands, or riparian communities within the LPA.
Layne’s ragwort <i>(Packera layneae)</i>	FT, CR, CNPS 1B	Found in chaparral and cismontane woodland communities. Associated with serpentine or gabbro soils, rocky areas, and occasionally along streams. At elevations between 655 to 3560 feet. Blooms April - August.	Absent. The LPA is outside of the lower elevational range of this species.
Legenere <i>(Legenere limosa)</i>	CNPS 1B	Found in wetlands and vernal pool beds at elevations between 5 and 2900 feet. Blooms April - June.	Possible. There is suitable habitat for this species within the LPA. This species could occur within wetlands or vernal pools in the LPA.
Mariposa cryptantha <i>(Cryptantha mariposae)</i>	CNPS 1B.3	Usually occurs in chaparral communities. Can be found on rocky, semi barren ridges, dry slopes, and serpentine outcrops at elevations between 650 feet and 2135 feet. Blooms April - June.	Absent. The LPA is outside of the lower elevational range of this species.
Merced monardella <i>(Monardella leucocephala)</i>	CNPS 1A	Found in the San Joaquin Valley, associated with valley and foothill grasslands. Grows along rivers in moist, sandy soils at elevations between 164 feet and 328 feet. Blooms May – July.	Possible. There is suitable habitat for this species within the LPA. This species could occur within the grasslands or riparian habitat in the LPA.

<i>Species</i>	Status	<i>Habitat</i>	<i>Occurrence on Project Site</i>
Patterson’s navarretia (<i>Navarretia paradoxiclara</i>)	CNPS 1B	Found in open, seasonally wet meadows and seeps. Associated with drainages, openings, serpentinite, and vernal mesic soils. At elevations between 500 and 1400 feet. Blooms May - June.	Absent. The LPA is outside of the lower elevational range of this species.
Peruvian dodder (<i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>)	CNPS 2B	An annual vine located in marshes and swamps. Found on herbs including <i>Alternanthera</i> , <i>Dalea</i> , <i>Lytbrum</i> , <i>Polygonum</i> , and <i>Xanthium</i> .	Unlikely. This species is presumed extirpated in California. It has not been observed in the region in over 70 years.
Pincushion navarretia (<i>Navarretia myersii</i> spp. <i>myersii</i>)	CNPS 1B	Found in vernal pools in clay soils at elevations between 65-295 feet. Often associated with non-native grasslands. Blooms in May.	Possible. There is suitable habitat for this species within the LPA. This species could occur within vernal pools in the LPA.
Rawhide Hill onion (<i>Allium tuolumnense</i>)	CNPS 1B	Found in cismontane woodland. Restricted to serpentine soil, usually in grey pine chaparral. Associated with steep, rocky, south facing slopes or small drainages. Found at elevations between 1000 and 1970 feet. Blooms March - May.	Absent. The LPA is outside of the lower elevational range of this species.
Red Hills cryptantha (<i>Cryptantha spithamaea</i>)	CNPS 1B	Found in chaparral and cismontane woodland communities. Associated with serpentinite, streambeds, and openings at elevations between 900 and 1500 feet. Blooms April - May.	Absent. The LPA is outside of the lower elevational range of this species.
Red Hills ragwort (<i>Senecio clevelandii</i> var. <i>heterophyllus</i>)	CNPS 1B	Found in cismontane woodland communities. Associated with ultramafic and drying serpentine soils. Is often found along streams. At elevations between 850 and 1265 feet. Blooms May - July.	Absent. The LPA is outside of the lower elevational range of this species.
Red Hills soaproot (<i>Chlorogalum grandiflorum</i>)	CNPS 1B	Found in cismontane woodland, chaparral, and lower montane coniferous forest communities. Occurs frequently on serpentine or gabbro soils, as well as non-ultramafic substrates. Can be found on historically disturbed sites. At elevations between 800 and 5550 feet. Blooms May - June.	Absent. The LPA is outside of the lower elevational range of this species.
Red Hills vervain (<i>Verbena californica</i>)	FT, CT, CNPS 1B	Occurs in cismontane woodland, as well as valley and foothill grassland communities. Associated with mesic sites on serpentine, usually serpentine seeps, or creeks. At elevations between 850 and 1310 feet. Blooms May - September.	Absent. The LPA is outside of the lower elevational range of this species.
San Joaquin Valley Orcutt grass (<i>Orcuttia inaequalis</i>)	FT, CE, CNPS 1B	Found in the eastern San Joaquin Valley and the Sierra Nevada foothills in vernal pools within valley grassland, freshwater wetland, and wetland-riparian communities at elevations below 2600 feet. Blooms April – September.	Possible. There is suitable habitat for this species within the LPA. This species could occur within vernal pools, grasslands, wetlands, or wetland-riparian communities within the LPA.

<i>Species</i>	Status	<i>Habitat</i>	<i>Occurrence on Project Site</i>
Shaggyhair lupine <i>(Lupinus spectabilis)</i>	CNPS 1B	Chaparral, cismontane woodland. Open rocky slopes of serpentine. Mostly on serpentine chaparral surrounded by grey pine woodland at elevations between 855 and 2705 feet.	Absent. The LPA is outside of the lower elevational range of this species.
Spiny-sepaled button-celery <i>(Eryngium spinosepalum)</i>	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 feet and 4160 feet. Blooms April–July.	Possible. There is suitable habitat for this species within the LPA. This species could occur within the canals or ditches in the LPA.
Stanislaus monkeyflower <i>(Erythranthe marmorata)</i>	CNPS 1B	Found in cismontane woodland and lower montane coniferous forest communities at elevations between 330 and 3000 feet. Blooms March - May.	Possible. There could be potential habitat for this species within the LPA.
Subtle orache <i>(Atriplex subtilis)</i>	CNPS 1B	Found in the San Joaquin Valley in saline depressions in alkaline soils within valley and foothill grassland communities at elevations below 330 feet. Blooms June–October.	Possible. There is potential habitat for this species within the LPA. This species could occur within grassland communities in the LPA.
Succulent owl’s-clover <i>(Castilleja campestris var. succulenta)</i>	FT, CE, CNPS 1B	Found in vernal pools, often in acidic soils at elevations below 2500 feet. Blooms April – July.	Possible. There is potential habitat for this species within the LPA. This species could occur within vernal pools in the LPA.
Tongue-leaf copper moss <i>(Scopelophila cataractae)</i>	CNPS 2B	Found in cismontane woodland communities. Is found on metamorphic substrate. There is only one recorded occurrence of this species on California, at an elevation of 1310 feet.	Unlikely. This is no suitable habitat for this species within the LPA.
Tuolumne button-celery <i>(Eryngium pinnatisectum)</i>	CNPS 1B	Found in cismontane woodland and lower montane coniferous forest communities, and vernal pools. Associated with volcanic soils, wetlands, and mesic sites within other natural communities at elevations between 230 and 3000 feet. Blooms May - August.	Possible. There is suitable habitat for this species within the LPA. This species could occur within vernal pools in the LPA.
Veiny monardella <i>(Monardella venosa)</i>	CNPS 1B	Found in valley grassland, foothill grassland, and cismontane woodland communities. Occurs in heavy clay, mostly with grassland associates. At elevations between 200 and 1350 feet. Blooms May - July.	Possible. There is suitable habitat for this species within the LPA. There is clay soil present within the LPA.

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	CFP	California Fully Protected
FSC	Federal Species of Concern	CSC	California Species of Concern
		CWL	California Watch List
		CCE	California Endangered (Candidate)
		CR	California Rare

CNPS LISTING

1A	Plants Presumed Extinct in California.	2B	Plants Rare, Threatened, or Endangered in
1B	Plants Rare, Threatened, or Endangered in		California, but more common elsewhere.

Designated Habitat and Communities

The CDFW and USFWS often designate 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 and would require special management or protection. According to CNDDDB and IPaC, there are six critical habitats wholly or partially within the entire LPA. There is Critical Habitat for California tiger salamander, Colusa grass, Greene’s tuctoria, Hoover’s spurge, succulent owl’s-clover, and vernal pool tadpole shrimp.

CDFW also designates “natural communities of special concern” and are defined by distinguished, significant biological diversity, or a home to special status species. According to CNDDDB, there are four occurrences of Northern Hardpan Vernal Pool just north of the LPA.

Wildlife Corridors

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, and rivers and creeks supporting riparian vegetation. Some of the canals or streams within the LPA have the potential to be used as wildlife movement corridors.

Project Impacts Analysis

Of the 35 regionally occurring special status animal species, eight were found to be absent or unlikely to occur within the LPA due to unsuitable habitat. As explained in **Table 5**, these species include: Chinook salmon, delta smelt, foothill yellow-legged frog, green sturgeon, hardhead, least Bell’s vireo, Red Hills roach, and steelhead. Since it is unlikely these species would occur onsite, implementation of the Project would have no impact on these special status species through construction mortality, disturbance, or loss of habitat. Protection measures are not warranted.

Of the 37 regionally occurring special status plant species, 16 were found to be absent or unlikely to occur within the APE due to unsuitable habitat, known range, elevation, and soil type. As explained in **Table 6**, these species include: Chinese Camp brodiaea, Congdon’s Lomatium, delicate bluecup, forked hare-leaf, Hoover’s cryptantha, Layne’s ragwort, Mariposa cryptantha, Patterson’s navarretia, Peruvian dodder, Rawhide Hill onion, Red Hills cryptantha, Red Hills ragwort, Red Hills soaproot, Red Hills vervain, shaggyhair lupine, and tongue-leaf copper moss. Since it is unlikely these species would occur onsite, implementation of the Project would have no impact on these special status species through construction mortality, disturbance, or loss of habitat. Protection measures are not warranted.

Special status species that are possible or likely to occur within the LPA include: American badger, Bald Eagle, Burrowing Owl, California Horned Lark, California tiger salamander, conservancy fairy shrimp, Crotch bumble bee, giant gartersnake, Loggerhead Shrike, monarch butterfly, mountain plover, Northern California legless lizard, Northern Harrier, Osprey, pallid bat, San Joaquin kit fox, Swainson’s Hawk, Townsend’s big-eared bat, Tricolored Blackbird, valley elderberry longhorn beetle, vernal pool fairy shrimp, vernal pool tadpole shrimp, western bumble bee, western mastiff bat, western pond turtle, western red bat, western spadefoot, Yellow

Breasted Chat, Ahart's dwarf rush, beaked clarkia, Colusa grass, delta button-celery, dwarf downingia, Greene's tuctoria, hairy Orcutt grass, Hartweg's golden sunburst, heartscale, Hoover's calycadenia, Merced monardella, Pincushion navarettia, San Joaquin Valley Orcutt grass, spiny-sepaled button-celery, Stanislaus monkeyflower, subtle orache, succulent owl's-clover, Tuolumne button-celery, and veiny monardella. Mitigation Measures are identified below to protect these special status species.

Mitigation Measures

In addition to the mitigation measures identified in above the following mitigation measures also apply to LPA participants prior to any construction activities and have been identified to protect special status species which have potential to occur within the LPA. The landowner will be responsible for having a qualified biologist conduct a pre-construction survey of their proposed work areas in order to determine which of these mitigation measures are necessary.

American Badger

Mitigation Measure BIO-8a (Pre-construction Survey): A qualified biologist will conduct a pre-construction survey of Project areas within 30 days prior to vegetation clearing or ground disturbing activities. Goals of this survey include a search for potentially active badger dens and suitable habitat within Project areas for American badger. Environmentally sensitive areas will be flagged for avoidance. If no American badger individuals or suitable burrows are observed, no further mitigation is required.

Mitigation Measure BIO-8b (Camera Station): If potential dens with dimensions suitable for American badger (diameter of four (4) inches or greater) are detected during pre-construction surveys, each potential den will be monitored by a qualified biologist with remote camera stations for a period of three consecutive nights. If there is no activity at the den location recorded for three consecutive nights, the den can be deemed "inactive" or "unoccupied" and will be sealed or destroyed within 24 hours of the inactive findings.

Mitigation Measure BIO-8c (Den Avoidance/Buffers): If an American badger is denning on or within 50 feet of the Project site, the Project proponent will avoid the den by a minimum 50-foot buffer. If the 50-foot buffer cannot be maintained, the Project proponent will contact CDFW for guidance on how to proceed.

Mitigation Measure BIO-8d (Consultation/ITP): Badgers will not be evicted from dens without CDFW consultation/ coordination. In the event an active den is detected during surveys and cannot be avoided, consultation with CDFW is warranted to discuss how to implement the Project and avoid take. If take cannot be avoided, take authorization through the acquisition of an ITP pursuant to Fish and Game Code section 2081, subdivision (b) is necessary to comply with CESA.

Bald Eagle

Mitigation Measure BIO-9a (Pre-construction Survey): If activities must occur within breeding season (February 1 to August 31), a qualified biologist will conduct pre-construction surveys for eagle nests within 30 days prior to the start of construction. The survey will include the proposed work area and surrounding lands within one mile. Eagle nests are considered "active" upon the nest-building stage.

Mitigation Measure BIO-9b (Establish Buffers): On discovery of an active eagle nest near work areas, the following no-disturbance buffers will be maintained around each nest: 660-foot no-disturbance buffer. If a 660-foot buffer zone is infeasible, the Project proponent will contact CDFW for guidance on how to proceed.

Mitigation Measure BIO-9c (Reporting): All detected eagle nests will be reported to CDFW and USFWS immediately. This includes any nest that has been used by an eagle in the past or is being used currently as a primary or alternate nest site. The discovery of any eagle carcasses and any non-lethal or lethal incidental “take” of these species will be reported to CDFW and USFWS immediately.

California Tiger Salamander

Mitigation Measure BIO-10a (Avoidance): The Project’s construction activities should occur, if feasible, between May 1 and September 30 (outside of wet season) in an effort to avoid impacts to California tiger salamander.

Mitigation Measure BIO-10b (Exclusion fencing): If the Project must occur during the wet season (May 1 – September 30), the Project should install exclusion fencing around active construction to ensure California tiger salamanders do not enter the site during construction. Exclusion fencing materials, size, and placement should follow wildlife agency guidelines appropriate for the species.

Mitigation Measure BIO-10c (Formal Consultation): If any California tiger salamanders are observed during construction, work should stop immediately. A qualified wildlife biologist, approved to handle and remove California tiger salamander should be called to identify and remove the species. If take of any individual California tiger salamanders occurs, USFWS should be notified immediately, and the qualified biologist should remain onsite as a monitor during construction activities to provide protection of the species.

Conservancy Fairy Shrimp, Vernal Pool Fairy Shrimp, and Vernal Pool Tadpole Shrimp

Mitigation Measure BIO-11a (Desktop Survey): A qualified biologist will perform a desktop survey of the APE and an additional 100-foot survey area around the designated APE to determine if appropriate habitat for vernal pool fairy shrimp or vernal pool tadpole shrimp exists within the Project area or has existed in the past. If no suitable habitat is observed, no further mitigation is required.

Mitigation Measure BIO-11b (Avoidance): On discovery of suitable habitat for special status fairy shrimp, a qualified biologist will determine appropriate construction setback (buffer zones) based on applicable CDFW and/or USFWS guidelines, if appropriate. Please refer to MM BIO-3 Vernal Pools for buffer zones. Construction buffers will be identified with flagging, fencing, or other easily visible means. If appropriate buffer zones cannot be maintained throughout Project activities the Project will not be able to proceed.

Mitigation Measure BIO-11c (Project Relocation): If the Project proponent wants to avoid the permitting process, project activities will be moved to provide the appropriate buffer zone identified in MM BIO-3c.

Crotch Bumble bee and Western Bumble Bee

Mitigation Measure BIO-12a (Pre-Construction Survey): A qualified biologist will survey the Project work area during spring or fall prior to the start of Project activities to identify whether over-wintering, nesting, or foraging habitats of the Crotch bumble bee or Morrison bumble bee are present on or within 100 feet of the Project work area. If no suitable habitat is observed, no further mitigation is required.

Mitigation Measure BIO-12b (Visual Surveys): If suitable habitat is identified in the Project work area, a qualified biologist will conduct visual surveys during the flying period between March 1 to

September 1 prior to Project activity. If an individual or nest is observed, no Project activities will occur until CDFW has been consulted.

Mitigation Measure BIO-12c (Formal Consultation): The qualified biologist will consult with CDFW if an individual or a nest is observed. Work will not occur until CDFW determines distances for disturbance-free buffers, or a plan to protect the Crotch bumble bee/western bumble bee, including over-wintering queens, has been submitted to and approved in writing by CDFW.

Giant Gartersnake

Mitigation Measure BIO-13a (Pre-construction Survey): A qualified biologist shall conduct a pre-construction survey of Project areas within 30 days prior to vegetation clearing or ground disturbing activities. If evidence of a suitable habitat for giant gartersnake is detected on pre-construction surveys, construction monitoring will be required.

Mitigation Measure BIO-13b (Monitor): A qualified biologist will conduct a pre-activity clearance survey each day and remain onsite to oversee all vegetation clearing and ground disturbing activities conducted within suitable habitat for giant gartersnake. The biological monitor must possess required collecting/handling permits. If a special status reptile or amphibian is observed within Project areas, the biologist will stop work order and the individual will either be allowed to leave of its own volition or will be captured by the qualified biologist and relocated out of harm's way to the nearest suitable habitat beyond the influence of the Project work area. "Take" of listed (rare, threatened, or endangered) is prohibited. If a listed species is observed within the Project area, the biologist will stop work and contact the appropriate regulatory agency (CDFW and/or USFWS) for guidance on how to proceed.

Monarch Butterfly

Mitigation Measure BIO-14a (Pre-Construction Survey): A qualified biologist will survey the Project work area within 7 days prior to the start of Project activities to identify whether over-wintering or foraging habitats of the Monarch butterfly are present on or within 100 feet of the Project work area. If no individuals or suitable habitat is observed, no further mitigation is required.

Mitigation Measure BIO-14b (Visual Surveys): If suitable habitat is identified buffer zones of 100 feet will be provided using exclusion fencing. If habitat cannot be avoided, a qualified biologist will conduct visual surveys between October through May prior to Project activity. Surveys will not take place when daytime temperatures are below 55 degrees Fahrenheit. If an individual or colony is observed, no Project activities will occur until CDFW has been consulted.

Mitigation Measure BIO-14c (Consultation with CDFW): The qualified biologist will consult with CDFW if an individual or a colony is observed. Work will not occur until a plan to protect the Monarch butterfly, including over-wintering colonies, has been submitted and approved in writing by CDFW.

Northern California Legless Lizard

Mitigation Measure BIO-15a (Avoidance): The Project's construction activities will occur, if feasible, outside of areas that contain loose soil or leaf litter which are suitable habitats for legless lizards. If no individuals or suitable habitat is observed, no further mitigation is required.

Mitigation Measure BIO-15b (Pre-construction Surveys): If activities must occur in areas that contain loose soil and leaf litter a qualified biologist will conduct pre-construction surveys within 48 hours prior to beginning any Project activities. Any loose substrate in which lizards could bury themselves will be gently raked with a hand tool (e.g., a garden rake) to a depth of two inches to locate any lizards that could be under the surface.

Mitigation Measure BIO-15c (Consulting Agencies): On discovery of any Northern California legless lizards, the biologist will consult CDFW and/or USFWS to determine adequate buffers and mitigation since no guidelines currently exist for this species.

San Joaquin kit fox

Mitigation Measure BIO-16a (Pre-Construction Survey): No less than 14 days and no more than 30 days prior to the start of construction, a pre-construction survey for San Joaquin kit fox will be conducted on and within 500 feet of proposed work areas. If no suitable habitat or potential dens are observed, no further mitigation is required.

Mitigation Measure BIO-16b (Establish Buffers): On discovery of any potential SJKF dens near the Project area a qualified biologist will determine appropriate construction setback distances (buffer zones) based on applicable CDFW and/or USFWS guidelines (below). If buffer distances cannot be maintained, a focused survey would be required. Construction buffers will be identified with flagging, fencing, or other easily visible means, and 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-16c (Focused Surveys): If a potential San Joaquin kit fox den is detected within 500 feet of construction activities and buffer distances cannot be maintained, a Focused Survey will be performed in accordance with the *USFWS 2011 Standardized Recommendations for Protection of the San Joaquin Kit Fox* (United States Fish and Wildlife Service, 2011).

Mitigation Measure BIO-16d (Cover Excavations/Mortality Reporting): Pipes or culverts with a diameter greater than 4 inches will be capped or taped closed when it is ascertained that no SJKF are present. Any SJKF found in a pipe or culvert will be allowed to escape unimpeded. The Sacramento Field Office of USFWS and the Fresno Field Office of CDFW will be notified in writing within three working days in the case of the accidental death or injury to a San Joaquin kit fox during construction. Notification must include the date, time, and location of the incident and any other pertinent information.

Valley Elderberry Longhorn Beetle

Mitigation Measure BIO-17a (Pre-Construction Survey): A qualified biologist will conduct a pre-construction survey within the APE and an additional 100-foot survey area around the designated APE for elderberry plants suitable to host Valley elderberry longhorn beetle (VELB) in areas where vegetation removal will occur 30 days prior to the start of construction. If no individuals or suitable habitat is observed, no further mitigation is required.

Mitigation Measure BIO-17b (Avoidance): If elderberry plants are identified, construction buffers will be placed around the plant(s). Complete avoidance (i.e., no adverse effects) may be assumed when a 100-foot buffer is established and maintained around all elderberry plants. If complete avoidance of all elderberry plants cannot be maintained, then a focused survey according to USFWS's *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (United States Fish and Wildlife Service, 1999), will be required.

Mitigation Measure BIO-17c (Focused Survey): If elderberry plants are identified a focused survey will be performed between March and June when VELB adults are active. All plants will be inspected

to determine if they have stems measuring 1.0 inch or greater in diameter at ground level. Elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level will be inspected for exit holes within the stems as they have the potential to host VELB. If the Elderberry shrubs have no stems measuring 1.0 inch or greater in diameter at ground level, they are unlikely to be habitat for the beetle because of their small size and/or immaturity. Therefore, no minimization measures are required for removal of elderberry plants with no stems measuring 1.0 inch or greater in diameter at ground level with no exit holes. If suitable VELB host plants are found and cannot be avoided, then CDFW will be consulted on how to proceed.

Mitigation Measure BIO-17d (Formal Consultation): If suitable VELB host plants are detected within Project work areas during the pre-construction survey, and the plants cannot be avoided, the Project proponent will initiate consultation with CDFW and/or USFWS to determine next steps for relocation or to obtain an Incidental Take Permit (ITP).

Special Status Plant Species

Mitigation Measure BIO-18a (Pre-Construction Survey): A qualified botanist/biologist will conduct focused botanical surveys for Ahart's dwarf rush, beaked clarkia, Colusa grass, delta button-celery, dwarf downingia, Greene's tuctoria, hairy Orcutt grass, Hartweg's golden sunburst, heartscale, Hoover's calycadenia, Merced monardella, Pincushion navarettia, San Joaquin Valley Orcutt grass, spiny-sepaed button-celery, Stanislaus monkeyflower, subtle orache, succulent owl's-clover, Tuolumne button-celery, and veiny monardella according to CDFW's Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (2018) for areas where ground disturbance will occur and prior to the start of construction.

Mitigation Measure BIO-18b (Avoidance): If special status plants are identified during a survey, a disturbance-free buffer and use of exclusion fencing will be placed around the area so as not to disturb the plants or their root system.

Mitigation Measure BIO-18c (Formal Consultation): If rare plant individuals or populations or sensitive natural communities are detected within Project work areas during the focused botanical survey, and the plants cannot be avoided, the Project proponent will initiate consultation with CDFW and/or USFWS to determine next steps for relocation or to obtain an Incidental Take Permit (ITP).

Sensitive Natural Communities

Mitigation Measure BIO-19a (Desktop Survey): A qualified biologist will perform a desktop survey of the project area to determine if Northern Hardpan Vernal Pool, other vernal pools, riparian habitat, Critical Habitat, or other sensitive natural communities exist within the Program area or has existed in the past. If no suitable habitat is observed, no further mitigation is required.

Mitigation Measure BIO-19b (Pre-construction Survey): If areas with suitable habitat were found during the Desktop Survey a qualified biologist will conduct a pre-construction survey of Project areas prior to approving the Project.

Mitigation Measure BIO-19c (Avoidance): On discovery of a sensitive natural community, or in the presence of designated Critical Habitat a qualified biologist will determine appropriate construction setback distances (buffer zones) and/or based on applicable CDFW and/or USFWS guidelines. A qualified biologist will determine if this is adequate or if site-specific buffers must be implemented. Construction buffers will be identified with flagging, fencing, or other easily visible means. If appropriate buffer zones cannot be maintained throughout Program activities the Program proponent will need to obtain all necessary permits required by federal, state, and local regulatory agencies.

Regulated Waters, Wetlands, and Water Quality

Mitigation Measure BIO-20a (Desktop Survey): A qualified biologist will perform a desktop survey of the project area to determine if potential jurisdictional waters or wetlands as defined by Section 404 of the Clean Water Act are present within the Project area or have existed in the past. If no potential jurisdictional waters/wetlands are observed, no further mitigation is required.

Mitigation Measure BIO-20b (Delineation): If areas with suitable habitat were found during the Desktop Survey a qualified biologist will conduct a delineation of Project areas to identify potential jurisdictional waters/wetlands prior to approving the Project.

Mitigation Measure BIO-20c (Permits and regulations): If potential jurisdictional waters or wetlands are determined to be within the APE or impacted by Project activities, the proponent will ensure all required permits are obtained with all appropriate federal, state, and local regulatory agencies.

