TULARE IRRIGATION DISTRICT MAIN INTAKE CANAL SIPHONS PROJECT

DRAFT INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

JANUARY 2025

PREPARED FOR:

Tulare Irrigation District
6826 Avenue 240
Tulare, CA 93274

PREPARED BY:

PROVOST&PRITCHARD
CONSULTING GROUP

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF FIGURES

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

AB ..... Assembly Bill
AE-20 ..... Exclusive Agriculture
APE ..... Area of Potential Effect
ARD ..... Aquatic Resources Delineation
BMP ..... Best Management Practices
BPS ..... Best Performance Standards
CAA ..... Clean Air Act
CalEEMod ..... California Emissions Estimator Modeling (software)
CARB ..... California Air Resources Board
CCAA ..... California Clean Air Act
CDFW ..... California Fish and Wildlife
CESA ..... California Endangered Species Act
CEQA ..... California Environmental Quality Act
CFC ..... Chlorofluorocarbons
CFR ..... Code of Federal Regulations
CFS ..... cubic feet per second
CH_4 ..... Methane
CHRIS ..... California Historical Resources Information System
CNDDB ..... California Natural Diversity Database
CNPS ..... California Native Plant Society
CO ..... Carbone Monoxide
CO_2 ..... Carbon dioxide
County ..... Tulare County
CVFPB ..... Central Valley Flood Protection Board
dB ..... Decibels
District ..... Tulare Irrigation District
DOC ..... Department of Conservation
DTSC ..... Department of Toxic Substances Control
EIR ..... Environmental Impact Report
EO ..... Executive Order
ESA ..... Endangered Species Act

FEMA ..... Federal Emergency Management Agency
FMMP ..... Farmland Mapping and Monitoring Program
FPPA ..... Farmland Protection and Policy Act
GAMAQI ..... Guide for Assessing and Mitigating Air Quality Impacts
GHG ..... Greenhouse Gas
GKGSA ..... Greater Kaweah Groundwater Sustainability Agency
GIS ..... Geographic Information System
GSA ..... Groundwater Sustainability Agency
GWP ..... Global Warming Potential
HFC ..... Hydrofluorocarbons
HUC ..... Hydrologic Unit Code
IPaC ..... United States Fish and Wildlife Service's Information for Planning and Consultation system
IS ..... Initial Study
IS/MND ..... Initial Study/Mitigated Negative Declaration
km ..... kilometers
MBTA ..... Migratory Bird Act
MIC ..... Main Intake Canal
MMRP ..... Mitigation Monitoring and Reporting Program
MND ..... Mitigated Negative Declaration
MOA ..... Memorandum of Agreement
$MTCO_2e$ ..... Metric Tons of Carbon Dioxide Equivalent
NAHC ..... Native American Heritage Commission
ND ..... Negative Declaration
NEPA ..... National Environmental Policy Act
NO_2 ..... Nitrogen Dioxide
NO_x ..... Nitrogen Oxides
N_2O ..... Nitrous oxide
NPDES ..... National Pollution Discharge Elimination System
NRCS ..... Natural Resources Conservation Service
O_3 ..... Ozone
Pb ..... Lead
PFC ..... Perfluorocarbons
PM_{10} ..... particulate matter 10 microns in size

$PM_{2.5}$ ..... particulate matter 2.5 microns in size
ppb ..... parts per billion
ppm ..... parts per million
Project ..... Main Intake Canal Siphons Project
Reclamation ..... United States Bureau of Reclamation
ROG ..... Reactive Organic Gases
RWQCB ..... Regional Water Quality Control Board
SF_6 ..... Sulfur hexafluoride
SIP ..... State Implementation Plan
SHPO ..... State Office of Historic Preservation
SJKF ..... San Joaquin Kit Fox
SJVAB ..... San Joaquin Valley Air Basin
SJVAPCD ..... San Joaquin Valley Air Pollution Control District
SO_2 ..... Sulfur Dioxide
SOWA ..... Safe Drinking Water Act
SSJVIC ..... Southern San Joaquin Valley Information Center
SR ..... State Route
SSA ..... Sole Source Aquifer
SWPPP ..... Storm Water Pollution Prevention Plan
SWRCB ..... State Water Resources Control Board
TID ..... Tulare Irrigation District
USACE ..... United States Army Corps of Engineers
USBR ..... United States Bureau of Reclamation
USC ..... United States Code
USDA ..... United States Department of Agriculture
USEPA ..... United States Environmental Protection Agency
USFWS ..... United States Fish and Wildlife Service
USGS ..... United States Geological Survey
WDR ..... Waste Discharge Requirements
WEAP ..... Worker Environmental Awareness Program