Wildlife Movement Corridors and Native Wildlife Nursery Sites

Mitigation Measure BIO-21a (Pre-construction Survey): A qualified biologist will conduct a pre-construction survey of construction areas prior to approval. This survey will look for wildlife movement corridors and native wildlife nursery sites. If no suitable habitat is observed, no further mitigation is required.

Mitigation Measure BIO-21b (Operational Hours): Construction activities will be limited to daylight hours to reduce potential impacts to wildlife movement corridors.

Mitigation Measure BIO-21c (Wildlife Access): At no point will access 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 will be identified by a qualified biologist and maintained throughout the construction schedule timeframe.

Mitigation Measure BIO-21d (Cover Excavations): Pipeline/culvert/siphon excavations and vertical pipes shall be covered each night to prevent wildlife from falling in and becoming trapped or injured during migratory or dispersal movements.

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Appendix A: Photos of the Project Area

OAKDALE IRRIGATION DISTRICT

10 YEAR OUT OF DISTRICT WATER SALES PROGRAM



Photograph 1

Proposed turnout location on South Main Canal.



Photograph 2

Proposed pipeline from the turnout on South Main Canal. The pipeline would end within the Oakdale Irrigation District (OID) right-of-way.



Photograph 3

Surrounding land to the northeast consisted of cat-tails.



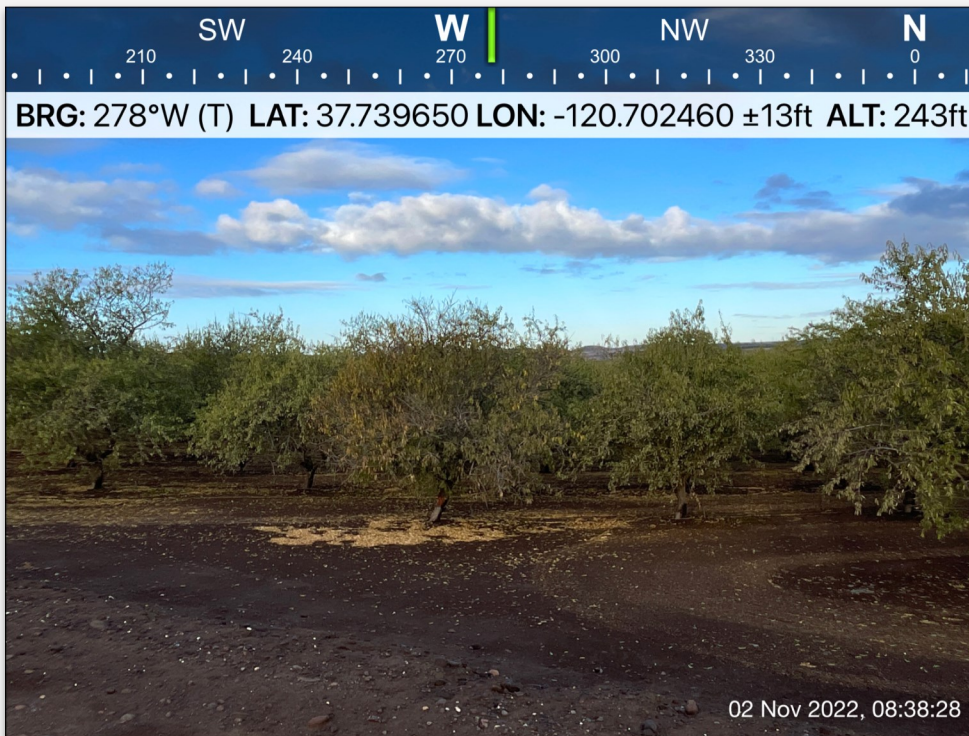
Photograph 4

Surrounding land to the northwest consisted of a dairy farm.



Photograph 5

Proposed turnout location on Paulsell Lateral Canal.



Photograph 6

Surrounding land to the west consisted of agricultural orchards.



Photograph 7

Proposed turnout location on Paulsell Lateral Canal.



Photograph 8

Proposed pipeline from the turnout on Paulsell Lateral Canal. The pipeline would end within the Oakdale Irrigation District (OID) right-of-way.



Photograph 9

Surrounding land to the north consisted of agricultural orchards.



Photograph 10

Surrounding land to the northeast consisted of train tracks.



Photograph 11

Proposed turnout location on Kearney Lateral Canal.



Photograph 12

Surrounding land to the northeast consisted of agricultural orchards.



Photograph 13

Proposed turnout location on Paulsell Lateral Canal.



Photograph 14

Surrounding land to the west consisted of grasslands.



Photograph 15

Proposed turnout location on South Main Canal.



Photograph 16

Surrounding land to the southwest consisted of agricultural orchards.



Photograph 17

Proposed turnout location off the grey pipeline that connects to South Main Canal.



Photograph 18

Surrounding land to the north consisted of agricultural orchards.



Photograph 19

Proposed turnout location on North Main Canal.



Photograph 20

Surrounding land to the north consisted of grasslands.



Photograph 21

Proposed turnout location on North Main Canal.



Photograph 22

Surrounding land to the northeast consisted of agricultural orchards.



Photograph 23

Proposed turnout location on Cometa Lateral Canal.



Photograph 24

Surrounding land to the west consisted of agricultural orchards.



Photograph 25

Proposed turnout location on Young Lateral Canal.



Photograph 26

Surrounding land to the southeast consisted of agricultural orchards.

Appendix B: Hydrology Transfer Memo

OAKDALE IRRIGATION DISTRICT

10 YEAR OUT OF DISTRICT WATER SALES PROGRAM

MEMORANDUM

TO: Tim O'Laughlin
FROM: Daniel B. Steiner
SUBJECT: Analysis of New Melones Reservoir Hydrology – Proposed Transfer
DATE: December 20, 2022

This memorandum summarizes the hydrologic results of an investigation of the potential changes in New Melones Reservoir operation that may occur due to the proposed program by Oakdale Irrigation District (OID or District) to provide up to 25,000 acre-feet of conserved surplus water to lands outside the District for ten years. The proposed transfer would occur all years except when the year is classified as critical under SWRCB Decision 1641. The diversion of this water would occur from Goodwin Reservoir.

The New Melones Operations Model (Model) was used for this investigation. Current operations of the Stanislaus River are modeled, including New Melones Reservoir, Tulloch Reservoir, and Goodwin Dam with diversions to the OID South Main Canal, Joint Main Canal, and Goodwin Tunnel. Required releases to the Stanislaus River below Goodwin Dam include releases for regulatory compliance with the current Biological Opinion (2019) for Reclamation operations on the Stanislaus River, SWRCB D1641 flow and quality requirements in the San Joaquin River, and for Dissolved Oxygen objectives in the Stanislaus River. Releases are also made for flood control operations in New Melones Reservoir. Inflow to New Melones Reservoir is consistent with long-term planning assumptions for historical hydrology.

Assumed current diversions of OID and South San Joaquin Irrigation District are projected for current land use within the Districts and the Districts' current system operation efficiencies. The CVP contractor allocations and diversions are assumed to be consistent with current Reclamation protocols and recent historical demand. The Model simulates a sequential operation for the hydrologic period 1922-2019.

The investigation compares the results of the Model for two simulations. The Baseline operation assumes current conditions as described above. The proposed action is the addition of the proposed diversion of 25,000 acre-feet from the Stanislaus River in all years except critical years. The transfer diversion is modeled as a diversion by SEWD. This was done for modeling purposes to depict the water that would be going to lands outside the District. No other operational change is made to the Baseline modeling.

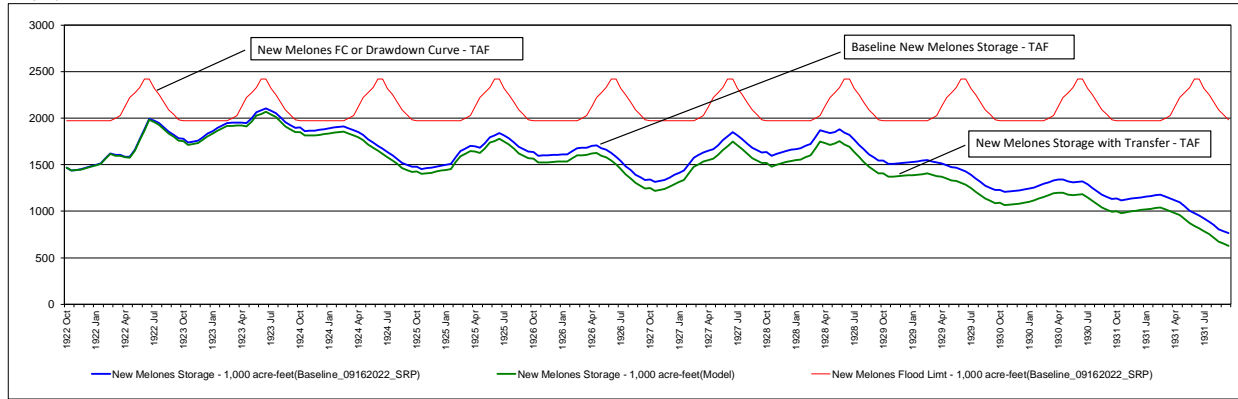
Results

Compared to Baseline, results of the operation comparison primarily show a lessening of reservoir storage in New Melones Reservoir in any year the transfer occurs, and during sequential years this annual depletion can accumulate. The exception to this result occurs in wetter years when the reservoir fills, and inflow exceeds downstream demand releases and additional reservoir releases are needed to reach flood control reservoir storage reservation objectives.

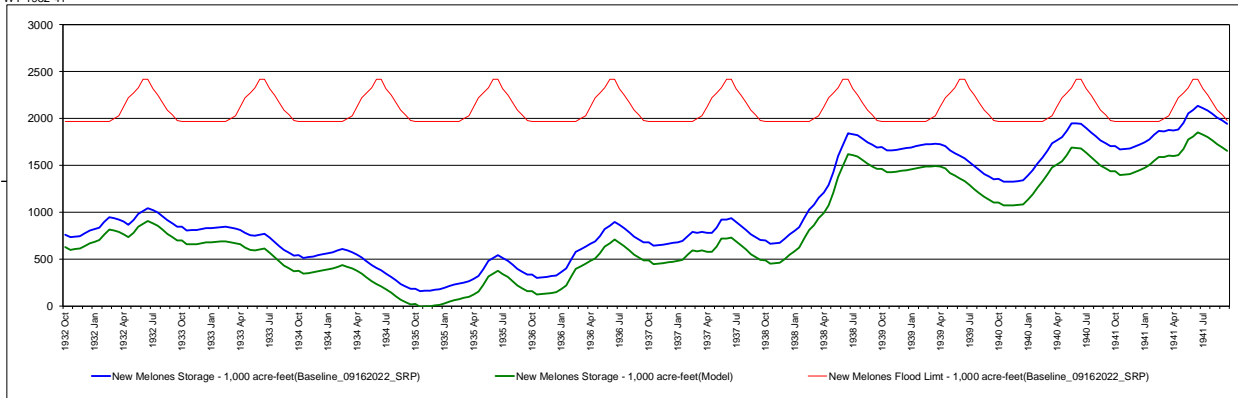
Minimum release requirements below Goodwin Dam are always met in both Model scenarios. Due to the additional depletion of reservoir storage in the transfer operation and the subsequent accumulation of less reservoir storage, less release in excess of minimum release requirements will occasionally occur. This outcome will occur during times when reservoir flood control reservation objectives are initially approached in a year or when reservoir management releases occur during the summer.

The chronological sequence of simulated operations of the Baseline and Proposed Action are shown in the hydrographs below. Illustrated are the operation hydrographs of New Melones Reservoir for Baseline and the proposed transfer of 25,000 acre-feet in all years except critical.

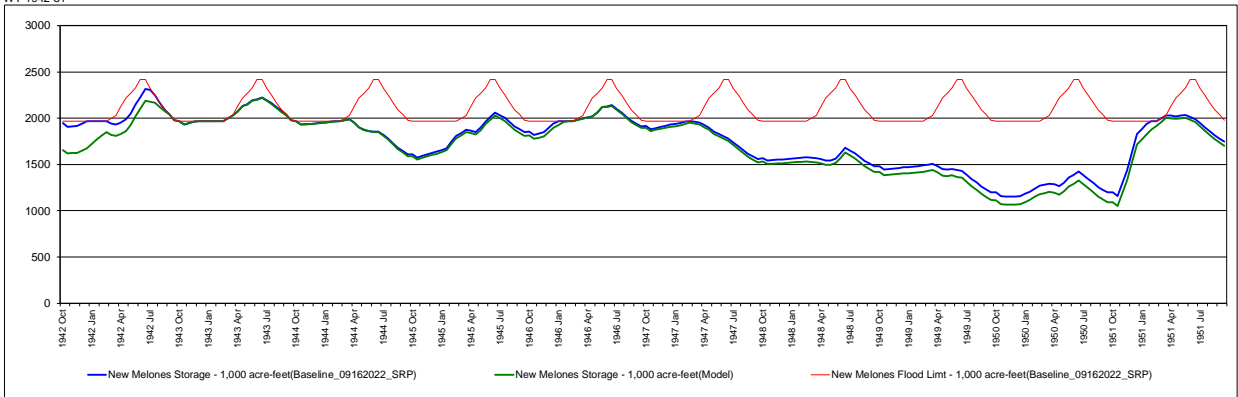
WY 1922-31



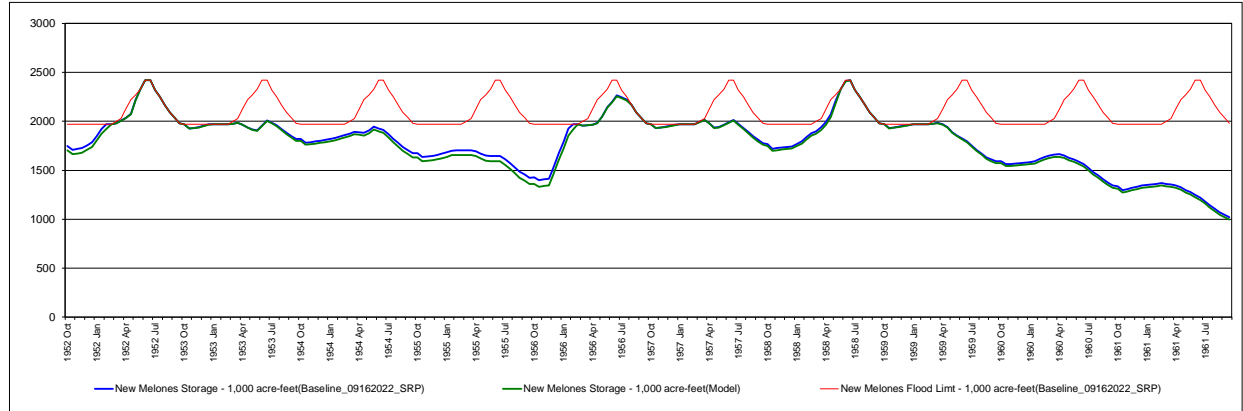
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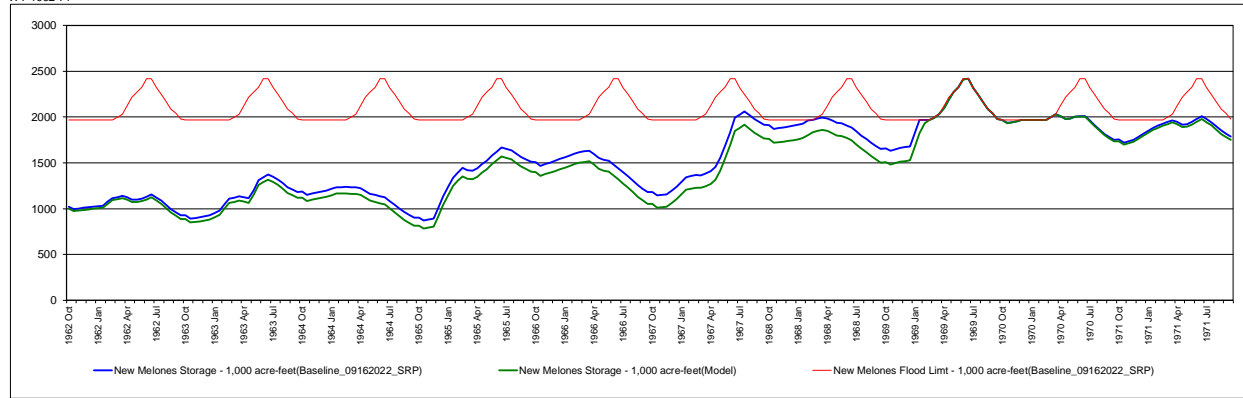
WY 1942-51



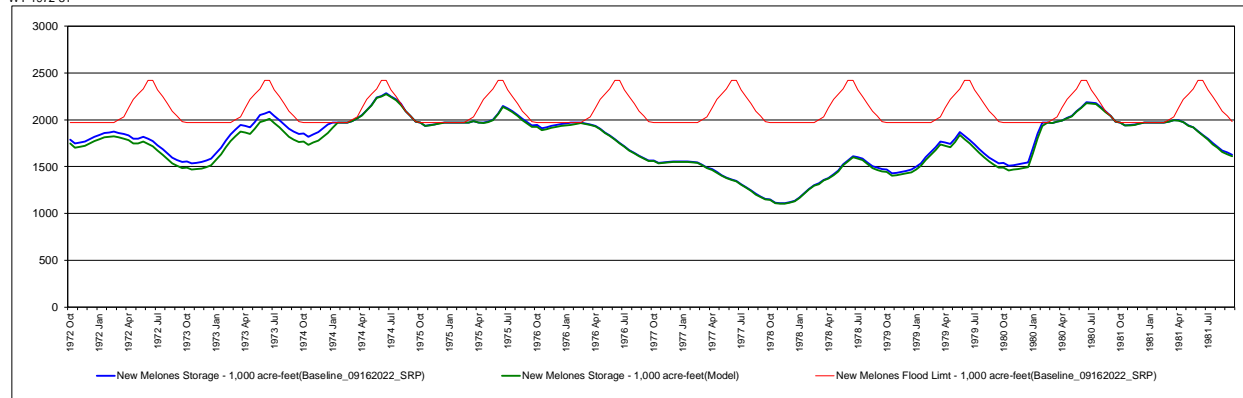
WY 1952-61



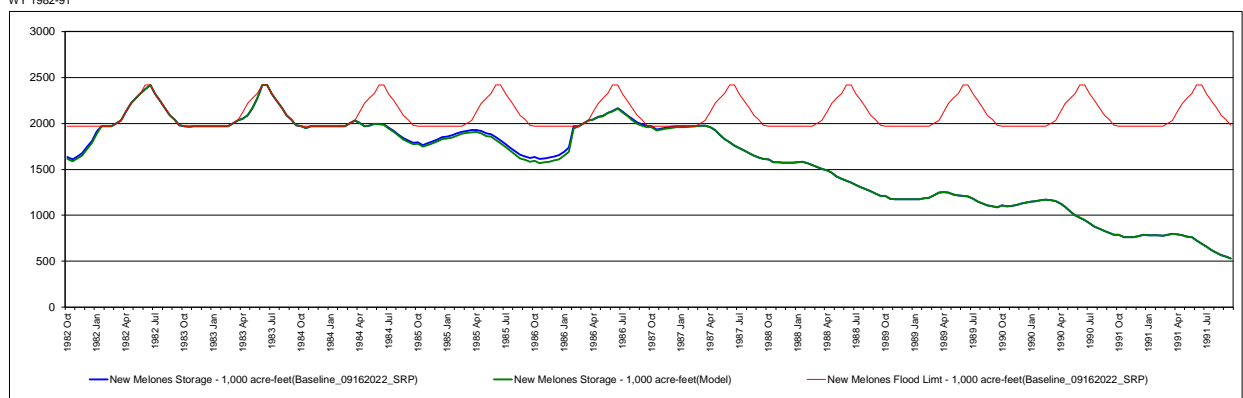
WY 1962-71



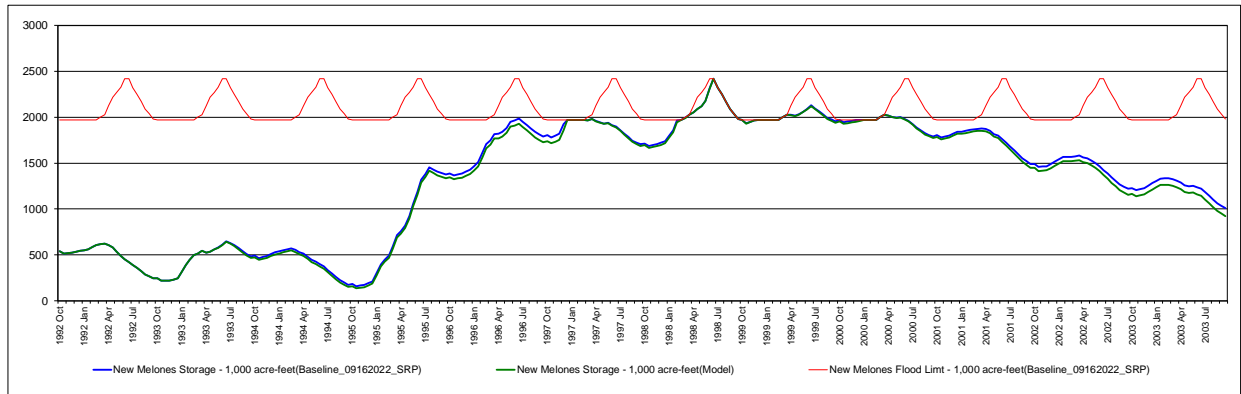
WY 1972-81



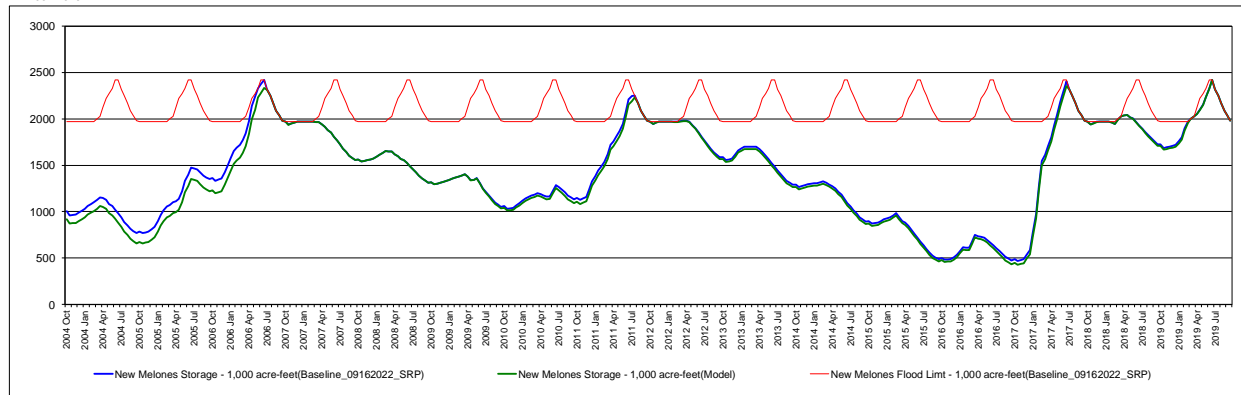
WY 1982-91



WY 1992-03



WY 2004-2019



An illustration of annual simulation results for Baseline and the proposed transfer scenario are shown below.

Baseline

SRBI	600020	New Melones				Goodwin						
		2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019
		1,091	1,432	486	76	334	5	6	20	491	126	
	WY	EOS	WY	M-F	M-F	M-F	M-F	M-F	M-F	M-F		
W	1922	1,389	1,782	450	110	484	0	0	0	484	0	
AN	1923	1,109	1,897	494	110	346	3	0	0	350	0	
C	1924	385	1,478	457	0	185	6	44	0	241	6	
BN	1925	1,092	1,639	474	110	346	3	0	0	349	0	
D	1926	619	1,338	536	49	234	15	4	0	256	3	
AN	1927	1,256	1,633	495	110	346	3	0	0	349	0	
BN	1928	952	1,545	537	110	346	3	0	0	349	0	
C	1929	506	1,227	523	0	185	12	6	0	204	0	
C	1930	671	1,130	519	0	185	9	11	0	206	0	
C	1931	438	763	492	0	186	5	70	0	262	1	
AN	1932	1,160	847	535	110	346	3	0	104	453	0	
D	1933	586	542	529	49	234	15	0	0	250	0	
C	1934	498	188	529	0	185	8	47	41	281	0	
AN	1935	1,082	339	469	110	346	3	0	47	420	24	
AN	1936	1,291	683	481	110	346	3	0	0	352	3	
W	1937	1,080	705	466	110	484	0	0	0	500	16	
W	1938	2,032	1,694	450	110	484	0	0	0	484	0	
D	1939	562	1,353	517	49	235	15	0	0	250	0	
AN	1940	1,327	1,708	480	110	346	3	0	32	381	0	
W	1941	1,290	1,945	429	110	484	0	0	0	656	172	
W	1942	1,450	1,980	446	110	484	0	0	0	957	473	
W	1943	1,538	1,980	496	110	484	0	0	0	630	146	
BN	1944	649	1,608	486	110	346	3	0	0	349	0	
AN	1945	1,228	1,852	479	110	346	3	0	7	451	95	
AN	1946	1,175	1,914	507	110	346	3	0	0	354	5	
D	1947	632	1,560	540	49	235	15	10	47	307	0	
BN	1948	853	1,481	445	110	346	3	2	2	353	0	
BN	1949	732	1,202	506	110	346	3	0	0	349	0	
BN	1950	1,027	1,199	525	110	346	3	0	12	423	62	
AN	1951	1,654	1,746	505	110	346	3	0	49	476	78	
W	1952	1,844	1,980	465	110	484	0	0	0	1,085	602	
BN	1953	965	1,819	502	110	346	3	0	0	349	0	
BN	1954	882	1,672	501	110	346	3	0	32	381	0	
D	1955	656	1,424	500	49	235	15	3	13	366	100	
W	1956	1,825	1,980	491	110	484	0	0	0	649	166	
BN	1957	878	1,777	490	110	346	3	0	7	356	0	
W	1958	1,599	1,980	428	110	484	0	0	0	942	459	
D	1959	624	1,590	542	49	235	15	0	0	250	0	
C	1960	574	1,344	534	0	185	11	13	0	209	0	
C	1961	446	1,021	497	0	185	4	25	0	219	4	
BN	1962	863	925	512	110	346	3	0	0	349	0	
AN	1963	1,227	1,183	438	110	346	3	0	68	417	0	
D	1964	632	900	520	49	234	15	3	8	269	9	
W	1965	1,666	1,514	467	110	484	0	0	7	490	0	
BN	1966	733	1,183	548	110	346	3	0	49	397	0	
W	1967	1,831	1,917	459	110	484	0	0	0	510	26	
D	1968	670	1,652	521	49	234	15	0	0	485	236	
W	1969	2,118	1,980	484	110	484	0	0	0	1,455	972	
AN	1970	1,321	1,753	526	110	346	3	0	37	417	31	
BN	1971	1,064	1,789	501	110	346	3	0	39	388	0	
D	1972	764	1,548	562	49	234	15	2	46	303	5	
AN	1973	1,237	1,847	479	110	346	3	0	0	526	177	
W	1974	1,500	1,980	492	110	484	0	0	0	677	194	
W	1975	1,210	1,941	482	110	484	0	0	11	514	19	
C	1976	467	1,565	500	0	185	10	19	0	215	0	
C	1977	271	1,155	381	0	185	3	39	4	232	1	
W	1978	1,311	1,472	433	110	484	0	0	0	484	0	
AN	1979	1,139	1,533	508	110	346	3	0	78	568	141	
W	1980	1,721	1,980	464	110	484	0	0	0	620	136	
D	1981	633	1,626	518	49	234	15	0	0	611	361	
W	1982	2,229	1,980	428	110	484	0	0	0	1,859	1,375	
W	1983	2,900	1,980	407	110	484	0	0	0	2,324	1,840	
AN	1984	1,621	1,788	551	110	346	3	0	23	395	22	
D	1985	744	1,624	524	49	234	15	0	3	518	266	
W	1986	1,869	1,975	475	110	484	0	0	0	711	228	
C	1987	497	1,613	514	0	186	11	17	42	255	0	
C	1988	389	1,211	460	0	185	4	39	0	228	0	
C	1989	648	1,088	499	0	185	12	22	2	221	0	
C	1990	491	789	518	0	185	6	37	5	233	0	
C	1991	502	532	465	0	186	3	25	40	254	0	
C	1992	459	244	490	0	185	4	29	15	241	8	
W	1993	1,275	482	441	110	484	0	0	51	534	0	
C	1994	501	175	502	0	185	3	46	0	246	12	
W	1995	2,160	1,375	432	110	484	0	0	0	485	1	
W	1996	1,512	1,793	475	110	484	0	0	0	1,354	870	
W	1997	1,902	1,705	534	110	484	0	0	0	599	115	
W	1998	1,876	1,980	374	110	484	0	0	0	1,329	846	
AN	1999	1,290	1,957	475	110	346	3	0	0	608	258	
AN	2000	1,084	1,791	474	110	346	3	5	35	416	27	
D	2001	589	1,490	504	49	234	15	1	35	285	0	
D	2002	711	1,220	519	49	234	15	4	123	376	0	
BN	2003	892	1,011	496	110	346	3	3	118	470	0	
D	2004	670	768	522	49	234	15	4	0	254	1	
W	2005	1,576	1,352	422	110	484	0	0	58	542	0	
W	2006	2,061	1,980	443	110	484	0	0	0	963	479	
C	2007	581	1,556	526	0	186	12	0	47	245	0	
C	2008	579	1,313	530	0	185	9	45	33	272	0	
BN	2009	866	1,053	515	110	346	3	0	129	478	0	
AN	2010	1,011	1,135	429	110	346	3	0	0	349	0	
W	2011	2,093	1,980	416	110	484	0	0	0	808	324	
D	2012	607	1,587	494	49	234	15	10	58	318	0	
C	2013	559	1,290	534	0	185	12	8	11	217	0	
C	2014	344	894	429	0	185	12	5	56	258	0	
C	2015	333	489	425	0	186	12	0	144	341	0	
D	2016	963	475	453	49	234	15	0	168	455	38	
W	2017	2,905	1,980	470	110	484	0	0	39	970	447	
BN	2018	914	1,727	503	110	346	3	0	31	402	22	
W	2019	1,747	1,980	453	110	484	0	0	0	815	432	

Proposed Transfer

SRRI 602020	New Melones				Goodwin							
	1972-2019	New Melones Inflow	New Melones Storage	OID & SSJD Canals	CVP Contr's w / Surrog	Instrm Fish Object	DO (Relax C)	Vern Water Quality (On)	Vern Base Flow Object (On)	Total Goodwin Release to River	Release above Min	
	2019	1,091	1,375	486	96	334	5	6	20	473	108	
	WY	EOS	WY	M-F	M-F	M-F	M-F	M-F	M-F	M-F	M-F	
W 1922	1,389	1,758	450	135	484	0	0	0	484	0		
AN 1923	1,109	1,850	494	135	346	3	0	0	350	0		
C 1924	385	1,423	457	0	185	6	44	0	241	6		
BN 1925	1,092	1,569	474	135	346	3	0	0	349	0		
D 1926	619	1,245	536	74	234	15	4	0	255	1		
AN 1927	1,256	1,519	495	135	346	3	0	0	349	0		
BN 1928	952	1,409	537	135	346	3	0	0	349	0		
C 1929	506	1,086	523	0	185	12	6	0	204	0		
C 1930	671	993	519	0	185	9	11	0	206	0		
C 1931	438	630	492	0	186	5	70	0	262	1		
AN 1932	1,160	700	535	135	346	3	0	104	453	0		
D 1933	586	376	529	74	234	15	0	0	250	0		
C 1934	498	21	529	1	185	8	47	41	281	0		
AN 1935	1,082	162	469	135	346	3	0	47	419	23		
AN 1936	1,291	489	481	135	346	3	0	0	351	2		
W 1937	1,080	493	466	135	484	0	0	0	499	15		
W 1938	2,032	1,464	450	135	484	0	0	0	484	0		
D 1939	562	1,104	517	74	235	15	0	0	250	0		
AN 1940	1,327	1,440	480	135	346	3	0	32	381	0		
W 1941	1,290	1,658	429	135	484	0	0	0	484	0		
W 1942	1,450	1,980	446	135	484	0	0	0	812	328		
W 1943	1,538	1,980	496	135	484	0	0	0	605	121		
BN 1944	649	1,591	486	135	346	3	0	0	349	0		
AN 1945	1,228	1,810	479	135	346	3	0	7	402	46		
AN 1946	1,175	1,897	507	135	346	3	0	0	349	0		
D 1947	632	1,523	540	74	235	15	10	47	307	0		
BN 1948	853	1,421	445	135	346	3	2	2	353	0		
BN 1949	732	1,118	506	135	346	3	0	0	349	0		
BN 1950	1,027	1,093	525	135	346	3	0	12	360	0		
AN 1951	1,654	1,703	505	135	346	3	0	49	401	3		
W 1952	1,844	1,980	465	135	484	0	0	0	1,060	576		
BN 1953	965	1,802	502	135	346	3	0	0	349	0		
BN 1954	882	1,631	501	135	346	3	0	32	381	0		
D 1955	656	1,358	500	74	235	15	3	13	293	28		
W 1956	1,825	1,980	491	135	484	0	0	0	624	141		
BN 1957	878	1,760	490	135	346	3	0	7	356	0		
W 1958	1,599	1,980	428	135	484	0	0	0	893	409		
D 1959	624	1,573	542	74	235	15	0	0	250	0		
C 1960	574	1,319	534	0	185	11	13	0	209	0		
C 1961	446	998	497	0	185	4	25	0	219	4		
BN 1962	863	885	512	135	346	3	0	0	349	0		
AN 1963	1,227	1,119	438	135	346	3	0	68	417	0		
D 1964	632	813	520	74	234	15	3	8	267	7		
W 1965	1,666	1,406	467	135	484	0	0	7	490	0		
BN 1966	733	1,054	548	135	346	3	0	49	397	0		
W 1967	1,831	1,765	459	135	484	0	0	2	486	0		
D 1968	670	1,504	521	74	234	15	0	0	330	80		
W 1969	2,118	1,980	484	135	484	0	0	0	1,430	947		
AN 1970	1,321	1,736	526	135	346	3	0	37	416	29		
BN 1971	1,064	1,749	501	135	346	3	0	39	388	0		
D 1972	764	1,483	562	74	234	15	2	46	301	4		
AN 1973	1,237	1,762	479	135	346	3	0	0	433	84		
W 1974	1,500	1,980	492	135	484	0	0	0	653	169		
W 1975	1,210	1,924	482	135	484	0	0	11	495	0		
C 1976	467	1,559	500	0	185	10	19	0	215	0		
C 1977	271	1,150	381	0	185	3	39	4	232	1		
W 1978	1,311	1,449	433	135	484	0	0	0	484	0		
AN 1979	1,139	1,487	508	135	346	3	0	78	514	87		
W 1980	1,721	1,980	464	135	484	0	0	0	595	111		
D 1981	633	1,609	518	74	234	15	0	0	586	336		
W 1982	2,229	1,980	428	135	484	0	0	0	1,834	1,350		
W 1983	2,900	1,980	407	135	484	0	0	0	2,299	1,815		
AN 1984	1,621	1,772	551	135	346	3	0	23	393	21		
D 1985	744	1,583	524	74	234	15	0	3	471	218		
W 1986	1,869	1,959	475	135	484	0	0	0	686	203		
C 1987	497	1,613	514	0	186	11	17	42	255	0		
C 1988	389	1,211	460	0	185	4	39	0	228	0		
C 1989	648	1,088	499	0	185	12	22	2	221	0		
C 1990	491	789	518	0	185	6	37	5	233	0		
C 1991	502	532	465	0	186	3	25	40	254	0		
C 1992	459	244	490	0	185	4	29	15	241	8		
W 1993	1,275	465	441	135	484	0	0	51	534	0		
C 1994	501	151	502	0	185	3	46	0	246	12		
W 1995	2,160	1,335	432	135	484	0	0	0	484	0		
W 1996	1,512	1,729	475	135	484	0	0	0	1,283	799		
W 1997	1,902	1,688	534	135	484	0	0	0	574	90		
W 1998	1,876	1,980	374	135	484	0	0	0	1,304	821		
AN 1999	1,290	1,941	475	135	346	3	0	0	583	234		
AN 2000	1,084	1,775	474	135	346	3	5	35	414	26		
D 2001	589	1,450	504	74	234	15	1	35	285	0		
D 2002	711	1,155	519	74	234	15	4	123	376	0		
BN 2003	892	923	496	135	346	3	3	118	470	0		
D 2004	670	659	522	74	234	15	4	0	254	1		
W 2005	1,576	1,221	422	135	484	0	0	58	542	0		
W 2006	2,061	1,980	443	135	484	0	0	0	801	317		
C 2007	581	1,556	526	0	186	12	0	47	245	0		
C 2008	579	1,313	530	0	185	9	45	33	272	0		
BN 2009	866	1,035	515	135	346	3	0	129	478	0		
AN 2010	1,011	1,094	429	135	346	3	0	0	349	0		
W 2011	2,093	1,980	416	135	484	0	0	0	737	252		
D 2012	607	1,569	494	74	234	15	10	58	318	0		
C 2013	559	1,265	534	0	185	12	8	11	217	0		
C 2014	344	869	429	0	185	12	5	56	258	0		
C 2015	333	465	425	0	186	12	0	144	341	0		
D 2016	963	435	453	74	234	15	0	168	452	35		
W 2017	2,905	1,980	470	135	484	0	0	39	901	379		
BN 2018	914	1,711	503	135	346	3	0	31	388	8		
W 2019	1,747	1,980	453	135	484	0	0	0	785	402		

Appendix C: APE CNDDDB 16-Quad Search

OAKDALE IRRIGATION DISTRICT

10 YEAR OUT OF DISTRICT WATER SALES PROGRAM



Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad IS OR Oakdale (3712077) OR Knights Ferry (3712076) OR Paulsell (3712066) OR Waterford (3712067) OR Riverbank (3712068) OR Escalon (3712078) OR Farmington (3712088) OR Bachelor Valley (3712087) OR Copperopolis (3712086) OR New Melones Dam (3712085) OR Keystone (3712075) OR Cooperstown (3712065) OR Turlock Lake (3712055) OR Montpelier (3712056) OR Denair (3712057) OR Ceres (3712058)

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
bald eagle <i>Haliaeetus leucocephalus</i>	ABNKC10010	Delisted	Endangered	G5	S3	FP
beaked clarkia <i>Clarkia rostrata</i>	PDONA050Y0	None	None	G2G3	S2S3	1B.3
burrowing owl <i>Athene cunicularia</i>	ABNSB10010	None	None	G4	S3	SSC
Button's Sierra sideband <i>Monadenia mormonum buttoni</i>	IMGASC7071	None	None	G2T1	S1S2	
California floater <i>Anodonta californiensis</i>	IMBIV04220	None	None	G3Q	S2?	
California horned lark <i>Eremophila alpestris actia</i>	ABPAT02011	None	None	G5T4Q	S4	WL
California linderiella <i>Linderiella occidentalis</i>	ICBRA06010	None	None	G2G3	S2S3	
California tiger salamander - central California DPS <i>Ambystoma californiense pop. 1</i>	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
Chinese Camp brodiaea <i>Brodiaea pallida</i>	PMLIL0C0C0	Threatened	Endangered	G1	S1	1B.1
Colusa grass <i>Neostapfia colusana</i>	PMPOA4C010	Threatened	Endangered	G1	S1	1B.1
Congdon's lomatium <i>Lomatium congdonii</i>	PDAPI1B0B0	None	None	G2	S2	1B.2
Crotch bumble bee <i>Bombus crotchii</i>	IIHYM24480	None	Candidate Endangered	G2	S1S2	
Delta button-celery <i>Eryngium racemosum</i>	PDAPI0Z0S0	None	Endangered	G1	S1	1B.1
dwarf downingia <i>Downingia pusilla</i>	PDCAM060C0	None	None	GU	S2	2B.2
forked hare-leaf <i>Lagophylla dichotoma</i>	PDAST5J070	None	None	G2	S2	1B.1
green sturgeon - southern DPS <i>Acipenser medirostris pop. 1</i>	AFCAA01031	Threatened	None	G2T1	S1	
Greene's tuctoria <i>Tuctoria greenei</i>	PMPOA6N010	Endangered	Rare	G1	S1	1B.1



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
hairy Orcutt grass <i>Orcuttia pilosa</i>	PMPOA4G040	Endangered	Endangered	G1	S1	1B.1
hardhead <i>Mylopharodon conocephalus</i>	AFCJB25010	None	None	G3	S3	SSC
Hartweg's golden sunburst <i>Pseudobahia bahiifolia</i>	PDAST7P010	Endangered	Endangered	G1	S1	1B.1
heartscale <i>Atriplex cordulata</i> var. <i>cordulata</i>	PDCHE040B0	None	None	G3T2	S2	1B.2
Henderson's bent grass <i>Agrostis hendersonii</i>	PMPOA040K0	None	None	G2Q	S2	3.2
hirsute Sierra sideband <i>Monadenia mormonum hirsuta</i>	IMGASC7072	None	None	G2T1	S1	
hoary bat <i>Lasiurus cinereus</i>	AMACC05030	None	None	G3G4	S4	
Hoover's calycadenia <i>Calycadenia hooveri</i>	PDAST1P040	None	None	G2	S2	1B.3
Hoover's cryptantha <i>Cryptantha hooveri</i>	PDBOR0A190	None	None	GH	SH	1A
Hoover's spurge <i>Euphorbia hooveri</i>	PDEUP0D150	Threatened	None	G1	S1	1B.2
least Bell's vireo <i>Vireo bellii pusillus</i>	ABPBW01114	Endangered	Endangered	G5T2	S2	
legenere <i>Legenere limosa</i>	PDCAM0C010	None	None	G2	S2	1B.1
Mariposa cryptantha <i>Cryptantha mariposae</i>	PDBOR0A1Q0	None	None	G2G3	S2S3	1B.3
Merced monardella <i>Monardella leucocephala</i>	PDLAM180C0	None	None	GX	SX	1A
moestan blister beetle <i>Lytta moesta</i>	IICOL4C020	None	None	G2	S2	
mountain plover <i>Charadrius montanus</i>	ABNNB03100	None	None	G3	S2S3	SSC
North American porcupine <i>Erethizon dorsatum</i>	AMAFJ01010	None	None	G5	S3	
Northern California legless lizard <i>Anniella pulchra</i>	ARACC01020	None	None	G3	S3	SSC
Northern Hardpan Vernal Pool <i>Northern Hardpan Vernal Pool</i>	CTT44110CA	None	None	G3	S3.1	
obscure bumble bee <i>Bombus caliginosus</i>	IIHYM24380	None	None	G2G3	S1S2	
pallid bat <i>Antrozous pallidus</i>	AMACC10010	None	None	G4	S3	SSC



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Patterson's navarretia <i>Navarretia paradoxiclara</i>	PDPLM0C150	None	None	G2	S2	1B.3
Rawhide Hill onion <i>Allium tuolumnense</i>	PMLIL022W0	None	None	G2	S2	1B.2
Red Hills cryptantha <i>Cryptantha spithamaea</i>	PDBOR0A2M2	None	None	G2	S2	1B.3
Red Hills ragwort <i>Senecio clevelandii</i> var. <i>heterophyllus</i>	PDAST8H0R2	None	None	G4?T2Q	S2	1B.2
Red Hills roach <i>Hesperoleucus symmetricus serpentinus</i>	AFCJB19028	None	None	GNRT1	S1	SSC
Red Hills soaproot <i>Chlorogalum grandiflorum</i>	PMLIL0G020	None	None	G3	S3	1B.2
Red Hills vervain <i>Verbena californica</i>	PDVER0N050	Threatened	Threatened	G2	S2	1B.1
San Joaquin Valley giant flower-loving fly <i>Rhaphiomidas trochilus</i>	IIDIP05010	None	None	G1	S1	
San Joaquin Valley Orcutt grass <i>Orcuttia inaequalis</i>	PMPOA4G060	Threatened	Endangered	G1	S1	1B.1
shaggyhair lupine <i>Lupinus spectabilis</i>	PDFAB2B3P0	None	None	G2	S2	1B.2
silver-haired bat <i>Lasionycteris noctivagans</i>	AMACC02010	None	None	G3G4	S3S4	
spiny-sepaled button-celery <i>Eryngium spinosepalum</i>	PDAPI0Z0Y0	None	None	G2	S2	1B.2
Stanislaus harvestman <i>Calicina breva</i>	ILARAU8020	None	None	G1	S1	
Stanislaus monkeyflower <i>Erythranthe marmorata</i>	PDPHR01130	None	None	G2?	S2?	1B.1
steelhead - Central Valley DPS <i>Oncorhynchus mykiss irideus</i> pop. 11	AFCHA0209K	Threatened	None	G5T2Q	S2	
stinkbells <i>Fritillaria agrestis</i>	PMLIL0V010	None	None	G3	S3	4.2
subtle orache <i>Atriplex subtilis</i>	PDCHE042T0	None	None	G1	S1	1B.2
succulent owl's-clover <i>Castilleja campestris</i> var. <i>succulenta</i>	PDSCR0D3Z1	Threatened	Endangered	G4?T2T3	S2S3	1B.2
Swainson's hawk <i>Buteo swainsoni</i>	ABNKC19070	None	Threatened	G5	S3	
tongue-leaf copper moss <i>Scopelophila cataractae</i>	NBMUS6U010	None	None	G3G4	S1	2B.2
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	AMACC08010	None	None	G4	S2	SSC



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
tricolored blackbird <i>Agelaius tricolor</i>	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
Tuolumne button-celery <i>Eryngium pinnatisectum</i>	PDAP10Z0P0	None	None	G2	S2	1B.2
valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	IICOL48011	Threatened	None	G3T2T3	S3	
veiny monardella <i>Monardella venosa</i>	PDLAM18082	None	None	G1	S1	1B.1
vernal pool fairy shrimp <i>Branchinecta lynchi</i>	ICBRA03030	Threatened	None	G3	S3	
vernal pool tadpole shrimp <i>Lepidurus packardii</i>	ICBRA10010	Endangered	None	G4	S3	
western mastiff bat <i>Eumops perotis californicus</i>	AMACD02011	None	None	G4G5T4	S3S4	SSC
western pond turtle <i>Emys marmorata</i>	ARAAD02030	None	None	G3G4	S3	SSC
western red bat <i>Lasiurus frantzii</i>	AMACC05080	None	None	G4	S3	SSC
western ridged mussel <i>Gonidea angulata</i>	IMBIV19010	None	None	G3	S1S2	
western spadefoot <i>Spea hammondi</i>	AAABF02020	None	None	G2G3	S3	SSC
yellow-breasted chat <i>Icteria virens</i>	ABPBX24010	None	None	G5	S3	SSC
Yuma myotis <i>Myotis yumanensis</i>	AMACC01020	None	None	G5	S4	

Record Count: 72

Appendix D: APE IPaC Search

OAKDALE IRRIGATION DISTRICT

10 YEAR OUT OF DISTRICT WATER SALES PROGRAM



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:
Project Code: 2023-0020190
Project Name: OID 10 Year Water Transfer

November 30, 2022

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 ECOS-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 ECOS-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:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.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/birds/policies-and-regulations.php>.

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/birds/bird-enthusiasts/threats-to-birds.php>.

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/birds/policies-and-regulations/executive-orders/e0-13186.php>.