CHAPTER 1 INTRODUCTION

Provost & Pritchard Consulting Group (Provost & Pritchard) has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) on behalf of Tulare Irrigation District (TID or District) to address the environmental effects of the Main Intake Canal Siphons Project (Project). This document has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq. The District is the CEQA lead agency for this Project.

The site and the Project are described in detail in Chapter 2 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 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 California Emissions Estimator Modeling (software) (CalEEMod) Output Files, Biological Evaluation, and Class III Inventory/Phase I Survey , are provided as technical Appendix A, Appendix B, and Appendix C, respectively, at the end of this document.

CHAPTER 2 PROJECT DESCRIPTION

2.1 PROJECT BACKGROUND

2.1.1 Project Title

Main Intake Canal Siphons Project

2.1.2 Lead Agency Name and Address

Tulare Irrigation District
6826 Avenue 240
Tulare, CA 93274

2.1.3 Contact Person and Phone Number

Lead Agency Contact

Aaron Fukuda
General Manager
(559) 686-3425

CEQA Consultant

Provost & Pritchard Consulting Group
Briza Sholars, Principal Planner/Environmental Project Manager
(559) 449-2700

2.1.4 Project Location

The Project is located on two sites in the eastern portion of Tulare County, along the St. Johns River and the Kaweah River approximately 53-miles southeast of Fresno and 56 miles northwest of Bakersfield within Tulare Irrigation District (District). (See Figure 2-1 and Figure 2-2) The Project sites are located on Assessor's Parcel Numbers 158-040-019 and 158-040-004. The approximate centroid of the Project site along the St. Johns River is 36° 21' 33.31" North, 119°10'26.22" West, while the approximate centroid of the site along the Kaweah river is 36°21'10.03" North, 119°10'47.28" West. The area of potential effect (APE) for the St. Johns River siphon site is approximately 2.9 acres in size and the Kaweah River siphon site is approximately 3.4 acres in size, which equals a total Project size of approximately 6.3 acres. This includes all construction staging and access areas needed for construction equipment.

Description of Project

Project Background and Purpose

The Main Intake Canal (MIC) is the primary conveyance facility that the District uses to move water into District boundaries for irrigation and groundwater recharge purposes. The MIC delivers upwards of 90% of the annual deliveries at just less than 135,000 AF per year. The existing canal is approximately 14 miles long and diverts water from the Friant-Kern Canal and the St. Johns River and takes water into the northeast

corner of the District. Both the St. Johns River Siphon and Kaweah River Siphon are also a key piece of infrastructure that the District uses to distribute water. These existing structures were built in the early 1950's and are exposed in the river bottom, creating concerns for their structural stability. The current siphons appear to be sized too small for the flows that frequently pass through the MIC and are experiencing erosion from both the velocity passing through it and the St. Johns and Kaweah Rivers flow above. The existing reinforced concrete siphons have been badly cracked due to erosive forces and internal head pressures and air entrainment. The siphons are or are close to being exposed with at most one foot of cover currently from the riverbeds and are believed to have significant leakage from the siphons that should be eliminated, if at all possible. Failure of the siphons would be catastrophic as it would reduce delivery capacity to approximately 200 - 300 cubic feet per second (CFS) for the entire District. At this time, the District knows there has been some patchwork done in the last 50 years.