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: 2023-0020190

Project Name: OID 10 Year Water Transfer

Project Type: Irrigation

Project Description: Oakdale Irrigation District (District) wishes to provide a method for eligible lands to contract with the District for out-of-district water service for 10 years (Program) to put the District's conserved water to beneficial use and avoid the need for annual out-of-district water sales contracts. The proposed Program is intended to allow some growers to utilize the surplus surface water in lieu of pumping groundwater, which will increase the beneficial use of the surface water in the area and assist with meeting the requirements of the Sustainable Groundwater Management Act (SGMA). The Program will be limited to lands that are already irrigated and developed and can receive District water from existing and proposed temporary or permanent delivery facilities within District rights-of-way.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@37.7061236,-120.7095258878422,14z>



Counties: Stanislaus County, California

Endangered Species Act Species

There is a total of 13 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 Fisheries¹, 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
San Joaquin Kit Fox <i>Vulpes macrotis mutica</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

Amphibians

NAME	STATUS
California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp <i>Branchinecta conservatio</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
Colusa Grass <i>Neostapfia colusana</i> There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5690	Threatened
Greene's Tuctoria <i>Tuctoria greenei</i> There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1573	Endangered
Hairy Orcutt Grass <i>Orcuttia pilosa</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2262	Endangered
Hartweg's Golden Sunburst <i>Pseudobahia bahiifolia</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1704	Endangered
San Joaquin Orcutt Grass <i>Orcuttia inaequalis</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5506	Threatened

Critical habitats

There are 3 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Colusa Grass <i>Neostapfia colusana</i> https://ecos.fws.gov/ecp/species/5690#crithab	Final
Greene's Tuctoria <i>Tuctoria greenei</i> https://ecos.fws.gov/ecp/species/1573#crithab	Final
Vernal Pool Tadpole Shrimp <i>Lepidurus packardi</i> https://ecos.fws.gov/ecp/species/2246#crithab	Final

IPaC User Contact Information

Agency: Provost & Pritchard Consulting Group

Name: Roman Endicott

Address: 455 W. Fir Ave

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State: CA

Zip: 93611

Email: rendicott@ppeng.com

Phone: 5594492700

Appendix E: APE NRCS Soils Report

OAKDALE IRRIGATION DISTRICT

10 YEAR OUT OF DISTRICT WATER SALES PROGRAM



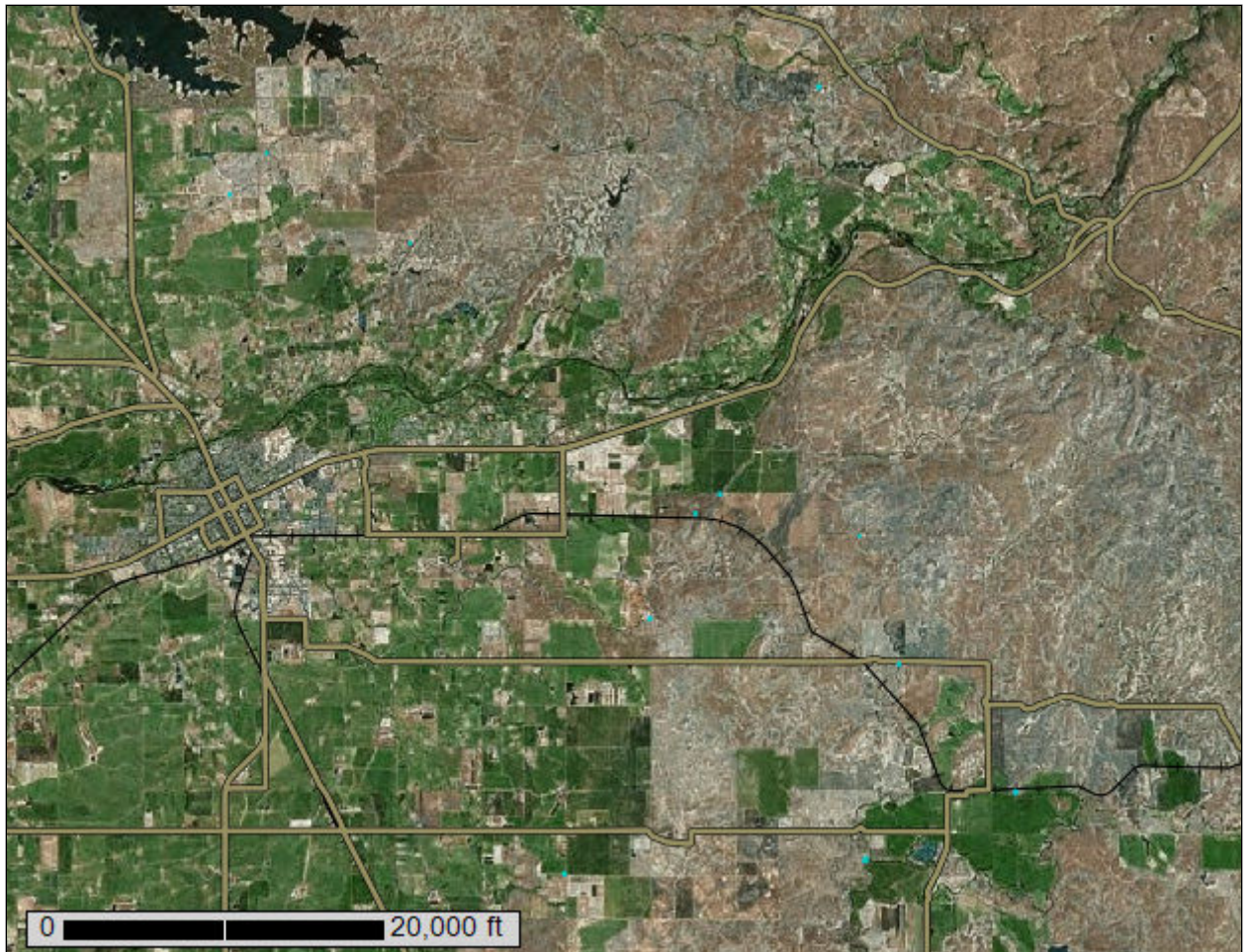
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Eastern Stanislaus Area, California; and Stanislaus County, California, Northern Part



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

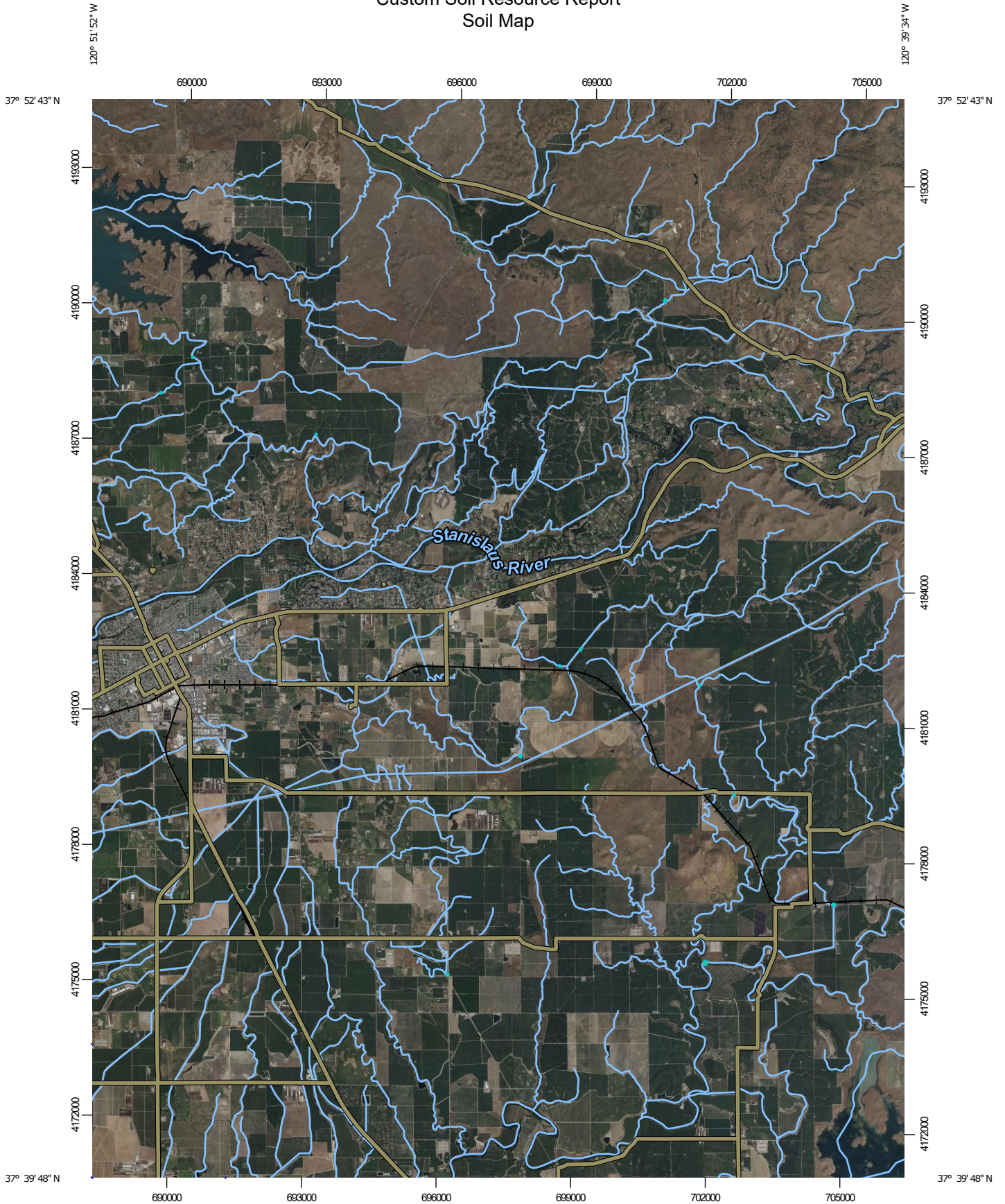
Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

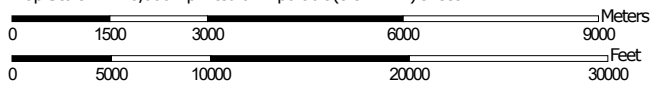
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map




Map Scale: 1:116,000 if printed on A portrait (8.5" x 11") sheet.



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.

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: Eastern Stanislaus Area, California
 Survey Area Data: Version 16, Sep 14, 2022

Soil Survey Area: Stanislaus County, California, Northern Part
 Survey Area Data: Version 14, Sep 14, 2022

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

MAP LEGEND

MAP INFORMATION

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
8111	Psammentic Haploxerolls-Mollic Fluvaquents-Riverwash-complex, 0 to 8 percent slopes	0.6	6.9%
HoA	Honcut fine sandy loam, 0 to 1 percent slopes	0.8	9.9%
HtA	Hopeton clay loam, 0 to 3 percent slopes	0.2	2.1%
MtB	Montpellier coarse sandy loam, 3 to 8 percent slopes	0.3	3.6%
PeD	Pentz gravelly loam, 8 to 30 percent slopes	1.0	12.1%
PtB	Peters clay, 2 to 8 percent slopes	0.0	0.0%
PtC	Peters clay, 8 to 15 percent slopes	0.3	3.3%
PvB	Peters cobbly clay, 0 to 8 percent slopes	0.6	6.9%
PxB	Peters-Pentz complex, 0 to 8 percent slopes	0.1	0.9%
PxC	Peters-Pentz complex, 8 to 15 percent slopes	0.5	5.7%
RaA	Raynor clay, 0 to 3 percent slopes	0.3	3.4%
Tx	Terrace escarpments	0.3	3.5%
WmB	Whitney sandy loams, 3 to 8 percent slopes	1.3	15.7%
Subtotals for Soil Survey Area		6.2	74.1%
Totals for Area of Interest		8.4	100.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
102	Alamo clay, 0 to 2 percent slopes	0.5	5.8%
237	San Joaquin sandy loam, 2 to 5 percent slopes	0.3	4.0%
401	Peters-Pentz association, 2 to 8 percent slopes	1.0	12.3%
475	Pentz-Peters association, 2 to 50 percent slopes	0.3	3.9%
Subtotals for Soil Survey Area		2.2	25.9%
Totals for Area of Interest		8.4	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas

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shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Eastern Stanislaus Area, California

8111—Psammentic Haploxerolls-Mollic Fluvaquents-Riverwash-complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2x4d2
Elevation: 110 to 1,050 feet
Mean annual precipitation: 14 to 26 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 275 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Psammentic haploxerolls and similar soils: 40 percent
Mollic fluvaquents, cobbly, and similar soils: 20 percent
Riverwash: 15 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Psammentic Haploxerolls

Setting

Landform: Flood-plain steps
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

A - 0 to 14 inches: loamy sand
C - 14 to 49 inches: loamy sand
Bw - 49 to 63 inches: sandy loam
C' - 63 to 79 inches: sand

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: RareNone
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A
Ecological site: R018XX101CA - Mid Gradient Riparian Complex, 4Th Order Stream
Hydric soil rating: No

Description of Mollic Fluvaquents, Cobbly

Setting

Landform: Flood-plain steps
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium over residuum weathered from metamorphic rock

Typical profile

A - 0 to 2 inches: cobbly loam
Bg - 2 to 6 inches: very gravelly sandy clay loam
C - 6 to 15 inches: very gravelly sandy clay loam
R - 15 to 79 inches: bedrock

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.0 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to low (0.00 to 0.01 in/hr)
Depth to water table: About 1 to 4 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): 7w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: D
Ecological site: R018XX101CA - Mid Gradient Riparian Complex, 4Th Order Stream
Hydric soil rating: Yes

Description of Riverwash

Setting

Landform: Channels

Properties and qualities

Slope: 0 to 3 percent
Frequency of flooding: Very frequent

Minor Components

Anthraltic xerorthents

Percent of map unit: 13 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Ultic haploxerolls

Percent of map unit: 7 percent

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Landform: Meander scars on flood-plain steps
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R018XX101CA - Mid Gradient Riparian Complex, 4Th Order Stream
Hydric soil rating: No

Water

Percent of map unit: 5 percent
Landform: Streams
Hydric soil rating: No

HoA—Honcut fine sandy loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hjdb
Elevation: 2,000 feet
Mean annual precipitation: 12 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 200 to 280 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Honcut and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Honcut

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous and metamorphic rock

Typical profile

H1 - 0 to 10 inches: fine sandy loam
H2 - 10 to 60 inches: sandy loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low

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Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: Rare

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): 1

Land capability classification (nonirrigated): 4c

Hydrologic Soil Group: A

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans

Hydric soil rating: No

Minor Components

Yokohl

Percent of map unit: 5 percent

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans

Hydric soil rating: No

Wyman

Percent of map unit: 5 percent

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans

Hydric soil rating: No

Ryer

Percent of map unit: 5 percent

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans

Hydric soil rating: No

HtA—Hopeton clay loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: hjdg

Elevation: 100 feet

Mean annual precipitation: 18 inches

Mean annual air temperature: 63 degrees F

Frost-free period: 200 to 300 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Hopeton and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hopeton

Setting

Landform: Alluvial fans

Landform position (two-dimensional): Backslope

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Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Concave
Parent material: Residuum weathered from sandstone

Typical profile

H1 - 0 to 11 inches: clay loam
H2 - 11 to 29 inches: clay loam
H3 - 29 to 38 inches: clay loam
H4 - 38 to 42 inches: weathered bedrock

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: D
Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces
Hydric soil rating: No

Minor Components

Pentz

Percent of map unit: 5 percent
Hydric soil rating: No

Corning

Percent of map unit: 5 percent
Hydric soil rating: No

Redding

Percent of map unit: 5 percent
Hydric soil rating: No

MtB—Montpellier coarse sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: hjf8
Elevation: 150 to 500 feet
Mean annual precipitation: 10 to 20 inches
Mean annual air temperature: 61 to 63 degrees F

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Frost-free period: 250 to 300 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Montpellier and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Montpellier

Setting

Landform: Fan remnants

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 18 inches: coarse sandy loam

H2 - 18 to 39 inches: sandy clay loam

H3 - 39 to 45 inches: coarse sandy loam

H4 - 45 to 60 inches: sandy loam

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: C

Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces

Hydric soil rating: No

Minor Components

Whitney

Percent of map unit: 10 percent

Hydric soil rating: No

Rocklin

Percent of map unit: 5 percent

Hydric soil rating: No

PeD—Pentz gravelly loam, 8 to 30 percent slopes

Map Unit Setting

National map unit symbol: hjfm
Elevation: 110 to 600 feet
Mean annual precipitation: 12 to 22 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Pentz and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pentz

Setting

Landform: Hillslopes
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Tuffaceous loamy residuum weathered from volcanic sandstone

Typical profile

H1 - 0 to 8 inches: gravelly loam
H2 - 8 to 12 inches: weathered bedrock

Properties and qualities

Slope: 8 to 30 percent
Depth to restrictive feature: 6 to 14 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 0.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R018X1163CA - Thermic Low Rolling Hills
Hydric soil rating: No

Minor Components

Raynor

Percent of map unit: 5 percent
Hydric soil rating: No

Peters

Percent of map unit: 5 percent
Hydric soil rating: No

Keyes

Percent of map unit: 5 percent
Hydric soil rating: No

PtB—Peters clay, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2x816
Elevation: 130 to 330 feet
Mean annual precipitation: 14 to 22 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 300 to 340 days
Farmland classification: Not prime farmland

Map Unit Composition

Peters and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peters

Setting

Landform: Hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium and/or residuum derived from water-reworked basic tuff

Typical profile

A1 - 0 to 5 inches: clay
A2 - 5 to 15 inches: clay
Cr - 15 to 25 inches: bedrock

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches

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Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): 6e

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: D

Ecological site: R018X1164CA - Clayey Dissected Swales

Hydric soil rating: No

Minor Components

Pentz, sandy loam

Percent of map unit: 5 percent

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R018X1163CA - Thermic Low Rolling Hills

Hydric soil rating: No

Redding, gravelly loam

Percent of map unit: 4 percent

Landform: Fan remnants

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Crest

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R018X1163CA - Thermic Low Rolling Hills

Hydric soil rating: No

Pardee, cobbly loam

Percent of map unit: 3 percent

Landform: Eroded fan remnants

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Crest

Down-slope shape: Convex

Across-slope shape: Convex

Ecological site: R018X1163CA - Thermic Low Rolling Hills

Hydric soil rating: No

Alamo, clay

Percent of map unit: 3 percent

Landform: Depressions on fan remnants, drainageways on fan remnants

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Concave, linear

Across-slope shape: Concave

Hydric soil rating: Yes

PtC—Peters clay, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: hjg1
Elevation: 120 to 1,200 feet
Mean annual precipitation: 15 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Peters and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peters

Setting

Landform: Hillslopes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Residuum weathered from volcanic sandstone

Typical profile

H1 - 0 to 6 inches: clay
H2 - 6 to 16 inches: clay
H3 - 16 to 20 inches: weathered bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 12 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: R018XI164CA - Clayey Dissected Swales
Hydric soil rating: No

Minor Components

Pentz

Percent of map unit: 5 percent
Hydric soil rating: No

Raynor

Percent of map unit: 5 percent
Hydric soil rating: No

Keyes

Percent of map unit: 5 percent
Hydric soil rating: No

PvB—Peters cobbly clay, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: hjg2
Elevation: 120 to 1,200 feet
Mean annual precipitation: 15 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Peters and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peters

Setting

Landform: Hillslopes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Residuum weathered from volcanic sandstone

Typical profile

H1 - 0 to 6 inches: cobbly clay
H2 - 6 to 16 inches: clay
H3 - 16 to 20 inches: weathered bedrock

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 12 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

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Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.3 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: R018X1164CA - Clayey Dissected Swales
Hydric soil rating: No

Minor Components

Keyes

Percent of map unit: 5 percent
Hydric soil rating: No

Raynor

Percent of map unit: 5 percent
Hydric soil rating: No

Pentz

Percent of map unit: 5 percent
Hydric soil rating: No

PxB—Peters-Pentz complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: hjg4
Elevation: 110 to 1,200 feet
Mean annual precipitation: 12 to 22 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Peters and similar soils: 50 percent
Pentz and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peters

Setting

Landform: Hillslopes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Residuum weathered from volcanic sandstone

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Typical profile

H1 - 0 to 6 inches: clay
H2 - 6 to 16 inches: clay
H3 - 16 to 20 inches: weathered bedrock

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 12 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R018X1163CA - Thermic Low Rolling Hills
Hydric soil rating: No

Description of Pentz

Setting

Landform: Hillslopes
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Tuffaceous loamy residuum weathered from volcanic sandstone

Typical profile

H1 - 0 to 8 inches: gravelly loam
H2 - 8 to 12 inches: weathered bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 6 to 12 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 0.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R018X1164CA - Clayey Dissected Swales
Hydric soil rating: No

Minor Components

Keyes

Percent of map unit: 5 percent
Hydric soil rating: No

Raynor

Percent of map unit: 5 percent
Hydric soil rating: No

PxC—Peters-Pentz complex, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: hjg5
Elevation: 110 to 1,200 feet
Mean annual precipitation: 12 to 22 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Peters and similar soils: 50 percent
Pentz and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peters

Setting

Landform: Hillslopes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Residuum weathered from volcanic sandstone

Typical profile

H1 - 0 to 6 inches: clay
H2 - 6 to 16 inches: clay
H3 - 16 to 20 inches: weathered bedrock

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 12 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches

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Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R018X1164CA - Clayey Dissected Swales
Hydric soil rating: No

Description of Pentz

Setting

Landform: Hillslopes
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Tuffaceous loamy residuum weathered from volcanic sandstone

Typical profile

H1 - 0 to 8 inches: gravelly loam
H2 - 8 to 12 inches: weathered bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 6 to 12 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 0.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R018X1163CA - Thermic Low Rolling Hills
Hydric soil rating: No

Minor Components

Raynor

Percent of map unit: 5 percent
Hydric soil rating: No

Keys

Percent of map unit: 5 percent
Hydric soil rating: No

RaA—Raynor clay, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: hjg6

Elevation: 300 to 2,500 feet

Mean annual precipitation: 12 to 18 inches

Mean annual air temperature: 61 to 64 degrees F

Frost-free period: 260 to 320 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Raynor and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Raynor

Setting

Landform: Terraces

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Residuum weathered from volcanic sandstone

Typical profile

H1 - 0 to 15 inches: clay

H2 - 15 to 38 inches: clay

H3 - 38 to 50 inches: clay

H4 - 50 to 54 inches: weathered bedrock

Properties and qualities

Slope: 2 to 3 percent

Depth to restrictive feature: 20 to 50 inches to paralithic bedrock

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 4s

Hydrologic Soil Group: C

Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces

Hydric soil rating: No

Minor Components

Redding

Percent of map unit: 5 percent
Hydric soil rating: No

Pentz

Percent of map unit: 5 percent
Hydric soil rating: No

Peters

Percent of map unit: 5 percent
Hydric soil rating: No

Tx—Terrace escarpments

Map Unit Setting

National map unit symbol: 2zy02
Elevation: 30 to 410 feet
Mean annual precipitation: 11 to 30 inches
Mean annual air temperature: 62 to 64 degrees F
Frost-free period: 292 to 330 days

Map Unit Composition

Terrace escarpments: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Terrace Escarpments

Setting

Landform: Terraces
Parent material: Alluvium

Typical profile

Cr - 0 to 60 inches: loamy sand

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 0 inches to paralithic bedrock
Drainage class: Excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 14.17 in/hr)
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

WmB—Whitney sandy loams, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: hjhz
Elevation: 200 to 500 feet
Mean annual precipitation: 15 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Whitney and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Whitney

Setting

Landform: Fan remnants
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Concave
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 7 inches: sandy loam
H2 - 7 to 31 inches: sandy loam
H3 - 31 to 35 inches: weathered bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces
Hydric soil rating: No

Minor Components

Rocklin

Percent of map unit: 10 percent

Hydric soil rating: No

Montpellier

Percent of map unit: 5 percent

Hydric soil rating: No

Stanislaus County, California, Northern Part

102—Alamo clay, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 1j3c6
Elevation: 190 to 200 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 230 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Alamo, clay, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Alamo, Clay

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

Ap - 0 to 10 inches: clay
Bw - 10 to 34 inches: clay
Bkqm - 34 to 60 inches: indurated

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to duripan
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: NoneRare
Frequency of ponding: Occasional
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D
Ecological site: R017XY902CA - Duripan Vernal Pools
Hydric soil rating: Yes

Minor Components

Madera, sandy loam

Percent of map unit: 5 percent
Landform: Fan remnants
Hydric soil rating: No

San joaquin, sandy loam

Percent of map unit: 3 percent
Landform: Fan remnants
Hydric soil rating: No

Jahant, loam

Percent of map unit: 2 percent
Landform: Fan remnants
Hydric soil rating: No

237—San Joaquin sandy loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1j3d3
Elevation: 220 to 260 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 255 to 275 days
Farmland classification: Not prime farmland

Map Unit Composition

San joaquin, sandy loam, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of San Joaquin, Sandy Loam

Setting

Landform: Fan remnants
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Concave
Parent material: Alluvium derived from granite

Typical profile

A - 0 to 11 inches: sandy loam
2Bt - 11 to 24 inches: clay
2Bqm - 24 to 60 inches: cemented indurated

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches; 20 to 40 inches to duripan
Drainage class: Moderately well drained
Runoff class: Medium

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Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 1 percent

Available water supply, 0 to 60 inches: Very low (about 1.3 inches)

Interpretive groups

Land capability classification (irrigated): 4e

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: D

Ecological site: R017XY902CA - Duripan Vernal Pools

Hydric soil rating: No

Minor Components

Cometa, loam

Percent of map unit: 5 percent

Landform: Fan remnants

Hydric soil rating: No

Exeter, sandy loam

Percent of map unit: 4 percent

Landform: Fan remnants

Hydric soil rating: No

Madera, sandy loam

Percent of map unit: 3 percent

Landform: Fan remnants

Hydric soil rating: No

Jahant, loam

Percent of map unit: 2 percent

Landform: Fan remnants

Hydric soil rating: No

Veritas, fine sandy loam

Percent of map unit: 1 percent

Landform: Flood plains

Hydric soil rating: No

401—Peters-Pentz association, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2x8l8

Elevation: 160 to 260 feet

Mean annual precipitation: 16 to 18 inches

Mean annual air temperature: 63 degrees F

Frost-free period: 325 to 335 days

Farmland classification: Not prime farmland

Map Unit Composition

Peters, silty clay loam, and similar soils: 60 percent

Pentz, silt loam, and similar soils: 28 percent

Minor components: 12 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peters, Silty Clay Loam

Setting

Landform: Hills

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave

Across-slope shape: Linear

Parent material: Colluvium and/or residuum derived from water-reworked basic tuff

Typical profile

A1 - 0 to 2 inches: silty clay loam

A2 - 2 to 6 inches: silty clay

A3 - 6 to 14 inches: silty clay

Cr1 - 14 to 15 inches: bedrock

Cr2 - 15 to 25 inches: bedrock

Properties and qualities

Slope: 2 to 5 percent

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 10 to 20 inches to paralithic bedrock

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): 7e

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: D

Ecological site: R018X1164CA - Clayey Dissected Swales

Hydric soil rating: No

Description of Pentz, Silt Loam

Setting

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Colluvium and/or residuum derived from water-reworked basic tuff

Typical profile

A - 0 to 9 inches: silt loam

Bw - 9 to 12 inches: silt loam

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Bt - 12 to 16 inches: silt loam

Cr - 16 to 26 inches: bedrock

Properties and qualities

Slope: 5 to 8 percent

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): 6e

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: D

Ecological site: R018X1163CA - Thermic Low Rolling Hills

Hydric soil rating: No

Minor Components

Redding, gravelly loam

Percent of map unit: 7 percent

Landform: Fan remnants

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Crest

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R018X1163CA - Thermic Low Rolling Hills

Hydric soil rating: No

Archerdale, clay loam

Percent of map unit: 2 percent

Landform: Stream terraces on drainageways

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Hollenbeck, silty clay

Percent of map unit: 1 percent

Landform: Swales, backswamps on flood plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear

Across-slope shape: Concave, linear

Hydric soil rating: No

Miltonhills

Percent of map unit: 1 percent

Landform: Eroded fan remnant sideslopes

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

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Across-slope shape: Convex
Ecological site: F018XI200CA - Low Elevation Foothills
Hydric soil rating: No

Hicksville, silt loam

Percent of map unit: 1 percent
Landform: Stream terraces on drainageways
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

475—Pentz-Peters association, 2 to 50 percent slopes

Map Unit Setting

National map unit symbol: 2x8lb
Elevation: 180 to 380 feet
Mean annual precipitation: 16 to 18 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 325 to 340 days
Farmland classification: Not prime farmland

Map Unit Composition

Pentz, silt loam, and similar soils: 62 percent
Peters, silty clay loam, and similar soils: 25 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pentz, Silt Loam

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Colluvium and/or residuum derived from water-reworked basic tuff

Typical profile

A - 0 to 6 inches: silt loam
Bw - 6 to 10 inches: silt loam
Bt - 10 to 12 inches: silt loam
Cr - 12 to 22 inches: bedrock

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)

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Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.6 inches)

Interpretive groups

Land capability classification (irrigated): 7e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R018X1163CA - Thermic Low Rolling Hills
Hydric soil rating: No

Description of Peters, Silty Clay Loam

Setting

Landform: Hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Colluvium and/or residuum derived from water-reworked basic tuff

Typical profile

A1 - 0 to 2 inches: silty clay loam
A2 - 2 to 6 inches: silty clay
A3 - 6 to 14 inches: silty clay
Cr1 - 14 to 15 inches: bedrock
Cr2 - 15 to 25 inches: bedrock

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 10 to 20 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): 7e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R018X1164CA - Clayey Dissected Swales
Hydric soil rating: No

Minor Components

Miltonhills

Percent of map unit: 5 percent
Landform: Eroded fan remnant sideslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope

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Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F018X1200CA - Low Elevation Foothills
Hydric soil rating: No

Redding, gravelly loam

Percent of map unit: 5 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R018X1163CA - Thermic Low Rolling Hills
Hydric soil rating: No

Archerdale, clay loam

Percent of map unit: 2 percent
Landform: Stream terraces on drainageways
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Landform: Hills
Hydric soil rating: No

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Appendix F: LPA NRCS Soils Report

OAKDALE IRRIGATION DISTRICT

10 YEAR OUT OF DISTRICT WATER SALES PROGRAM



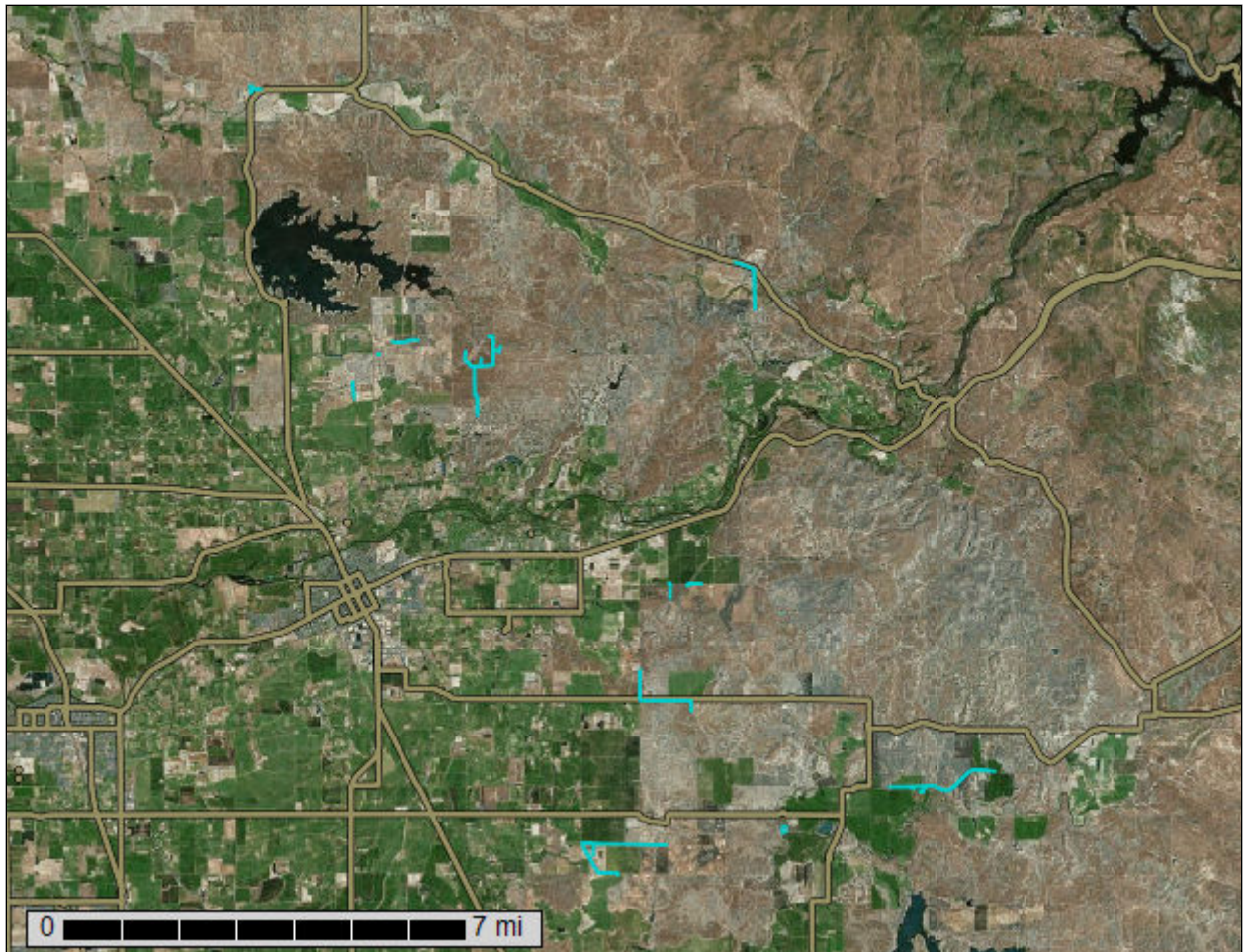
United States
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NRCS

Natural
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Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Eastern Stanislaus Area, California; and Stanislaus County, California, Northern Part



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

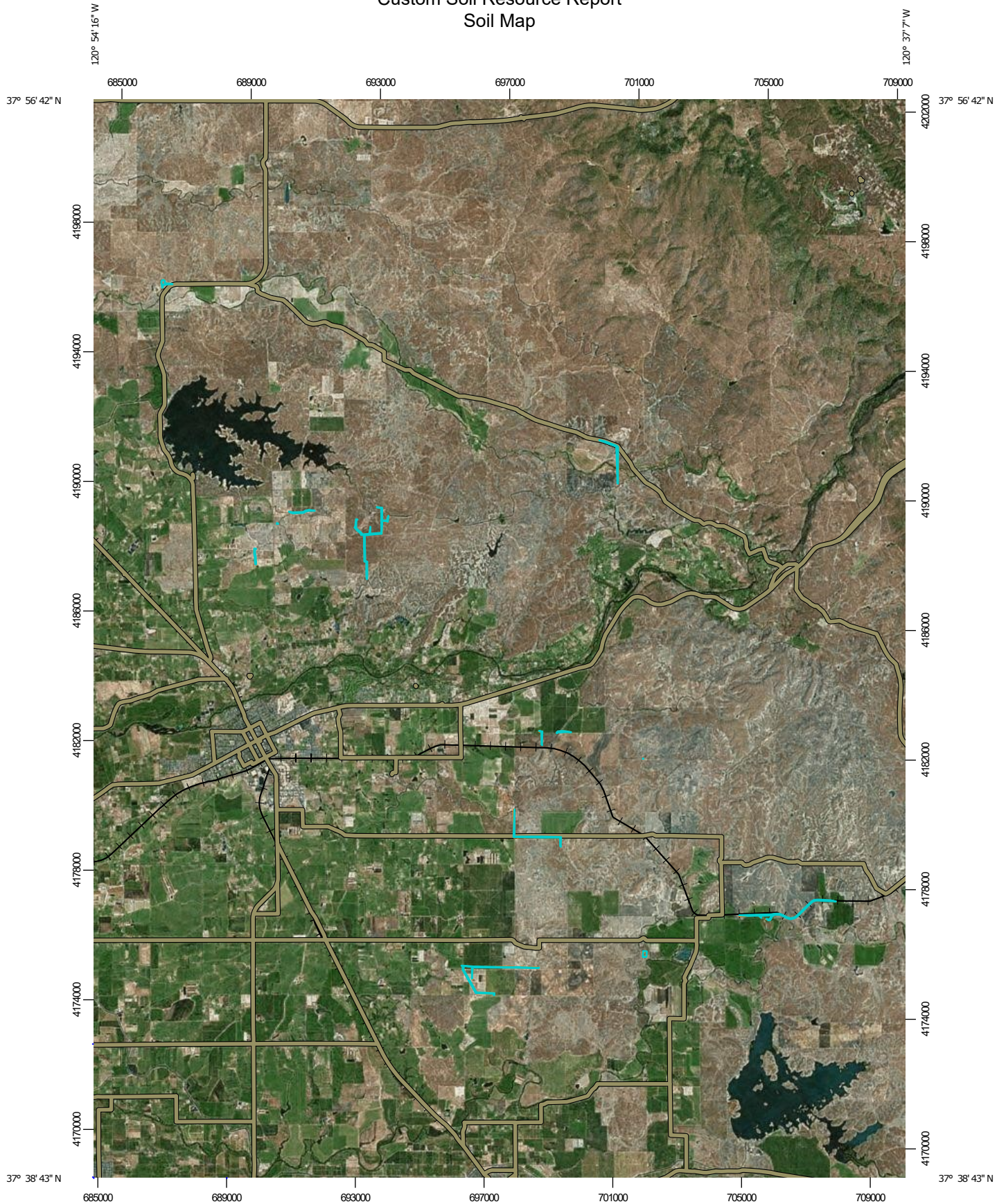
Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

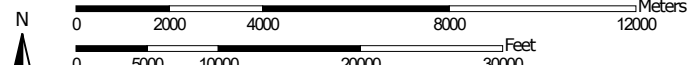
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map




Map Scale: 1:162,000 if printed on A portrait (8.5" x 11") sheet.



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.

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: Eastern Stanislaus Area, California
 Survey Area Data: Version 16, Sep 14, 2022

Soil Survey Area: Stanislaus County, California, Northern Part
 Survey Area Data: Version 14, Sep 14, 2022

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: Jan 1, 1999—Dec 31, 2003

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

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
8111	Psammentic Haploxerolls-Mollic Fluvaquents-Riverwash- complex, 0 to 8 percent slopes	0.1	0.1%
BcA	Bear Creek clay loam, 0 to 3 percent slopes	1.4	0.9%
GsA	Greenfield sandy loam, 0 to 3 percent slopes	6.6	4.3%
HtA	Hopeton clay loam, 0 to 3 percent slopes	0.0	0.0%
KeB	Keyes cobbly clay loam, 0 to 8 percent slopes	7.4	4.8%
MtA	Montpellier coarse sandy loam, 0 to 3 percent slopes	0.6	0.4%
MtB	Montpellier coarse sandy loam, 3 to 8 percent slopes	4.9	3.1%
PaA	Paulsell clay, 0 to 1 percent slopes	2.6	1.6%
PeB	Pentz gravelly loam, 3 to 8 percent slopes	0.2	0.1%
PeD	Pentz gravelly loam, 8 to 30 percent slopes	2.9	1.9%
PmC	Pentz loam, moderately deep, 8 to 15 percent slopes	1.1	0.7%
PtC	Peters clay, 8 to 15 percent slopes	0.1	0.1%
PvB	Peters cobbly clay, 0 to 8 percent slopes	21.5	13.8%
PvC	Peters cobbly clay, 8 to 15 percent slopes	4.9	3.2%
PxB	Peters-Pentz complex, 0 to 8 percent slopes	2.3	1.5%
RaA	Raynor clay, 0 to 3 percent slopes	6.8	4.4%
RaB	Raynor clay, 3 to 8 percent slopes	1.9	1.2%
RbB	Raynor cobbly clay, 0 to 8 percent slopes	4.4	2.8%
RtA	Ryer clay, 0 to 1 percent slopes	6.0	3.8%
Tx	Terrace escarpments	1.6	1.0%
WmB	Whitney sandy loams, 3 to 8 percent slopes	13.0	8.4%
WmC	Whitney sandy loams, 8 to 15 percent slopes	2.0	1.3%

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Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
WrB	Whitney and Rocklin sandy loams, 3 to 8 percent slopes	1.6	1.0%
Subtotals for Soil Survey Area		94.0	60.2%
Totals for Area of Interest		156.0	100.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
102	Alamo clay, 0 to 2 percent slopes	1.1	0.7%
134	Cometa sandy loam, 2 to 8 percent slopes	5.0	3.2%
170	Hicksville loam, 0 to 2 percent slopes, occasionally flooded	0.1	0.1%
237	San Joaquin sandy loam, 2 to 5 percent slopes	16.7	10.7%
301	Archerdale-Hicksville association, 0 to 2 percent slopes	2.3	1.5%
401	Peters-Pentz association, 2 to 8 percent slopes	6.6	4.2%
451	Pentz-Peters association, 2 to 15 percent slopes	19.5	12.5%
475	Pentz-Peters association, 2 to 50 percent slopes	3.0	1.9%
5012	Amador sandy loam, 2 to 15 percent slopes	7.7	4.9%
Subtotals for Soil Survey Area		62.0	39.8%
Totals for Area of Interest		156.0	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

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Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion

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of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Eastern Stanislaus Area, California

8111—Psammentic Haploxerolls-Mollic Fluvaquents-Riverwash-complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2x4d2
Elevation: 110 to 1,050 feet
Mean annual precipitation: 14 to 26 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 275 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Psammentic haploxerolls and similar soils: 40 percent
Mollic fluvaquents, cobbly, and similar soils: 20 percent
Riverwash: 15 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Psammentic Haploxerolls

Setting

Landform: Flood-plain steps
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

A - 0 to 14 inches: loamy sand
C - 14 to 49 inches: loamy sand
Bw - 49 to 63 inches: sandy loam
C' - 63 to 79 inches: sand

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: RareNone
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A
Ecological site: R018XX101CA - Mid Gradient Riparian Complex, 4Th Order Stream
Hydric soil rating: No

Description of Mollic Fluvaquents, Cobbly

Setting

Landform: Flood-plain steps
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium over residuum weathered from metamorphic rock

Typical profile

A - 0 to 2 inches: cobbly loam
Bg - 2 to 6 inches: very gravelly sandy clay loam
C - 6 to 15 inches: very gravelly sandy clay loam
R - 15 to 79 inches: bedrock

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.0 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to low (0.00 to 0.01 in/hr)
Depth to water table: About 1 to 4 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): 7w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: D
Ecological site: R018XX101CA - Mid Gradient Riparian Complex, 4Th Order Stream
Hydric soil rating: Yes

Description of Riverwash

Setting

Landform: Channels

Properties and qualities

Slope: 0 to 3 percent
Frequency of flooding: Very frequent

Minor Components

Anthraltic xerorthents

Percent of map unit: 13 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Ultic haploxerolls

Percent of map unit: 7 percent

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Landform: Meander scars on flood-plain steps
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R018XX101CA - Mid Gradient Riparian Complex, 4Th Order Stream
Hydric soil rating: No

Water

Percent of map unit: 5 percent
Landform: Streams
Hydric soil rating: No

BcA—Bear Creek clay loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2zxzv
Elevation: 50 to 480 feet
Mean annual precipitation: 13 to 18 inches
Mean annual air temperature: 62 to 63 degrees F
Frost-free period: 308 to 329 days

Map Unit Composition

Bear creek and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bear Creek

Setting

Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

Ap - 0 to 6 inches: clay loam
Bt - 6 to 21 inches: sandy clay loam
Btg - 21 to 36 inches: gravelly sandy clay loam
Cg - 36 to 53 inches: very gravelly sandy loam
Cr - 53 to 60 inches: bedrock

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 53 inches to paralithic bedrock
Drainage class: Moderately well drained

Custom Soil Resource Report

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Low (0.00 to 0.01 in/hr)

Depth to water table: About 21 inches

Frequency of flooding: NoneOccasional

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): 2s

Land capability classification (nonirrigated): 4s

Hydrologic Soil Group: C/D

Ecological site: R017XY903CA - Stream Channels and Floodplains

Hydric soil rating: No

Minor Components

Anderson

Percent of map unit: 8 percent

Landform: Alluvial fans

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: F018XI208CA - Deep Low Rolling Hills and Terraces

Hydric soil rating: No

Paulsell

Percent of map unit: 7 percent

Landform: Mud flats

Landform position (three-dimensional): Riser

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R017XY901CA - Clayey Basin Group

Hydric soil rating: No

GsA—Greenfield sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: hjcj

Elevation: 100 to 3,500 feet

Mean annual precipitation: 9 to 20 inches

Mean annual air temperature: 63 degrees F

Frost-free period: 200 to 300 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Greenfield and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Greenfield

Setting

Landform: Alluvial fans

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

H1 - 0 to 21 inches: fine sandy loam

H2 - 21 to 42 inches: sandy loam

H3 - 42 to 60 inches: sandy loam

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): 1

Land capability classification (nonirrigated): 4c

Hydrologic Soil Group: A

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans

Hydric soil rating: No

Minor Components

Hanford

Percent of map unit: 10 percent

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans

Hydric soil rating: No

Snelling

Percent of map unit: 5 percent

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans

Hydric soil rating: No

HtA—Hopeton clay loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: hjdg

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Elevation: 100 feet
Mean annual precipitation: 18 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 200 to 300 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hopeton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hopeton

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Concave
Parent material: Residuum weathered from sandstone

Typical profile

H1 - 0 to 11 inches: clay loam
H2 - 11 to 29 inches: clay loam
H3 - 29 to 38 inches: clay loam
H4 - 38 to 42 inches: weathered bedrock

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: D
Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces
Hydric soil rating: No

Minor Components

Pentz

Percent of map unit: 5 percent
Hydric soil rating: No

Corning

Percent of map unit: 5 percent
Hydric soil rating: No

Redding

Percent of map unit: 5 percent
Hydric soil rating: No

KeB—Keyes cobbly clay loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: hjdr
Elevation: 250 to 600 feet
Mean annual precipitation: 15 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 275 days
Farmland classification: Not prime farmland

Map Unit Composition

Keyes and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Keyes

Setting

Landform: Fan remnants
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Concave
Parent material: Tuffaceous gravelly alluvium derived from andesite

Typical profile

H1 - 0 to 3 inches: cobbly clay loam
H2 - 3 to 12 inches: gravelly clay loam
H3 - 12 to 16 inches: gravelly clay
H4 - 16 to 30 inches: indurated
H5 - 30 to 60 inches: very gravelly loamy coarse sand, gravelly sandy loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches; 10 to 20 inches to duripan
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

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Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R017XY902CA - Duripan Vernal Pools
Hydric soil rating: No

Minor Components

Peters

Percent of map unit: 5 percent
Hydric soil rating: No

Pentz

Percent of map unit: 5 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

MtA—Montpellier coarse sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: hjf7
Elevation: 150 to 500 feet
Mean annual precipitation: 10 to 20 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Montpellier and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Montpellier

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 18 inches: coarse sandy loam
H2 - 18 to 39 inches: sandy clay loam
H3 - 39 to 45 inches: coarse sandy loam
H4 - 45 to 60 inches: sandy loam

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Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 4s

Hydrologic Soil Group: C

Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces

Hydric soil rating: No

Minor Components

Whitney

Percent of map unit: 10 percent

Hydric soil rating: No

Rocklin

Percent of map unit: 5 percent

Hydric soil rating: No

MtB—Montpellier coarse sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: hjf8

Elevation: 150 to 500 feet

Mean annual precipitation: 10 to 20 inches

Mean annual air temperature: 61 to 63 degrees F

Frost-free period: 250 to 300 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Montpellier and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Montpellier

Setting

Landform: Fan remnants

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Custom Soil Resource Report

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 18 inches: coarse sandy loam
H2 - 18 to 39 inches: sandy clay loam
H3 - 39 to 45 inches: coarse sandy loam
H4 - 45 to 60 inches: sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces
Hydric soil rating: No

Minor Components

Whitney

Percent of map unit: 10 percent
Hydric soil rating: No

Rocklin

Percent of map unit: 5 percent
Hydric soil rating: No

PaA—Paulsell clay, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hjfh
Elevation: 2,000 feet
Mean annual precipitation: 35 inches
Mean annual air temperature: 57 to 63 degrees F
Frost-free period: 200 to 360 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Paulsell and similar soils: 85 percent

Custom Soil Resource Report

Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paulsell

Setting

Landform: Mud flats
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits derived from igneous rock

Typical profile

H1 - 0 to 24 inches: clay
H2 - 24 to 36 inches: clay
H3 - 36 to 60 inches: sandy loam, clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Rare
Frequency of ponding: None
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: R017XY901CA - Clayey Basin Group
Hydric soil rating: Yes

Minor Components

Yokohl

Percent of map unit: 10 percent
Hydric soil rating: No

Ryer

Percent of map unit: 5 percent
Hydric soil rating: No

PeB—Pentz gravelly loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: hjfl
Elevation: 110 to 600 feet
Mean annual precipitation: 12 to 22 inches

Custom Soil Resource Report

Mean annual air temperature: 61 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Pentz and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pentz

Setting

Landform: Hillslopes
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Tuffaceous loamy residuum weathered from volcanic sandstone

Typical profile

H1 - 0 to 8 inches: gravelly loam
H2 - 8 to 12 inches: weathered bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 6 to 14 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 0.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R018X1163CA - Thermic Low Rolling Hills
Hydric soil rating: No

Minor Components

Raynor

Percent of map unit: 5 percent
Hydric soil rating: No

Keyes

Percent of map unit: 5 percent
Hydric soil rating: No

Peters

Percent of map unit: 5 percent
Hydric soil rating: No

PeD—Pentz gravelly loam, 8 to 30 percent slopes

Map Unit Setting

National map unit symbol: hjfm
Elevation: 110 to 600 feet
Mean annual precipitation: 12 to 22 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Pentz and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pentz

Setting

Landform: Hillslopes
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Tuffaceous loamy residuum weathered from volcanic sandstone

Typical profile

H1 - 0 to 8 inches: gravelly loam
H2 - 8 to 12 inches: weathered bedrock

Properties and qualities

Slope: 8 to 30 percent
Depth to restrictive feature: 6 to 14 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 0.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R018X1163CA - Thermic Low Rolling Hills
Hydric soil rating: No

Minor Components

Raynor

Percent of map unit: 5 percent
Hydric soil rating: No

Peters

Percent of map unit: 5 percent
Hydric soil rating: No

Keys

Percent of map unit: 5 percent
Hydric soil rating: No

PmC—Pentz loam, moderately deep, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: hjft
Elevation: 100 to 600 feet
Mean annual precipitation: 18 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Pentz and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pentz

Setting

Landform: Hillslopes
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Tuffaceous loamy residuum weathered from volcanic sandstone

Typical profile

H1 - 0 to 24 inches: loam
H2 - 24 to 28 inches: weathered bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 30 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Custom Soil Resource Report

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): 4e

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: B

Ecological site: R018XI107CA - Shallow, Undulating Volcanic Hills

Hydric soil rating: No

Minor Components

Raynor

Percent of map unit: 5 percent

Hydric soil rating: No

Peters

Percent of map unit: 5 percent

Hydric soil rating: No

Keyes

Percent of map unit: 5 percent

Hydric soil rating: No

PtC—Peters clay, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: hjg1

Elevation: 120 to 1,200 feet

Mean annual precipitation: 15 inches

Mean annual air temperature: 61 degrees F

Frost-free period: 250 days

Farmland classification: Not prime farmland

Map Unit Composition

Peters and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peters

Setting

Landform: Hillslopes

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave

Across-slope shape: Linear

Parent material: Residuum weathered from volcanic sandstone

Typical profile

H1 - 0 to 6 inches: clay

H2 - 6 to 16 inches: clay

Custom Soil Resource Report

H3 - 16 to 20 inches: weathered bedrock

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: 12 to 20 inches to paralithic bedrock

Drainage class: Well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): 4e

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: D

Ecological site: R018X1164CA - Clayey Dissected Swales

Hydric soil rating: No

Minor Components

Pentz

Percent of map unit: 5 percent

Hydric soil rating: No

Raynor

Percent of map unit: 5 percent

Hydric soil rating: No

Keyes

Percent of map unit: 5 percent

Hydric soil rating: No

PvB—Peters cobbly clay, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: hjg2

Elevation: 120 to 1,200 feet

Mean annual precipitation: 15 inches

Mean annual air temperature: 61 degrees F

Frost-free period: 250 days

Farmland classification: Not prime farmland

Map Unit Composition

Peters and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peters

Setting

Landform: Hillslopes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Residuum weathered from volcanic sandstone

Typical profile

H1 - 0 to 6 inches: cobbly clay
H2 - 6 to 16 inches: clay
H3 - 16 to 20 inches: weathered bedrock

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 12 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.3 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: R018X1164CA - Clayey Dissected Swales
Hydric soil rating: No

Minor Components

Keyes

Percent of map unit: 5 percent
Hydric soil rating: No

Raynor

Percent of map unit: 5 percent
Hydric soil rating: No

Pentz

Percent of map unit: 5 percent
Hydric soil rating: No

PvC—Peters cobbly clay, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: hjg3
Elevation: 120 to 1,200 feet
Mean annual precipitation: 15 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Peters and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peters

Setting

Landform: Hillslopes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Residuum weathered from volcanic sandstone

Typical profile

H1 - 0 to 6 inches: cobbly clay
H2 - 6 to 16 inches: clay
H3 - 16 to 20 inches: weathered bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 12 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: R018XI164CA - Clayey Dissected Swales
Hydric soil rating: No

Minor Components

Pentz

Percent of map unit: 5 percent
Hydric soil rating: No

Keyes

Percent of map unit: 5 percent
Hydric soil rating: No

Raynor

Percent of map unit: 5 percent
Hydric soil rating: No

PxB—Peters-Pentz complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: hjg4
Elevation: 110 to 1,200 feet
Mean annual precipitation: 12 to 22 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Peters and similar soils: 50 percent
Pentz and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peters

Setting

Landform: Hillslopes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Residuum weathered from volcanic sandstone