Due to the age and condition of the existing siphons, the District is proposing the construction of two new siphons under the St. Johns and Kaweah Rivers along the MIC. Given that these siphons are critical infrastructure for delivering water into the District, the desire is to be proactive and construct new siphons before a major problem occurs.

Project Description

The District is pursuing the construction of the two reinforced concrete pipe or box siphons, each connecting to the MIC. The Project proposes to install two new reinforced concrete pipe or box siphons adjacent and upstream of the existing siphons at each site. The new siphons will address the structural concerns of the existing siphons and will also enhance the maximum capacity to approximately 1,100 CFS. The Project will be completed in multiple construction phases. The initial phase will involve clearing and grubbing outside of the St. Johns and Kaweah River channels at the individual siphon sites, which could include minor vegetation removal. Upon completion of the first phase, the second phase of Project construction will be the excavation of the sending and receiving pits, one pit on either side of the Rivers at each siphon site. These pits are utilized for the jack and bore drilling installation method. In the sending pit, a boring machine and auger will drill into the earth beneath each river, installing pipe casing along the way to the receiving pit. It is anticipated the sending and receiving pits will be gravel or rock lined to stabilize the operation of the pipelines. This phase will also see the installation of head walls and wing walls on upstream and downstream sides as well as trash racks on the upstream side of the siphon intakes. The third phase of the Project will consist of reconditioning the water flow into the new siphons and into the MIC. The existing box culvert siphons will remain in place once construction of the new siphons is complete. A new bulkhead and control gate(s) will be installed to direct flow to the new siphons, unless high flows require the use of the existing siphon. Keeping the existing siphons in place in the riverbeds will provide added erosion protection for the new siphons in the Rivers by stabilizing the river bottom sediment in place.

Benefits associated with the Project include:

- Enhanced facility and system reliability
- Increased facility capacity
- Protection of functionality of the St. Johns River and Kaweah River
- Surface water reliability for irrigation and groundwater service

Construction Schedule

Construction will occur over approximately 12 months total, 6 months each per siphon between July 2025 through December 2026 (one siphon a year). Generally, construction will occur between the hours of 7am and 5pm, Monday through Friday, excluding holidays.

Equipment

Construction equipment will likely include excavators, backhoes, bulldozer, boring machine, and generators to be used in construction to power construction equipment, but no long-term generators will be needed. Post-construction activities will include system testing and site clean-up. Construction will require temporary staging and storage of materials and equipment. Staging areas will be located onsite.

Operation and Maintenance

Operation and maintenance of the siphon facilities would be performed by District staff once the Project is constructed.

Site and Surrounding Land Uses and Setting

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

Direction from Project Site	Existing Use	General Plan Designation	Zone District
NORTH	Agricultural	Valley Agricultural	AE-20
EAST	Agricultural	Valley Agricultural	AE-40
SOUTH	Agricultural	Valley Agricultural	AE-20
WEST	Agricultural	Valley Agricultural	AE-20

2.1.5 Other Public Agencies Whose Approval May Be Required

Approvals and permits that could be required.

- State Water Resources Control Board – National Pollutant Discharge Elimination System Construction General Permit, Storm Water Pollution Prevention Plan (SWPPP)
- San Joaquin Valley Air Pollution Control District – Rules and Regulations (Regulation VIII, Rule 9510)

2.1.6 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.

Tulare Irrigation District has not received written correspondence from any tribe pursuant to Public Resources Code Section 21080.3.1 requesting notification of proposed Project.

2.1.7 "CEQA–Plus" Assessment

The District may be applying for financial assistance to implement the Project through State or federal funding in the future.

In addition to meeting the requirements of CEQA, and because financial assistance could come from the Federal government (United States Bureau of Reclamation (USBR), for instance), the Project could be subject to "federal cross-cutting authority" requirements of other federal laws and Executive Orders that apply in federal financial assistance programs. (This process is frequently referred to as "CEQA-Plus".) Therefore, the District may also complete certain studies and analyses to satisfy various federal environmental requirements.