Typical profile

H1 - 0 to 6 inches: clay
H2 - 6 to 16 inches: clay
H3 - 16 to 20 inches: weathered bedrock

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 12 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High

Custom Soil Resource Report

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: D

Ecological site: R018X1163CA - Thermic Low Rolling Hills

Hydric soil rating: No

Description of Pentz

Setting

Landform: Hillslopes

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Tuffaceous loamy residuum weathered from volcanic sandstone

Typical profile

H1 - 0 to 8 inches: gravelly loam

H2 - 8 to 12 inches: weathered bedrock

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 6 to 12 inches to paralithic bedrock

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Very low (about 0.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: D

Ecological site: R018X1164CA - Clayey Dissected Swales

Hydric soil rating: No

Minor Components

Keyes

Percent of map unit: 5 percent

Hydric soil rating: No

Raynor

Percent of map unit: 5 percent

Hydric soil rating: No

RaA—Raynor clay, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: hjg6

Elevation: 300 to 2,500 feet

Mean annual precipitation: 12 to 18 inches

Mean annual air temperature: 61 to 64 degrees F

Frost-free period: 260 to 320 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Raynor and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Raynor

Setting

Landform: Terraces

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Residuum weathered from volcanic sandstone

Typical profile

H1 - 0 to 15 inches: clay

H2 - 15 to 38 inches: clay

H3 - 38 to 50 inches: clay

H4 - 50 to 54 inches: weathered bedrock

Properties and qualities

Slope: 2 to 3 percent

Depth to restrictive feature: 20 to 50 inches to paralithic bedrock

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 4s

Hydrologic Soil Group: C

Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces

Hydric soil rating: No

Minor Components

Redding

Percent of map unit: 5 percent
Hydric soil rating: No

Pentz

Percent of map unit: 5 percent
Hydric soil rating: No

Peters

Percent of map unit: 5 percent
Hydric soil rating: No

RaB—Raynor clay, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: hjg7
Elevation: 300 to 2,500 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 260 to 320 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Raynor and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Raynor

Setting

Landform: Terraces
Down-slope shape: Convex
Across-slope shape: Concave
Parent material: Residuum weathered from volcanic sandstone

Typical profile

H1 - 0 to 15 inches: clay
H2 - 15 to 38 inches: clay
H3 - 38 to 50 inches: clay
H4 - 50 to 54 inches: weathered bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 50 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches

Custom Soil Resource Report

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: C

Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces

Hydric soil rating: No

Minor Components

Redding

Percent of map unit: 5 percent

Hydric soil rating: No

Peters

Percent of map unit: 5 percent

Hydric soil rating: No

Pentz

Percent of map unit: 5 percent

Hydric soil rating: No

RbB—Raynor cobbly clay, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: hjg9

Elevation: 300 to 2,500 feet

Mean annual precipitation: 12 to 18 inches

Mean annual air temperature: 61 to 64 degrees F

Frost-free period: 260 to 320 days

Farmland classification: Not prime farmland

Map Unit Composition

Raynor and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Raynor

Setting

Landform: Terraces

Down-slope shape: Convex

Across-slope shape: Concave

Parent material: Residuum weathered from volcanic sandstone

Typical profile

H1 - 0 to 15 inches: cobbly clay

H2 - 15 to 36 inches: clay

Custom Soil Resource Report

H3 - 36 to 40 inches: clay

H4 - 40 to 44 inches: weathered bedrock

Properties and qualities

Slope: 2 to 8 percent

Depth to restrictive feature: 20 to 50 inches to paralithic bedrock

Drainage class: Well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: C

Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces

Hydric soil rating: No

Minor Components

Redding

Percent of map unit: 5 percent

Hydric soil rating: No

Peters

Percent of map unit: 5 percent

Hydric soil rating: No

Pentz

Percent of map unit: 5 percent

Hydric soil rating: No

RtA—Ryer clay, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hjgq

Elevation: 40 to 500 feet

Mean annual precipitation: 10 to 25 inches

Mean annual air temperature: 63 degrees F

Frost-free period: 255 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Ryer and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ryer

Setting

Landform: Fan remnants

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Riser

Down-slope shape: Linear

Across-slope shape: Concave

Parent material: Basic alluvium derived from igneous rock

Typical profile

H1 - 0 to 8 inches: clay

H2 - 8 to 48 inches: silty clay loam

H3 - 48 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 4s

Hydrologic Soil Group: C

Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces

Hydric soil rating: No

Minor Components

Wyman

Percent of map unit: 5 percent

Hydric soil rating: No

Yokohl

Percent of map unit: 5 percent

Hydric soil rating: No

Honcut

Percent of map unit: 5 percent

Hydric soil rating: No

Tx—Terrace escarpments

Map Unit Setting

National map unit symbol: 2zy02

Elevation: 30 to 410 feet

Mean annual precipitation: 11 to 30 inches

Mean annual air temperature: 62 to 64 degrees F

Frost-free period: 292 to 330 days

Map Unit Composition

Terrace escarpments: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Terrace Escarpments

Setting

Landform: Terraces

Parent material: Alluvium

Typical profile

Cr - 0 to 60 inches: loamy sand

Properties and qualities

Slope: 30 to 50 percent

Depth to restrictive feature: 0 inches to paralithic bedrock

Drainage class: Excessively drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 14.17 in/hr)

Calcium carbonate, maximum content: 1 percent

Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydric soil rating: No

WmB—Whitney sandy loams, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: hjhz

Elevation: 200 to 500 feet

Mean annual precipitation: 15 inches

Mean annual air temperature: 61 degrees F

Frost-free period: 250 to 300 days

Farmland classification: Not prime farmland

Map Unit Composition

Whitney and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Whitney

Setting

Landform: Fan remnants

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Riser

Down-slope shape: Convex

Across-slope shape: Concave

Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 7 inches: sandy loam

H2 - 7 to 31 inches: sandy loam

H3 - 31 to 35 inches: weathered bedrock

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock

Drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: C

Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces

Hydric soil rating: No

Minor Components

Rocklin

Percent of map unit: 10 percent

Hydric soil rating: No

Montpellier

Percent of map unit: 5 percent

Hydric soil rating: No

WmC—Whitney sandy loams, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: hjj0
Elevation: 200 to 500 feet
Mean annual precipitation: 15 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Whitney and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Whitney

Setting

Landform: Fan remnants
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Concave
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 7 inches: sandy loam
H2 - 7 to 31 inches: sandy loam
H3 - 31 to 35 inches: weathered bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces
Hydric soil rating: No

Minor Components

Rocklin

Percent of map unit: 10 percent
Hydric soil rating: No

Montpellier

Percent of map unit: 5 percent
Hydric soil rating: No

WrB—Whitney and Rocklin sandy loams, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: hjj6
Elevation: 200 to 1,500 feet
Mean annual precipitation: 15 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Whitney and similar soils: 55 percent
Rocklin and similar soils: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Whitney

Setting

Landform: Fan remnants
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Concave
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 7 inches: sandy loam
H2 - 7 to 31 inches: sandy loam
H3 - 31 to 35 inches: weathered bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Custom Soil Resource Report

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: C

Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces

Hydric soil rating: No

Description of Rocklin

Setting

Landform: Fan remnants

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Riser

Down-slope shape: Convex

Across-slope shape: Concave

Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 9 inches: sandy loam

H2 - 9 to 17 inches: sandy loam

H3 - 17 to 28 inches: sandy clay loam

H4 - 28 to 34 inches: indurated

H5 - 34 to 60 inches: coarse sandy loam, fine sandy loam

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: 20 to 40 inches to duripan

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: C

Ecological site: R017XY902CA - Duripan Vernal Pools

Hydric soil rating: No

Minor Components

Montpellier

Percent of map unit: 10 percent

Hydric soil rating: No

Unnamed

Percent of map unit: 5 percent

Hydric soil rating: No

Custom Soil Resource Report

Stanislaus County, California, Northern Part

102—Alamo clay, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 1j3c6
Elevation: 190 to 200 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 230 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Alamo, clay, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Alamo, Clay

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

Ap - 0 to 10 inches: clay
Bw - 10 to 34 inches: clay
Bkqm - 34 to 60 inches: indurated

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to duripan
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: NoneRare
Frequency of ponding: Occasional
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D
Ecological site: R017XY902CA - Duripan Vernal Pools
Hydric soil rating: Yes

Minor Components

Madera, sandy loam

Percent of map unit: 5 percent
Landform: Fan remnants
Hydric soil rating: No

San joaquin, sandy loam

Percent of map unit: 3 percent
Landform: Fan remnants
Hydric soil rating: No

Jahant, loam

Percent of map unit: 2 percent
Landform: Fan remnants
Hydric soil rating: No

134—Cometa sandy loam, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 1j3cf
Elevation: 20 to 400 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 255 to 275 days
Farmland classification: Not prime farmland

Map Unit Composition

Cometa, sandy loam, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cometa, Sandy Loam

Setting

Landform: Fan remnants
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Concave
Parent material: Fine-loamy alluvium derived from granite

Typical profile

A - 0 to 15 inches: sandy loam
Bt - 15 to 40 inches: clay loam
Btq - 40 to 60 inches: sandy loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches; 20 to 40 inches to cemented horizon
Drainage class: Well drained

Custom Soil Resource Report

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): 4e

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: D

Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces

Hydric soil rating: No

Minor Components

San joaquin, sandy loam

Percent of map unit: 7 percent

Landform: Fan remnants

Hydric soil rating: No

Madera, sandy loam

Percent of map unit: 6 percent

Landform: Fan remnants

Hydric soil rating: No

Alamo, clay

Percent of map unit: 2 percent

Landform: Backswamps

Hydric soil rating: Yes

170—Hicksville loam, 0 to 2 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 1j3ck

Elevation: 130 to 230 feet

Mean annual precipitation: 13 to 15 inches

Mean annual air temperature: 61 to 63 degrees F

Frost-free period: 230 to 260 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Hicksville, loam, and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hicksville, Loam

Setting

Landform: Stream terraces

Custom Soil Resource Report

Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fine-loamy alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

A - 0 to 10 inches: loam
Bt - 10 to 45 inches: gravelly sandy clay loam
2Bt - 45 to 60 inches: stratified sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C
Ecological site: R017XY905CA - Dry Alluvial Fans and Terraces
Hydric soil rating: No

Minor Components

Archerdale, clay loam

Percent of map unit: 6 percent
Landform: Stream terraces
Hydric soil rating: No

Peters, clay

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Foothlope, toeslope
Microfeatures of landform position: Swales, mounds

Chuloak, sandy loam

Percent of map unit: 3 percent
Landform: Alluvial fans
Hydric soil rating: No

Nord, loam

Percent of map unit: 1 percent
Landform: Fan skirts
Hydric soil rating: No

237—San Joaquin sandy loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1j3d3
Elevation: 220 to 260 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 255 to 275 days
Farmland classification: Not prime farmland

Map Unit Composition

San joaquin, sandy loam, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of San Joaquin, Sandy Loam

Setting

Landform: Fan remnants
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Concave
Parent material: Alluvium derived from granite

Typical profile

A - 0 to 11 inches: sandy loam
2Bt - 11 to 24 inches: clay
2Bqm - 24 to 60 inches: cemented indurated

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches; 20 to 40 inches to duripan
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: Very low (about 1.3 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: R017XY902CA - Duripan Vernal Pools
Hydric soil rating: No

Minor Components

Cometa, loam

Percent of map unit: 5 percent
Landform: Fan remnants
Hydric soil rating: No

Exeter, sandy loam

Percent of map unit: 4 percent
Landform: Fan remnants
Hydric soil rating: No

Madera, sandy loam

Percent of map unit: 3 percent
Landform: Fan remnants
Hydric soil rating: No

Jahant, loam

Percent of map unit: 2 percent
Landform: Fan remnants
Hydric soil rating: No

Veritas, fine sandy loam

Percent of map unit: 1 percent
Landform: Flood plains
Hydric soil rating: No

301—Archerdale-Hicksville association, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2x8ld
Elevation: 200 to 740 feet
Mean annual precipitation: 17 to 24 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 320 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Archerdale, clay loam, and similar soils: 65 percent
Hicksville, gravelly loam, and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Archerdale, Clay Loam

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Custom Soil Resource Report

Typical profile

Ap - 0 to 10 inches: clay loam
A - 10 to 30 inches: clay
Bw - 30 to 60 inches: clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: NoneRare
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: C
Ecological site: F018X1208CA - Deep Low Rolling Hills and Terraces
Hydric soil rating: No

Description of Hicksville, Gravelly Loam

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

A - 0 to 10 inches: gravelly loam
Bt - 10 to 45 inches: gravelly sandy clay loam
2Bt - 45 to 60 inches: very gravelly sandy clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: C
Ecological site: F018X1208CA - Deep Low Rolling Hills and Terraces
Hydric soil rating: No

Minor Components

Hollenbeck, silty clay

Percent of map unit: 7 percent
Landform: Swales, backswamps on flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Ultic haploxerolls, sandy loam

Percent of map unit: 5 percent
Landform: Meander scars on stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Nord, loam

Percent of map unit: 1 percent
Landform: Fan remnants
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Capay, clay

Percent of map unit: 1 percent
Landform: Basin floors
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Finrod, clay

Percent of map unit: 1 percent
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

401—Peters-Pentz association, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2x8l8
Elevation: 160 to 260 feet
Mean annual precipitation: 16 to 18 inches

Custom Soil Resource Report

Mean annual air temperature: 63 degrees F
Frost-free period: 325 to 335 days
Farmland classification: Not prime farmland

Map Unit Composition

Peters, silty clay loam, and similar soils: 60 percent
Pentz, silt loam, and similar soils: 28 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peters, Silty Clay Loam

Setting

Landform: Hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Colluvium and/or residuum derived from water-reworked basic tuff

Typical profile

A1 - 0 to 2 inches: silty clay loam
A2 - 2 to 6 inches: silty clay
A3 - 6 to 14 inches: silty clay
Cr1 - 14 to 15 inches: bedrock
Cr2 - 15 to 25 inches: bedrock

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 10 to 20 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): 7e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R018X1164CA - Clayey Dissected Swales
Hydric soil rating: No

Description of Pentz, Silt Loam

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Colluvium and/or residuum derived from water-reworked basic tuff

Typical profile

A - 0 to 9 inches: silt loam
Bw - 9 to 12 inches: silt loam
Bt - 12 to 16 inches: silt loam
Cr - 16 to 26 inches: bedrock

Properties and qualities

Slope: 5 to 8 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R018X1163CA - Thermic Low Rolling Hills
Hydric soil rating: No

Minor Components

Redding, gravelly loam

Percent of map unit: 7 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R018X1163CA - Thermic Low Rolling Hills
Hydric soil rating: No

Archerdale, clay loam

Percent of map unit: 2 percent
Landform: Stream terraces on drainageways
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Hollenbeck, silty clay

Percent of map unit: 1 percent
Landform: Swales, backswamps on flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Miltonhills

Percent of map unit: 1 percent
Landform: Eroded fan remnant sideslopes

Custom Soil Resource Report

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F018X1200CA - Low Elevation Foothills
Hydric soil rating: No

Hicksville, silt loam

Percent of map unit: 1 percent
Landform: Stream terraces on drainageways
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

451—Pentz-Peters association, 2 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2x8I9
Elevation: 180 to 340 feet
Mean annual precipitation: 16 to 18 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 325 to 340 days
Farmland classification: Not prime farmland

Map Unit Composition

Pentz, silt loam, and similar soils: 63 percent
Peters, silty clay loam, and similar soils: 25 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pentz, Silt Loam

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Colluvium and/or residuum derived from water-reworked basic tuff

Typical profile

A - 0 to 6 inches: silt loam
Bw - 6 to 10 inches: silt loam
Bt - 10 to 12 inches: silt loam
Cr - 12 to 22 inches: bedrock

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock

Custom Soil Resource Report

Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.6 inches)

Interpretive groups

Land capability classification (irrigated): 7e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R018X1163CA - Thermic Low Rolling Hills
Hydric soil rating: No

Description of Peters, Silty Clay Loam

Setting

Landform: Hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Colluvium and/or residuum derived from water-reworked basic tuff

Typical profile

A1 - 0 to 2 inches: silty clay loam
A2 - 2 to 6 inches: silty clay
A3 - 6 to 14 inches: silty clay
Cr1 - 14 to 15 inches: bedrock
Cr2 - 15 to 25 inches: bedrock

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 10 to 20 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): 7e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R018X1164CA - Clayey Dissected Swales
Hydric soil rating: No

Minor Components

Miltonhills

Percent of map unit: 5 percent

Custom Soil Resource Report

Landform: Eroded fan remnant sideslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F018X1200CA - Low Elevation Foothills
Hydric soil rating: No

Redding, gravelly loam

Percent of map unit: 5 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R018X1163CA - Thermic Low Rolling Hills
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Landform: Hills
Hydric soil rating: No

Archerdale, clay loam

Percent of map unit: 1 percent
Landform: Stream terraces on drainageways
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

475—Pentz-Peters association, 2 to 50 percent slopes

Map Unit Setting

National map unit symbol: 2x8lb
Elevation: 180 to 380 feet
Mean annual precipitation: 16 to 18 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 325 to 340 days
Farmland classification: Not prime farmland

Map Unit Composition

Pentz, silt loam, and similar soils: 62 percent
Peters, silty clay loam, and similar soils: 25 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pentz, Silt Loam

Setting

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Colluvium and/or residuum derived from water-reworked basic tuff

Typical profile

A - 0 to 6 inches: silt loam

Bw - 6 to 10 inches: silt loam

Bt - 10 to 12 inches: silt loam

Cr - 12 to 22 inches: bedrock

Properties and qualities

Slope: 15 to 50 percent

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Very low (about 1.6 inches)

Interpretive groups

Land capability classification (irrigated): 7e

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: D

Ecological site: R018X1163CA - Thermic Low Rolling Hills

Hydric soil rating: No

Description of Peters, Silty Clay Loam

Setting

Landform: Hills

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave

Across-slope shape: Linear

Parent material: Colluvium and/or residuum derived from water-reworked basic tuff

Typical profile

A1 - 0 to 2 inches: silty clay loam

A2 - 2 to 6 inches: silty clay

A3 - 6 to 14 inches: silty clay

Cr1 - 14 to 15 inches: bedrock

Cr2 - 15 to 25 inches: bedrock

Properties and qualities

Slope: 2 to 8 percent

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 10 to 20 inches to paralithic bedrock

Drainage class: Well drained

Custom Soil Resource Report

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): 7e

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: D

Ecological site: R018X1164CA - Clayey Dissected Swales

Hydric soil rating: No

Minor Components

Miltonhills

Percent of map unit: 5 percent

Landform: Eroded fan remnant sideslopes

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Convex

Ecological site: F018X1200CA - Low Elevation Foothills

Hydric soil rating: No

Redding, gravelly loam

Percent of map unit: 5 percent

Landform: Fan remnants

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Crest

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R018X1163CA - Thermic Low Rolling Hills

Hydric soil rating: No

Archerdale, clay loam

Percent of map unit: 2 percent

Landform: Stream terraces on drainageways

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent

Landform: Hills

Hydric soil rating: No

5012—Amador sandy loam, 2 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2rx24

Elevation: 210 to 480 feet

Mean annual precipitation: 17 to 21 inches

Mean annual air temperature: 63 degrees F

Frost-free period: 325 to 350 days

Farmland classification: Not prime farmland

Map Unit Composition

Amador and similar soils: 76 percent

Minor components: 24 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Amador

Setting

Landform: Low hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Residuum weathered from acidic tuff

Typical profile

A - 0 to 2 inches: sandy loam

Bw - 2 to 15 inches: sandy loam

Cr - 15 to 25 inches: bedrock

Properties and qualities

Slope: 2 to 15 percent

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): 7e

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: D

Ecological site: R018X1107CA - Shallow, Undulating Volcanic Hills

Hydric soil rating: No

Minor Components

Gillender

Percent of map unit: 9 percent
Landform: Low hills, swales
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R018X1163CA - Thermic Low Rolling Hills
Hydric soil rating: No

Pardee

Percent of map unit: 5 percent
Landform: Ridges on eroded fan remnants
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R018X1107CA - Shallow, Undulating Volcanic Hills
Hydric soil rating: No

Miltonhills

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F018X1207CA - Deep Volcanic Plateaus and Hills
Hydric soil rating: No

Redding

Percent of map unit: 2 percent
Landform: Eroded fan remnants
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F018X1200CA - Low Elevation Foothills
Hydric soil rating: No

Mined land

Percent of map unit: 2 percent
Landform: Low hills
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Rock outcrop, acidic tuff

Percent of map unit: 1 percent
Landform: Low hills
Hydric soil rating: No

Custom Soil Resource Report

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Custom Soil Resource Report

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Appendix G: LPA CNDDDB 26-Quad Search

OAKDALE IRRIGATION DISTRICT

10 YEAR OUT OF DISTRICT WATER SALES PROGRAM



Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad IS OR Oakdale (3712077) OR Knights Ferry (3712076) OR Paulsell (3712066) OR Waterford (3712067) OR Riverbank (3712068) OR Escalon (3712078) OR Farmington (3712088) OR Bachelor Valley (3712087) OR Copperopolis (3712086) OR New Melones Dam (3712085) OR Keystone (3712075) OR Cooperstown (3712065) OR Turlock Lake (3712055) OR Montpelier (3712056) OR Denair (3712057) OR Ceres (3712058) OR Avena (3712171) OR Peters (3712181) OR Linden (3812111) OR Valley Springs SW (3812018) OR Jenny Lind (3812017)

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Ahart's dwarf rush <i>Juncus leiospermus var. ahartii</i>	PMJUN011L1	None	None	G2T1	S1	1B.2
An andrenid bee <i>Andrena subapasta</i>	IIHYM35210	None	None	G1G2	S1S2	
bald eagle <i>Haliaeetus leucocephalus</i>	ABNKC10010	Delisted	Endangered	G5	S3	FP
beaked clarkia <i>Clarkia rostrata</i>	PDONA050Y0	None	None	G2G3	S2S3	1B.3
Blennosperma vernal pool andrenid bee <i>Andrena blennospermatis</i>	IIHYM35030	None	None	G2	S2	
burrowing owl <i>Athene cucularia</i>	ABNSB10010	None	None	G4	S3	SSC
Button's Sierra sideband <i>Monadenia mormonum buttoni</i>	IMGASC7071	None	None	G2T1	S1S2	
California floater <i>Anodonta californiensis</i>	IMBIV04220	None	None	G3Q	S2?	
California horned lark <i>Eremophila alpestris actia</i>	ABPAT02011	None	None	G5T4Q	S4	WL
California linderiella <i>Linderiella occidentalis</i>	ICBRA06010	None	None	G2G3	S2S3	
California tiger salamander - central California DPS <i>Ambystoma californiense pop. 1</i>	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
Chinese Camp brodiaea <i>Brodiaea pallida</i>	PMLIL0C0C0	Threatened	Endangered	G1	S1	1B.1
Colusa grass <i>Neostapfia colusana</i>	PMPOA4C010	Threatened	Endangered	G1	S1	1B.1
Congdon's lomatium <i>Lomatium congdonii</i>	PDAPI1B0B0	None	None	G2	S2	1B.2
Crotch bumble bee <i>Bombus crotchii</i>	IIHYM24480	None	Candidate Endangered	G2	S1S2	
Delta button-celery <i>Eryngium racemosum</i>	PDAPI0Z0S0	None	Endangered	G1	S1	1B.1
dwarf downingia <i>Downingia pusilla</i>	PDCAM060C0	None	None	GU	S2	2B.2



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
forked hare-leaf <i>Lagophylla dichotoma</i>	PDAST5J070	None	None	G2	S2	1B.1
giant gartersnake <i>Thamnophis gigas</i>	ARADB36150	Threatened	Threatened	G2	S2	
green sturgeon - southern DPS <i>Acipenser medirostris pop. 1</i>	AFCAA01031	Threatened	None	G2T1	S1	
Greene's tuctoria <i>Tuctoria greenei</i>	PMPOA6N010	Endangered	Rare	G1	S1	1B.1
hairy Orcutt grass <i>Orcuttia pilosa</i>	PMPOA4G040	Endangered	Endangered	G1	S1	1B.1
hardhead <i>Mylopharodon conocephalus</i>	AFCJB25010	None	None	G3	S3	SSC
Hartweg's golden sunburst <i>Pseudobahia bahiifolia</i>	PDAST7P010	Endangered	Endangered	G1	S1	1B.1
heartscale <i>Atriplex cordulata var. cordulata</i>	PDCHE040B0	None	None	G3T2	S2	1B.2
Henderson's bent grass <i>Agrostis hendersonii</i>	PMPOA040K0	None	None	G2Q	S2	3.2
hirsute Sierra sideband <i>Monadenia mormonum hirsuta</i>	IMGASC7072	None	None	G2T1	S1	
hoary bat <i>Lasiurus cinereus</i>	AMACC05032	None	None	G3G4	S4	
Hoover's calycadenia <i>Calycadenia hooveri</i>	PDAST1P040	None	None	G2	S2	1B.3
Hoover's cryptantha <i>Cryptantha hooveri</i>	PDBOR0A190	None	None	GH	SH	1A
Hoover's spurge <i>Euphorbia hooveri</i>	PDEUP0D150	Threatened	None	G1	S1	1B.2
least Bell's vireo <i>Vireo bellii pusillus</i>	ABPBW01114	Endangered	Endangered	G5T2	S2	
legenere <i>Legenere limosa</i>	PDCAM0C010	None	None	G2	S2	1B.1
Mariposa cryptantha <i>Cryptantha mariposae</i>	PDBOR0A1Q0	None	None	G2G3	S2S3	1B.3
Merced monardella <i>Monardella leucocephala</i>	PDLAM180C0	None	None	GX	SX	1A
midvalley fairy shrimp <i>Branchinecta mesovallensis</i>	ICBRA03150	None	None	G2	S2S3	
moestan blister beetle <i>Lytta moesta</i>	IICOL4C020	None	None	G2	S2	
mountain plover <i>Charadrius montanus</i>	ABNNB03100	None	None	G3	S2S3	SSC



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
North American porcupine <i>Erethizon dorsatum</i>	AMAFJ01010	None	None	G5	S3	
Northern California legless lizard <i>Anniella pulchra</i>	ARACC01020	None	None	G3	S2S3	SSC
Northern Hardpan Vernal Pool <i>Northern Hardpan Vernal Pool</i>	CTT44110CA	None	None	G3	S3.1	
obscure bumble bee <i>Bombus caliginosus</i>	IIHYM24380	None	None	G2G3	S1S2	
pallid bat <i>Antrozous pallidus</i>	AMACC10010	None	None	G4	S3	SSC
Patterson's navarretia <i>Navarretia paradoxiclara</i>	PDPLM0C150	None	None	G2	S2	1B.3
pincushion navarretia <i>Navarretia myersii ssp. myersii</i>	PDPLM0C0X1	None	None	G2T2	S2	1B.1
Rawhide Hill onion <i>Allium tuolumnense</i>	PMLIL022W0	None	None	G2	S2	1B.2
Red Hills cryptantha <i>Cryptantha spithamaea</i>	PDBOR0A2M2	None	None	G2	S2	1B.3
Red Hills ragwort <i>Senecio clevelandii var. heterophyllus</i>	PDAST8H0R2	None	None	G4?T2Q	S2	1B.2
Red Hills roach <i>Hesperoleucus symmetricus serpentinus</i>	AFCJB19028	None	None	GNRT1	S1	SSC
Red Hills soaproot <i>Chlorogalum grandiflorum</i>	PMLIL0G020	None	None	G3	S3	1B.2
Red Hills vervain <i>Verbena californica</i>	PDVER0N050	Threatened	Threatened	G2	S2	1B.1
San Joaquin Valley giant flower-loving fly <i>Rhaphiomidas trochilus</i>	IIDIP05010	None	None	G1	S1	
San Joaquin Valley Orcutt grass <i>Orcuttia inaequalis</i>	PMPOA4G060	Threatened	Endangered	G1	S1	1B.1
shaggyhair lupine <i>Lupinus spectabilis</i>	PDFAB2B3P0	None	None	G2	S2	1B.2
silver-haired bat <i>Lasionycteris noctivagans</i>	AMACC02010	None	None	G3G4	S3S4	
spiny-sepaed button-celery <i>Eryngium spinosepalum</i>	PDAP10Z0Y0	None	None	G2	S2	1B.2
Stanislaus harvestman <i>Calicina breva</i>	ILARAU8020	None	None	G1	S1	
Stanislaus monkeyflower <i>Erythranthe marmorata</i>	PDPHR01130	None	None	G2?	S2?	1B.1
steelhead - Central Valley DPS <i>Oncorhynchus mykiss irideus pop. 11</i>	AFCHA0209K	Threatened	None	G5T2Q	S2	



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
stinkbells <i>Fritillaria agrestis</i>	PMLIL0V010	None	None	G3	S3	4.2
subtle orache <i>Atriplex subtilis</i>	PDCHE042T0	None	None	G1	S1	1B.2
succulent owl's-clover <i>Castilleja campestris</i> var. <i>succulenta</i>	PDSCR0D3Z1	Threatened	Endangered	G4?T2T3	S2S3	1B.2
Swainson's hawk <i>Buteo swainsoni</i>	ABNKC19070	None	Threatened	G5	S3	
tongue-leaf copper moss <i>Scopelophila cataractae</i>	NBMUS6U010	None	None	G3G4	S1	2B.2
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	AMACC08010	None	None	G4	S2	SSC
tricolored blackbird <i>Agelaius tricolor</i>	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
Tuolumne button-celery <i>Eryngium pinnatisectum</i>	PDAP10Z0P0	None	None	G2	S2	1B.2
valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	IICOL48011	Threatened	None	G3T2T3	S3	
veiny monardella <i>Monardella venosa</i>	PDLAM18082	None	None	G1	S1	1B.1
vernal pool fairy shrimp <i>Branchinecta lynchi</i>	ICBRA03030	Threatened	None	G3	S3	
vernal pool tadpole shrimp <i>Lepidurus packardii</i>	ICBRA10010	Endangered	None	G4	S3	
western bumble bee <i>Bombus occidentalis</i>	IIHYM24252	None	Candidate Endangered	G3	S1	
western mastiff bat <i>Eumops perotis californicus</i>	AMACD02011	None	None	G4G5T4	S3S4	SSC
western pond turtle <i>Emys marmorata</i>	ARAAD02030	None	None	G3G4	S3	SSC
western red bat <i>Lasiurus frantzii</i>	AMACC05080	None	None	G4	S3	SSC
western ridged mussel <i>Gonidea angulata</i>	IMBIV19010	None	None	G3	S1S2	
western spadefoot <i>Spea hammondi</i>	AAABF02020	None	None	G2G3	S3S4	SSC
yellow-breasted chat <i>Icteria virens</i>	ABPBX24010	None	None	G5	S3	SSC
Yuma myotis <i>Myotis yumanensis</i>	AMACC01020	None	None	G5	S4	

Record Count: 79

Appendix H: LPA IPaC Search

OAKDALE IRRIGATION DISTRICT

10 YEAR OUT OF DISTRICT WATER SALES PROGRAM



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:
Project Code: 2023-0024978
Project Name: Oakdale Irrigation District 10 Year Water Program

December 13, 2022

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 ECOS-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 ECOS-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:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.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/birds/policies-and-regulations.php>.

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/birds/bird-enthusiasts/threats-to-birds.php>.

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/birds/policies-and-regulations/executive-orders/e0-13186.php>.

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: 2023-0024978
Project Name: Oakdale Irrigation District 10 Year Water Program
Project Type: Irrigation
Project Description: The Oakdale Irrigation District (OID) 10-Year Out-of-District Water Sales Program (Program) proposes to provide surplus surface water when available from OID to up to 11,000 irrigated acres outside the OID boundaries in northeastern Stanislaus County generally between March and October from 2023-2033 (Project). OID has made surplus water available to out-of-district (OOD) lands on an annual basis for several years. However, interest and participation in OOD water supply annually from OID has been limited prior to Groundwater Sustainability Plan (GSP) development and due to the lack of private infrastructure and available delivery points. A determination of surplus water availability is typically made in March each year based on hydrologic conditions and is publicly discussed at a meeting of the OID Board of Directors. (Project). Varying levels of construction are anticipated to be needed in order for the some of these OOD lands to receive OID surplus water. Some landowners have existing canal delivery points (turnouts) and pipelines in place; others are adjacent to an OID canal but require a turnout and short length of new pipeline to be installed; other landowners are not adjacent to OID canals and will require a new turnout and a considerable length of new pipeline to be installed, whether through developed agricultural ground or native ground.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@37.89385045,-120.8785403429878,14z>



Counties: Stanislaus County, California

Endangered Species Act Species

There is a total of 13 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 Fisheries¹, 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
San Joaquin Kit Fox <i>Vulpes macrotis mutica</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

Amphibians

NAME	STATUS
California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp <i>Branchinecta conservatio</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
Colusa Grass <i>Neostapfia colusana</i> There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5690	Threatened
Greene's Tuctoria <i>Tuctoria greenei</i> There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1573	Endangered
Hairy Orcutt Grass <i>Orcuttia pilosa</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2262	Endangered
Hartweg's Golden Sunburst <i>Pseudobahia bahiifolia</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1704	Endangered
San Joaquin Orcutt Grass <i>Orcuttia inaequalis</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5506	Threatened

Critical habitats

There are 5 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Colusa Grass <i>Neostapfia colusana</i> https://ecos.fws.gov/ecp/species/5690#crithab	Final
Fleshy Owl's-clover <i>Castilleja campestris ssp. succulenta</i> For information on why this critical habitat appears for your project, even though Fleshy Owl's-clover is not on the list of potentially affected species at this location, contact the local field office. https://ecos.fws.gov/ecp/species/8095#crithab	Final
Greene's Tuctoria <i>Tuctoria greenei</i> https://ecos.fws.gov/ecp/species/1573#crithab	Final
Hoover's Spurge <i>Chamaesyce hooveri</i> For information on why this critical habitat appears for your project, even though Hoover's Spurge is not on the list of potentially affected species at this location, contact the local field office. https://ecos.fws.gov/ecp/species/3019#crithab	Final
Vernal Pool Tadpole Shrimp <i>Lepidurus packardi</i> https://ecos.fws.gov/ecp/species/2246#crithab	Final

IPaC User Contact Information

Agency: Provost & Pritchard Consulting Group
Name: Roman Endicott
Address: 455 W. Fir Ave
City: Clovis
State: CA
Zip: 93611
Email: rendicott@ppeng.com
Phone: 5594492700

Appendix C: Cultural Resources Information

Oakdale Irrigation District

10-YEAR OUT-OF-DISTRICT WATER

SALE PROGRAM

Cultural Resources Information

Central California Information Center, CSU Stanislaus, California Historical Resources Information System: Record Search 12381N, dated November 29, 2022.

- There are no formally recorded prehistoric or historic archaeological resources within the project area.
- Four historic structures have been recorded and evaluated within the project area. They consist of pipelines, aqueduct, later, and a canal. Details can be found further below.
- Portions of the project facilities are located within the boundaries of the fourteen cultural resources investigations, details below.
- There are no know resources that are known to have value to local cultural groups that have been formally reported to the IC.
- Portions of the project facilities are located within the boundaries of fourteen cultural resources investigations. Details of those investigations can be found further below.

Native American Heritage Commission (NAHC): Sacred Lands File & Native American Contacts List Request, dated December 12, 2022.

- A Record Search of the NAHC Sacred Lands File was completed for the Area of Potential Effect (APE) with positive results.
- A list of 13 tribal contacts was provided, and letters to the 13 tribal contacts were then mailed out December 14, 2022.
- No additional responses or additional cultural information were received by the District.

AB 52 Consultation pursuant to Public Resource Code Section 21080.3.1

- Oakdale Irrigation District has received a letter from the Chicken Ranch Rancheria of Me-Wuk Indians Tribe pursuant to AB 52.
- A formal Tribal Consultation Notification Request Letter was sent out to the Chicken Ranch Rancheria Tribe by the District, via certified mail dated November 21, 2022, which included a Project Description, map of the APE and a Topo map.
- The District followed up with the Tribe via email correspondence on December 5th and 7th, 2022. The Tribe had no concerns about the Project and did not wish to consult.

CHRIS – Record Search Results

CENTRAL CALIFORNIA INFORMATION CENTER

California Historical Resources Information System

Department of Anthropology – California State University, Stanislaus

One University Circle, Turlock, California 95382

(209) 667-3307



Alpine, Calaveras, Mariposa, Merced, San Joaquin, Stanislaus & Tuolumne Counties

Date: 11/29/2022

Records Search File #: 12381N

**Project: Oakdale Irrigation District 10-Year
Water Transfer Program**

Jackie Lancaster, Project Administrator
93611

Provost & Pritchard Consulting Group
400 E. Main Street, Suite 300
Visalia, CA 93921
559-636-1166

Billing address: 455 W. Fir Avenue, Clovis, CA

jlancaster@ppeng.com

Dear Ms. Lancaster:

We have conducted a non-confidential extended records search as per your request for the above-referenced project area facilities located on the Bachelor Valley, Farmington, Keystone, Knights Ferry, Oakdale, Paulsell, and Waterford USGS 7.5-minute quadrangle maps in Stanislaus County.

Search of our files includes review of our maps for the specific project area and the immediate vicinity of the project area, and review of the following:

National Register of Historic Places (NRHP)

California Register of Historical Resources (CRHR)

California Inventory of Historic Resources (1976)

California Historical Landmarks

California Points of Historical Interest listing

Office of Historic Preservation Built Environment Resource Directory (BERD) and the
Archaeological Determinations of Eligibility (ADOE)

Survey of Surveys (1989)

Caltrans State and Local Bridges Inventory

Other pertinent historic data available at the CCaIC for each specific county

The following details the results of the records search:

Prehistoric or historic resources within the project area:

- There are no formally recorded prehistoric or historic archaeological resources within the project area.
- Four historic structures have been recorded and evaluated within the project area:

P-50-000074 San Joaquin Pipelines 1 & 2/Hetch Hetchy Aqueduct: Listed in the Office of Historic Preservation Built Environment Resource Directory (BERD) with an evaluation status of “2S2”, individual property determine eligible for the National Register of Historic Places by a consensus through the Section 106 process and listed on the California Register of Historical Resources.

P-50-002001 Paulsell Lateral: Listed in the Office of Historic Preservation Built Environment Resource Directory (BERD) with an evaluation status of “6Y”, determined ineligible for the National Register of Historic Places by a consensus through the Section 106 process, not evaluated for the California Register of Historical Resources or for Local Listing.

P-50-002109 South San Joaquin Irrigation District Main Canal (also P-39-004233 in San Joaquin County): Listed in the Office of Historic Preservation Built Environment Resource Directory (BERD) with an evaluation status of “6Y”, determined ineligible for the National Register of Historic Places by a consensus through the Section 106 process, not evaluated for the California Register of Historical Resources or for Local Listing.

P-50-002229 PG&E Eastern Transmission Towers: Listed in the Office of Historic Preservation Built Environment Resource Directory (BERD) with an evaluation status of “6Y”, determined ineligible for the National Register of Historic Places by a consensus through the Section 106 process, not evaluated for the California Register of Historical Resources or for Local Listing.

Prehistoric or historic resources within the immediate vicinity of the project area:

Prehistoric and historic archaeological resources, as well as historic buildings and structures have been identified throughout the area covered by the seven USGS quadrangles that exhibit the project area features.

Resources that are known to have value to local cultural groups: None has been formally reported to the Information Center.

Previous investigations within the project area: Portions of the project facilities are located within the boundaries of the following fourteen cultural resources investigations:

Napton, L. K. (CSU Stanislaus)

1980 *Cultural Resource Survey of the Frankenheimer Power Plant, Stanislaus County, California.*

CCaIC Report ST-00885

Napton, L. K. (California State University, Stanislaus)

1982 *Cultural Resource Investigation of the 26 Mile Road/Little Johns Creek Bridge Project, Stanislaus County, California.*

CCaIC Report ST-00891

Napton, L. K. and E. A. Greathouse (CSUS/IAR, for EA Engineering, Science and Technology, Lafayette, CA)

1989 *Cultural Resource Sensitivity Study of the Clavey River Hydroelectric Project 230kV Transmission Line Corridor, Stanislaus and Tuolumne Counties, California.*

CCaIC Report ST-01269

Wilson, K. (Kenneth Wilson, Archaeologist; for USACE)

1976 *Archaeological Reconnaissance of the New Melones Transmission Line (FCC 2781).*

CCaIC Report ST-01349

Napton, L. K. (CSU Stanislaus IAR, for Clavey River Project)

1992 *Clavey River Project (Lic. App No. 10081) Cultural Resource Reconnaissance of the Proposed 230 kV Transmission Line Corridor Preferred Route, Stanislaus and Tuolumne Counties California-Final Report.*

CCaIC Report ST-01601

True, D. L. and C. Slaymaker (D.L. True and Charles Slaymaker, Archaeological Consultants; for Jorgensen-Tolladay, Engineers)

1981 *Archaeological Investigations for the Oakdale Irrigation District, Oakdale, California.*

CCaIC Report ST-01670

Fisher, J. and T. M. Van Bueren (Caltrans Environmental Program- Sacramento)

1995 *Historical Study Report for the Oakdale Bypass Project, Stanislaus County, California: 10-STA-120, PM 3.0/R12.9, EA 10-345400.*

CCaIC Report ST-03390

Wycko, B. (San Francisco Planning Department for the Public Utilities Commission)

2008 *San Joaquin Pipeline System Project, Draft EIR, San Francisco Planning Department Case No. 2007.0118E, State Clearinghouse No. 2007032138.*

CCaIC Report ST-06878

San Francisco Planning Department

Preliminary Mitigated Negative Declaration, Rehabilitation of the Existing San Joaquin Pipelines, Portions of Tuolumne, Stanislaus and San Joaquin Counties, and the Cities of Riverbank and Modesto.

CCaIC Report ST-06878

Waechter, S. and M. Bunse (Far Western A.R.G, Inc.& JRP Historical Consulting; for Circle Point and Stanislaus Council of Governments)

2007 *North County Corridor Environmental Constraints Analysis: Cultural Resources.*

CCaIC Report ST-07244

URS Corporation (URS Corporation, for USACE and SFPUC)

2009 *San Joaquin Pipeline System Project Archaeological Survey Report and Finding of Effects.*

CCaIC Report ST-07526

Carey & Co., Inc. (Carey & Co., Inc., for USACE and SFPUC)

2009 *San Joaquin Pipeline System Project, Historic Resources Inventory and Evaluation Report.*

CCaIC Report ST-07527

URS Corporation and Carey & Co., Inc. (URS & Carey & Co., for USACE and SFPUC)

2010 *San Joaquin Pipeline No. 4 - Eastern Segment Project, Archaeological Survey Report and Finding of Effects and Historic Resources Inventory and Evaluation Report and Finding of Effects.*

CCaIC Report ST-07528

Riddell, D. (University of California Berkeley, Archaeological Research Facility for Smithsonian Institution, Washington/NPS)

1948 *Appraisal of the Archaeological Resources of Farmington Reservoir, Littlejohns Creek, [Calaveras], San Joaquin and Stanislaus Counties, California. River Basin Survey.*

CCaIC Report ST-08510

Recommendations/Comments:

Please be advised that a historical resource is defined as a building, structure, object, prehistoric or historic archaeological site, or district possessing physical evidence of human activities over 45 years old. Since the entire project area has not been subject to previous investigations, there may be unidentified features involved in your project that are 45 years or older and considered as historical resources requiring further study and evaluation by a qualified professional of the appropriate discipline.

If the current project does not include ground disturbance, further study for archaeological resources is not recommended at this time. If ground disturbance is considered a part of the current project, we recommend further review for the possibility of identifying prehistoric or historic-era archaeological resources.

If the proposed project contains buildings or structures that meet the minimum age requirement (45 years in age or older) it is recommended that the resource/s be assessed by a professional familiar with architecture and history of the county. Review of the available historic building/structure data has included only those sources listed above and should not be considered comprehensive.

If at any time you might require the services of a qualified professional the Statewide Referral List for Historical Resources Consultants is posted for your use on the internet at <http://chrisinfo.org>

If archaeological resources are encountered during project-related activities, work should be temporarily halted in the vicinity of the discovered materials and workers should avoid altering the materials and their context until a qualified professional archaeologist has evaluated the situation and provided appropriate recommendations. Project personnel should not collect cultural resources.

If human remains are discovered, California Health and Safety Code Section 7050.5 requires you to protect the discovery and notify the county coroner, who will determine if the find is Native American. If the remains are recognized as Native American, the coroner shall then notify the Native American Heritage Commission (NAHC). California Public Resources Code Section 5097.98 authorizes the NAHC to appoint a Most Likely Descendant (MLD) who will make recommendations for the treatment of the discovery.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the State Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

The California Office of Historic Preservation (OHP) contracts with the California Historical Resources Information System's (CHRIS) regional Information Centers (ICs) to maintain information in the CHRIS inventory and make it available to local, state, and federal agencies, cultural resource professionals, Native American tribes, researchers, and the public. Recommendations made by IC coordinators or their staff regarding the interpretation and application of this information are advisory only. Such recommendations do not necessarily represent the evaluation or opinion of the State Historic Preservation Officer in carrying out the OHP's regulatory authority under federal and state law.

We thank you for contacting this office regarding historical resource preservation. Please let us know when we can be of further service. Thank you for submitting the signed **Access Agreement Short Form**.

Note: Billing will be transmitted separately via email from the Financial Services office (\$225.00), payable within 60 days of receipt of the invoice.

If you wish to include payment by Credit Card, you must wait to receive the official invoice from Financial Services so that you can reference the CMP # (Invoice Number), and then contact the link below:

<https://commerce.cashnet.com/ANTHROPOLOGY>

Sincerely,

E. A. Greathouse

E. A. Greathouse, Coordinator
Central California Information Center
California Historical Resources Information System

* Invoice Request sent to: ARBilling@csustan.edu, CSU Stanislaus Financial Services

NAHC – Sacred Lands File Search Results

NATIVE AMERICAN HERITAGE COMMISSION

December 12, 2022

Jackie Lancaster
Provost & Pritchard Consulting Group

Via Email to: jlancaster@ppeng.com

Re: 10-Year Out-of-District Water Sales Program Project, Stanislaus County

Dear Ms. Lancaster:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were positive. Please contact the tribes on the attached list for more information. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Pricilla.Torres-Fuentes@nahc.ca.gov.

Sincerely,

Pricilla Torres-Fuentes

Pricilla Torres-Fuentes
Cultural Resources Analyst

Attachment



CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

SECRETARY
Sara Dutschke
Miwok

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Buffy McQuillen
Yokayo Pomo, Yuki,
Nomlaki

COMMISSIONER
Wayne Nelson
Luiseño

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
[VAVANT]

COMMISSIONER
[VACANT]

EXECUTIVE SECRETARY
Raymond C. Hitchcock
Miwok/Nisenan

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

**Native American Heritage Commission
Native American Contact List
Stanislaus County
12/12/2022**

Buena Vista Rancheria of Me-Wuk Indians

Rhonda Morningstar Pope,
Chairperson
1418 20th Street, Suite 200 Me-Wuk
Sacramento, CA, 95811
Phone: (916) 491 - 0011
Fax: (916) 491-0012
rhonda@buenavistatribe.com

California Valley Miwok Tribe

14807 Avenida Central Miwok
La Grange, CA, 95329
Phone: (209) 931 - 4567
Fax: (209) 931-4333

California Valley Miwok Tribe

AKA Sheep Rancheria of Me-Wuk
Indians of CA,
P.O. Box 395 Miwok
West Point, CA, 95255
Phone: (209) 293 - 4179
l.ewilson@yahoo.com

~~**Chicken Ranch Rancheria of Me-Wuk Indians**~~

~~Lloyd Mathiesen, Chairperson
P.O. Box 1159 Me-Wuk
Jamestown, CA, 95327
Phone: (209) 984 - 9066
Fax: (209) 984-9269
lmathiesen@crtribal.com~~

Ione Band of Miwok Indians

Sara Dutschke, Chairperson
9252 Bush Street Miwok
Plymouth, CA, 95669
Phone: (209) 245 - 5800
consultation@ionemiwok.net

Nashville Enterprise Miwok-Maidu-Nishinam Tribe

Cosme Valdez, Chairperson
P.O. Box 580986 Miwok
Elk Grove, CA, 95758-0017
Phone: (916) 429 - 8047
Fax: (916) 429-8047
valdezcome@comcast.net

North Valley Yokuts Tribe

Katherine Perez, Chairperson
P.O. Box 717 Costanoan
Linden, CA, 95236 Northern Valley
Phone: (209) 887 - 3415 Yokut
canutes@verizon.net

North Valley Yokuts Tribe

Timothy Perez,
P.O. Box 717 Costanoan
Linden, CA, 95236 Northern Valley
Phone: (209) 662 - 2788 Yokut
huskanam@gmail.com

Tule River Indian Tribe

Neil Peyron, Chairperson
P.O. Box 589 Yokut
Porterville, CA, 93258
Phone: (559) 781 - 4271
Fax: (559) 781-4610
neil.peyron@tulerivertribe-nsn.gov

Tule River Indian Tribe

Kerri Vera, Environmental
Department
P. O. Box 589 Yokut
Porterville, CA, 93258
Phone: (559) 783 - 8892
Fax: (559) 783-8932
kerri.vera@tulerivertribe-nsn.gov

~~**Tule River Indian Tribe**~~

~~Joey Garfield, Tribal Archaeologist
P. O. Box 589 Yokut
Porterville, CA, 93258
Phone: (559) 783 - 8892
Fax: (559) 783-8932
joey.garfield@tulerivertribe-nsn.gov~~

Wilton Rancheria

Jesus Tarango, Chairperson
9728 Kent Street Miwok
Elk Grove, CA, 95624
Phone: (916) 683 - 6000
Fax: (916) 683-6015
jtarango@wiltonrancheria-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed 10-Year Out-of-District Water Sales Program Project, Stanislaus County.

**Native American Heritage Commission
Native American Contact List
Stanislaus County
12/12/2022**

Wilton Rancheria

Dahlton Brown, Director of
Administration
9728 Kent Street
Elk Grove, CA, 95624
Phone: (916) 683 - 6000
dbrown@wiltonrancheria-nsn.gov

Miwok

Wilton Rancheria

Steven Hutchason, THPO
9728 Kent Street
Elk Grove, CA, 95624
Phone: (916) 683 - 6000
Fax: (916) 863-6015
shutchason@wiltonrancheria-
nsn.gov

Miwok

***Wuksache Indian Tribe/Eshom
Valley Band***

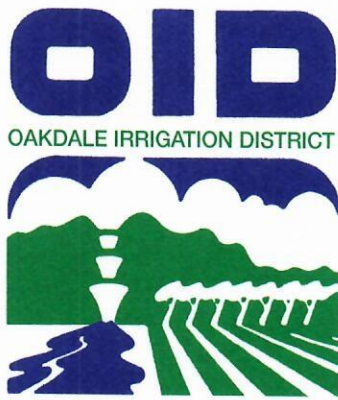
Kenneth Woodrow, Chairperson
1179 Rock Haven Ct.
Salinas, CA, 93906
Phone: (831) 443 - 9702
kwood8934@aol.com

Foothill Yokut
Mono

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed 10-Year Out-of-District Water Sales Program Project, Stanislaus County.

AB 52 Tribal Consultation



November 21, 2022

Chicken Ranch Rancheria of Me-Wuk Indians of California
Bailey Hunter, Environmental and Natural Resources Manager
P.O. Box 1159
Jamestown, CA 95327

Subject: Notification pursuant to Assembly Bill 52 for Oakdale Irrigation District 10-Year Water Sale Program Project located in Stanislaus County, CA.

Dear Bailey Hunter:

The Oakdale Irrigation District (OID) is providing this notification to the Chicken Ranch Rancheria of Me-Wuk Indians per the Tribe's August 26, 2020 request for consultation under AB 52 on any OID projects or policies that would affect people located in Tuolumne or Calaveras County. The OID is in the process of preparing a Mitigated Negative Declaration (MND) under CEQA for its 10-Year Out-of-District Water Sales Program (Program). The Program proposes to provide surplus surface water when available from OID to up to 11,000 irrigated acres outside the OID boundaries in northeastern Stanislaus County generally between March and October from 2023-2033. OID has made surplus water available to out of district (OOD) lands on an annual basis for several years. However, interest and participation in OOD water supply annually from OID has been limited due to the lack of private infrastructure and available delivery points.

Several parameters that will govern the Program implementation have been identified. The OOD lands will be subject to different water availability than the in-district lands. OOD lands shall only receive water under OID's pre-1914 water right, which excludes stored water. OID will use forecasting and real-time hydrology information on the Stanislaus River from the Department of Water Resources California Data Exchange Center to determine when water is available to be delivered to OOD lands. Surface water availability will vary from month-to-month and year-to-year. Additionally, the capacity of OID's existing conveyance system is limited and in-District lands' ability to receive water will not be impacted by OOD deliveries. During the peak of the irrigation season (generally July-August), OOD landowners can anticipate windows of time where the OID system has reached full capacity from in-district demand and water cannot be delivered to their OOD lands. OID will make as much surface water available as possible within the constraints listed above, without impacting in-district constituents. OID estimates that up to 25,000 acre-feet of water could be conveyed through the system to OOD lands throughout the irrigation season. Although the Program has a 10-Year term, the OID Board of Directors will make the determination of surplus water availability annually each spring. A renewal term of up to 10 years may be requested by the OOD landowners in Year 8 of the Program, subject to approval at OID's sole discretion.

Existing OID policies will remain in effect during the Program term. OID's Fringe Parcels Policy (Policy) applies to those parcels that are partially within the District boundaries and have a total irrigated acreage in excess of that total acreage which lies within the OID boundaries. In accordance with the Policy, these fringe parcels are provided an allocation of water determined by crop type for their in-district acreage at in-district rates. Once they have exceeded that allocation, they are billed at the OOD volumetric rate. OOD water can be requested for these fringe parcels if and when it's needed during years when OOD water is determined to be available. These fringe parcels are not required to participate in the 10-Year Program to remain eligible to receive OOD water from OID. Additionally, the Army Corps of Engineers (ACOE) owns and operates the Orange Blossom Park along the Stanislaus River. Through an agreement with OID, the ACOE has received OOD water for irrigation of the park. The park is also not required to participate in the 10-Year Program to remain eligible to receive OOD water from OID. However, OOD water deliveries to fringe parcels as well as to Orange Blossom Park are accounted for within the 25,000 acre-feet of OOD water that is anticipated to be conveyed and delivered to OOD lands throughout the irrigation season. This MND will include an analysis of the proposed 25,000 acre-foot volume of surface water to be delivered to the project footprint outside the OID service area.

Varying levels of construction are anticipated to be needed in order for the some of these OOD lands to receive OID surplus water. Some landowners have existing canal delivery points (turnouts) and pipelines in place; others are adjacent to an OID canal but require a turnout and short length of new pipeline to be installed; other landowners are not adjacent to OID canals and will require a new turnout and a considerable length of new pipeline to be installed, whether through developed agricultural ground or native ground. While this proposed mitigated negative declaration (MND) is not intended to include a detailed assessment of each individual private construction project on the lands participating in the Program, the participating parcels will be included in the overall project footprint and the MND will provide all anticipated potential impacts based on the parcel location, general construction information and known species of concern in the project vicinity. A list of suitable mitigation measures based on all potential impacts within the project footprint will be included in the MND. Landowners of the participating parcels that need new infrastructure will have an independent biological field review of their specific project before construction and the mitigation measures identified in the MND will be incorporated as applicable by the landowner during construction. OID, as lead agency, maintains the right to supervise mitigation and monitoring activities during the private construction.

A copy of the Aerial/Area of Potential Effect map and Topographical map is attached for your reference. If you would like any more zoomed in maps of areas that will potentially have ground disturbance please let us know, we would be happy to provide those to you. Pursuant to AB 52 the Tribe has 30 days to request formal consultation. Please feel free to contact me with any questions at (209) 840-5508 or email at smoody@oakdaleirrigation.com.

Respectfully,

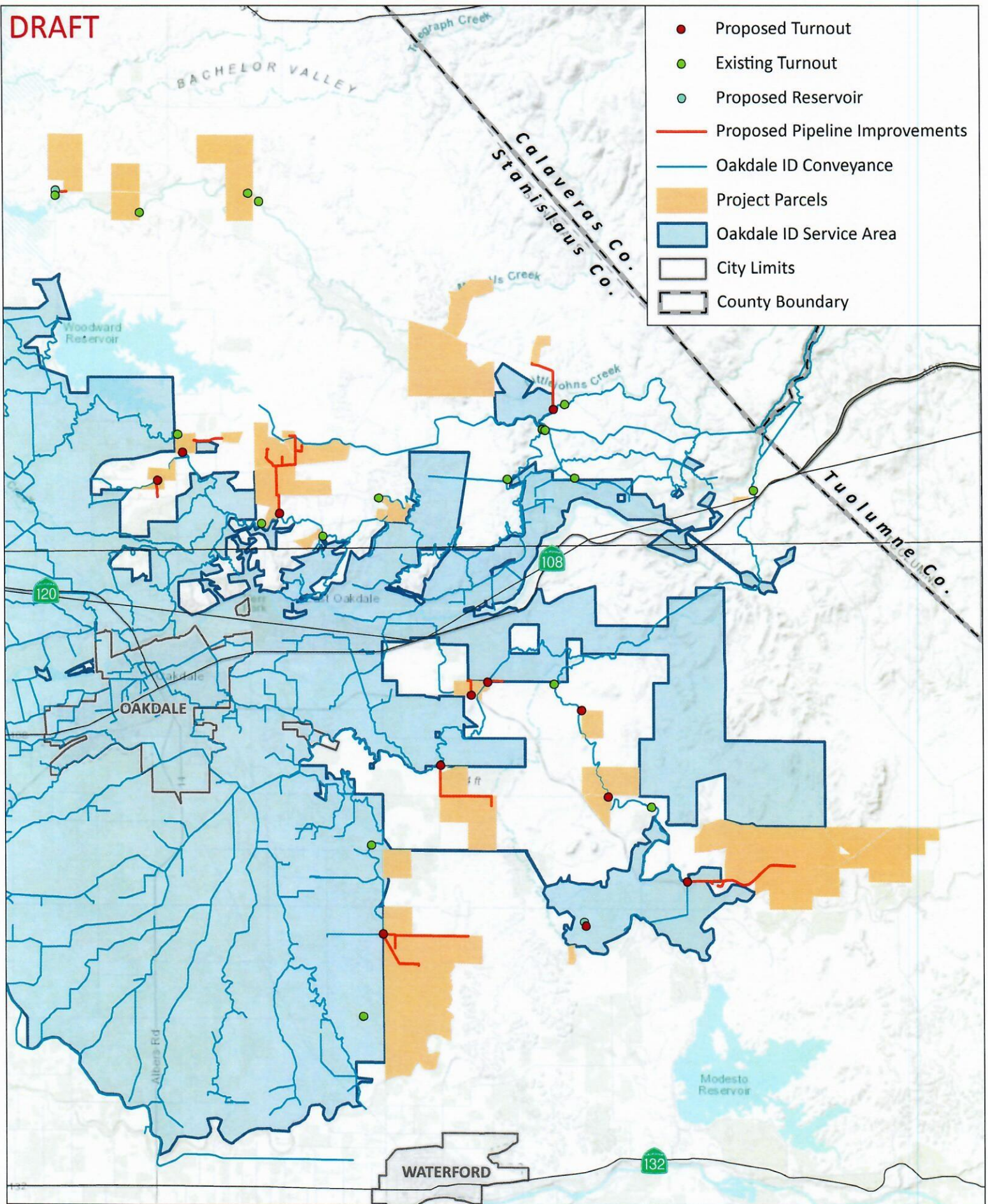
OAKDALE IRRIGATION DISTRICT



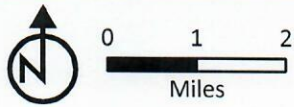
Scot A. Moody
General Manager

Enclosures: Aerial/Area of Potential Effect map

DRAFT



- Proposed Turnout
- Existing Turnout
- Proposed Reservoir
- Proposed Pipeline Improvements
- Oakdale ID Conveyance
- Project Parcels
- Oakdale ID Service Area
- City Limits
- County Boundary

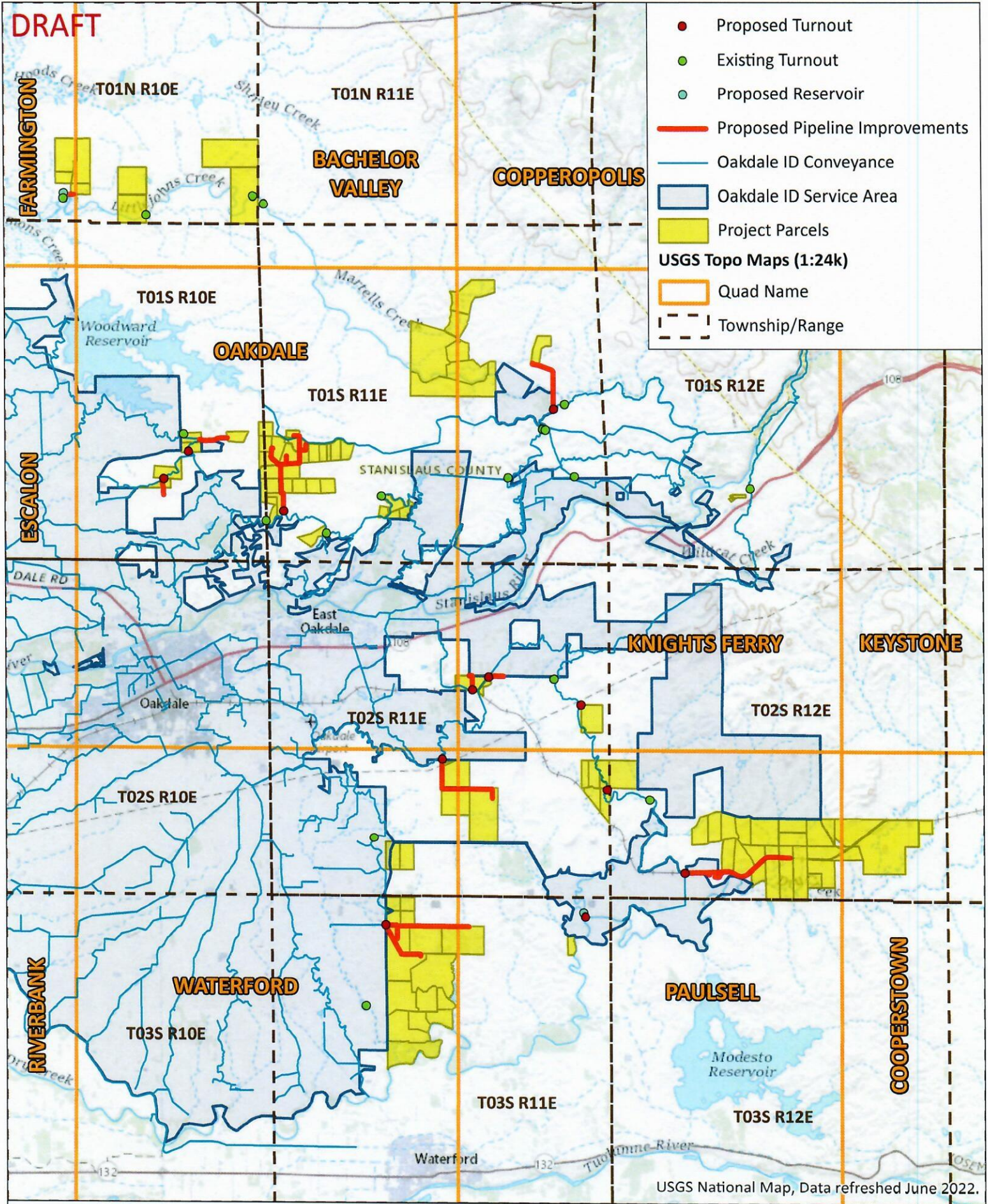


Oakdale Irrigation District

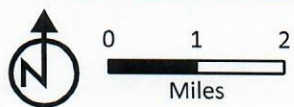
10-Year Water Sale Program

PROVOST & PRITCHARD

DRAFT



- Proposed Turnout
- Existing Turnout
- Proposed Reservoir
- Proposed Pipeline Improvements
- Oakdale ID Conveyance
- Oakdale ID Service Area
- Project Parcels
- USGS Topo Maps (1:24k)
- Quad Name
- Township/Range



Oakdale Irrigation District
10-Year Water Sale Program

PROVOST & PRITCHARD

USGS National Map, Data refreshed June 2022.

Appendix D: 10-Year Water Out-of-District Water Sale Program Term Sheet



- DRAFT -
**TERMS AND CONDITIONS FOR IRRIGATION OF LANDS
OUTSIDE OAKDALE IRRIGATION DISTRICT BOUNDARIES
DURING THE 10-YEAR OUT-OF-DISTRICT WATER SALES PROGRAM**

Program Description

- A. Provide a method for eligible lands to contract with Oakdale Irrigation District (OID or District) for out-of-district water service for 10-years (Program) to put OID's conserved water to beneficial use and avoid the need for annual out-of-district water sales contracts.
- B. The Program will be limited to lands that are already irrigated and developed (Ref. 3b.) and can receive OID water from existing and proposed temporary or permanent delivery facilities within the OID Right-of-Way (Ref. 7 g. and 7 h.).
- C. Program application and enrollment is limited to parcels for which applications were received prior to the June 15, 2020 deadline to participate in the 5-Year Out-of-District Water Sales Program. The only exceptions to this limitation are APNs: 010-027-005 & 010-027-007 (Orange Blossom Park) and fringe parcels in accordance with the Fringe Parcels Water Allocation Policy adopted by Resolution No. 2017-07 on January 18, 2017.

Terms and Conditions

1. Process: Landowners who applied to participate in the 5-year Out-of-District Water Sales Program prior to the June 15, 2020 deadline will be notified that applications for participation in 10-Year Out-of-District Program are due on or before **, 2022.** **Approval of an application and/or Program participation does not create any other or future rights of applicant to receive water from OID or be considered for annexation into OID. OID may consider water service and annexations in the future depending on regulatory and contractual actions..**
2. Conditions: Landowners must sign and agree to abide by these Terms and Conditions for the Program. OID may terminate Program participation for any failure to comply with the Terms and Conditions that is not cured within 30 days of written notice.
3. Eligible Lands:
 - a) Lands outside the OID sphere of influence are eligible only upon request and approval by the General Manager. Applications that include requests for lands partially or completely outside the OID Sphere of Influence must be accompanied by proof that another district/agency's services will not be impacted or infringed upon by the receipt of water from OID. The determination of whether such proof is sufficient is vested in the Board.

- b) The area within the real property proposed for service must have been cultivated with crops and under irrigation as of August 31, 2018, with access to a water source other than OID surplus water. Any OID surplus water provided through participation in the Program shall be used as a supplemental water source.
- c) Lands to be irrigated must be individual parcels that are 10 acres or larger in size, or a group of parcels under the same ownership that receive water through a single point of delivery and have a total combined parcel acreage of 10 acres or larger in size. The only exceptions to this requirement are APNs: 010-027-005 & 010-027-007 (Orange Blossom Park) and fringe parcels in accordance with the Fringe Parcels Water Allocation Policy adopted by Resolution No. 2017-07 on January 18, 2017.
- d) OID will not consider any out-of-district water deliveries to lands whose conveyance relies on the use of the Stanislaus River, Cashman Creek or the South San Joaquin Irrigation District Main Canal.
- e) Landowner acknowledges that all applicant lands and proposed improvement projects are subject to environmental review by the District and its consultant(s). Avoidance and/or minimization measures may be identified by OID for certain projects with an increased potential for environmental impacts.

4. Available Water:

- a) Out-of-district lands will be provided surface water under OID's pre-1914 water right. Availability of pre-1914 water is limited to the diversion of the unimpaired/full natural flow occurring in the Stanislaus River at Goodwin Dam. Based on unimpaired/full natural flow and OID water use in average years, OID anticipates having pre-1914 water available through June for out-of-District use. However, availability will vary from month-to-month and year-to-year with out-of-district demand and hydrology.
- b) Water year forecasts on availability of water in the Stanislaus River are provided in the second week of February, March, April and May by the California Department of Water Resources in their Bulletin 120 Report. The report can be found online <https://cdec.water.ca.gov/snow/bulletin120>.
- c) OID generally makes a surplus water determination in March of each year. That decision will be based on hydrologic conditions. The volume of water made available to the Program will be done per OID's Guiding Principles for Surplus Water and Service Expansion.
- d) **Once a permanent or temporary private turnout facility is installed in OID's right-of-way for the parcel, landowners in the Program shall be required to purchase a minimum quantity of 2 acre-foot per irrigated acre each year of the program when and if OID declares surplus water available (Minimum Quantity) subject to OID water availability and**

delivery. Irrigated acreage will be confirmed by OID. In years when the hydrology indicates no surplus water is available, no Minimum Quantity is required to be purchased. The only exception to this minimum purchase requirement are fringe parcels in accordance with the Fringe Parcels Water Allocation Policy adopted by Resolution No. 2017-07 on January 18, 2017. Fringe Parcels will have no upfront minimum purchase requirement.

- e) Landowners acknowledge and agree that the ability of the District to deliver water during certain periods is limited by capacity constraints in the District's North and South Main Canals and in various OID laterals emanating from those canals. In-district constituents will not be impacted by out-of-district water conveyance and delivery.
 - f) The District estimates that up to 25,000 acre feet of conserved water could be delivered annually to out-of-district lands via existing OID facilities without impacting in-district constituents. The District shall endeavor to deliver as much surface water as possible to out-of-district lands during the irrigation season recognizing limitations in 4a, 4c and 4e above.
5. CEQA Compliance:
- a) OID will perform a California Environmental Quality Act (CEQA) analysis for the Program prior to implementation.
 - b) Program Landowners shall pay for the CEQA analysis. A deposit of \$ [REDACTED] per County assessed acre is due at the time of OID acceptance of the Program application. Monies received will be applied first to the costs of the CEQA analysis for the Program. Upon completion of the CEQA analysis, the balance of any remaining funds will be refunded to the Landowner or, at the Landowner's request, may be credited toward subsequent Water Charges. Any CEQA analysis costs in excess of the monies received will be invoiced to the Landowners on a per acre basis. OID staff time and consulting time costs related to biological field review and monitoring will be invoiced directly to the Landowner of the property on which the biological field review/monitoring occurs.
 - c) If the legality of the Program is challenged, the OID Board may, in its discretion, choose not to defend the Program, and/or choose to terminate the Program.
 - d) No construction related to the Program performed either by OID or the Landowner, shall not commence until the CEQA analysis has been completed and approved by the Board of Directors.
 - e) Program Landowners acknowledge that the use and selection of biologists and environmental consultants, as well as the CEQA document preparation, will be at the District's discretion.
 - f) Landowners must agree to allow biological field review and/or monitoring

by qualified biologists to occur on their property if deemed necessary by OID or its consultants for the CEQA analysis. Biologists will be accompanied by OID staff on Landowner property. In certain circumstances where there is an increased potential for environmental impacts, mitigation or avoidance measures may be required by OID or its biologist that shall be incorporated into project construction. Failure of the Landowner to comply with these measures will result in removal from the program.

6. Price and Payment:

- a) The term of the Program will be 10 years commencing as early as March 1, 2023 and ending as late as September 31, 2032.
- b) Landowners will have the option to exercise a one-time Program extension for an additional 10 years. Landowner notification to OID to exercise the option for renewal will be required in writing prior to the end of year 8 (September 31, 2030) of 10.
- c) The price for water (Water Charge) will be \$200 per acre foot during year 1 of 10 and will increase 3% each year thereafter.
- d) Landowners shall submit a nonrefundable payment upfront for the Minimum Quantity prior to the receipt of any water in any Program year. Any water supplied above the minimum water usage will be charged at the per acre foot Water Charge and will be subsequently invoiced. Landowners will not be refunded for any water shortages as a result of the limitations in 4a and 4e above.
- e) Unpaid balances, should they occur, shall be considered delinquent 31 days after invoicing. At the option of the OID Board, water-shutoff until payment is made or termination from the Program may result. All unpaid balances shall accrue interest and penalties as set forth in the OID Rules and Regulations.

7. Turn-outs:

- a) Lands to be irrigated must be able to receive water from existing OID conveyance facilities. Landowners may add turn-outs to existing OID or private conveyance facilities provided the Landowner (1) obtains permission from OID; (2) pays all costs for construction and future maintenance of the diversion facility and appurtenances; and (3) obtains all applicable permits and approvals. Construction of new turnouts will be performed in accordance with OID's Irrigation and Drainage Infrastructure Installation Policy.
- b) Should the landowner wish to be billed by volume (per acre-foot), a flow measurement device integrated into OID's SCADA system, approved by the OID Water Operations Manager and accessible to OID employees must be installed. If there is no such device, at the discretion and determination of

the Water Operations Manager, water usage may be determined using crop specific evapotranspiration (ET) data and applying a 70% irrigation application efficiency during the time period which water was delivered.

- c) Installation of new “temporary” private turn-out facilities located within District’s rights-of-way for the purpose of the diversion of surplus water shall be so installed with the approval of OID’s District Engineer. Such installations shall not impede the District’s on-going operations and maintenance programs.
 - d) Landowners without a private turn-out facility must submit an OID Structure Review Application along with the applicable processing fee no later than May 1st following the required CEQA approval. Upon OID’s completion of the private turn-out structure design and construction cost estimate, the landowner will be required to submit a deposit for construction within 30-days of the date of the OID invoice.
 - e) OID maintains the first right of refusal to complete the design, construction and future maintenance or replacement of any new permanent private out-of-district turn-out facility, flow meter, slide gate and SCADA appurtenances within OID’s right at the landowner’s expense.
8. Other Conditions:
- a) Water purchased/delivered under the Program may not be re-sold.
 - b) Water purchased/delivered may not be used to expand irrigated acreage.
 - c) Landowners shall demonstrate that an on-farm irrigation efficiency of seventy (70) percent or greater will be achieved. The ability to achieve this efficiency will be evaluated by the District’s Water Operations Department. The burden is on the Landowner(s) to prove that a seventy (70) percent, or better, on-farm irrigation efficiency will be maintained.
 - d) Landowner(s) shall ensure no agricultural tail water will leave the property.
 - e) The use of “surplus water” shall be for agricultural purposes only and the Landowner(s) shall demonstrate that the water received is put to reasonable and beneficial uses at all times. Non-beneficial uses include water for lawns, pasture without livestock benefit, recreational ponds, and other practices as determined by the Water Operations Department. Water shall not be used directly or indirectly for any domestic, commercial or industrial purposes.
 - f) Any unauthorized private facilities or private facilities found to impede OID’s operations and maintenance will be removed by the Landowner(s) or by the District at the Landowner’s expense. The Landowner shall be responsible for any damage to OID facilities caused by the Landowner(s) or the Landowner(s) operations.

- g) Landowner(s) agree to comply with the District's Rules and Regulations for the Distribution of Water in the Oakdale Irrigation District. Non-compliance with any policy or rules of the District may at the District's discretion result in cessation of water delivery by the District and removal from the Program.
 - h) Upon request, Landowner(s) must provide proof of membership in the appropriate Water Quality Coalition.
 - i) **The District is under no obligation, either now or in the future, to furnish, construct or maintain any diversion or service structures or facilities on behalf of the Program lands.**
 - j) **The District is under no future obligation beyond the term of this agreement to deliver water to any diversion or service structures or facilities on behalf of the Program lands.**
 - k) Upon termination of this Agreement, the Landowner(s) agrees upon OID request to remove, or pay all costs incurred with removing, those facilities to OID's satisfaction within the OID Right-of-Way that were installed to serve the Landowner but are no longer needed for water deliveries as determined by the District.
 - l) Landowner(s) agree to provide direct vehicle ingress and egress to the Districts' agents during the term of this Agreement.
9. Hold Harmless: Landowner(s) hereby acknowledges that the District sells water as a commodity only and not as a guaranteed service, and therefore agrees to hold the District, its officers, agents, and employees free and harmless from any liability or damage, including loss of profit or prospective business advantage, which may occur, arise or result from defective water quality, water shortage, fluctuation in flow or interruptions in service.