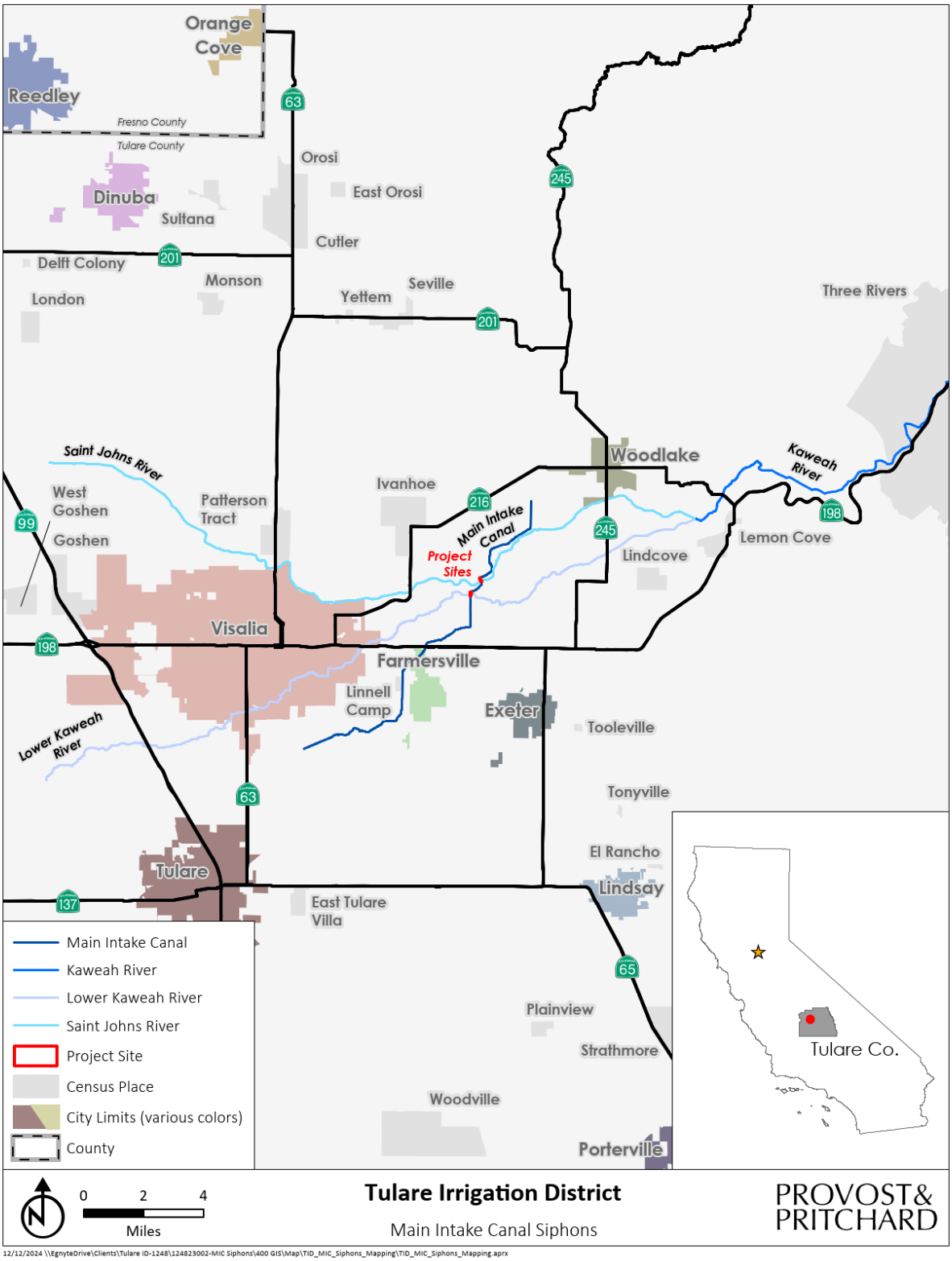


Figure 2-1: Regional Location Map

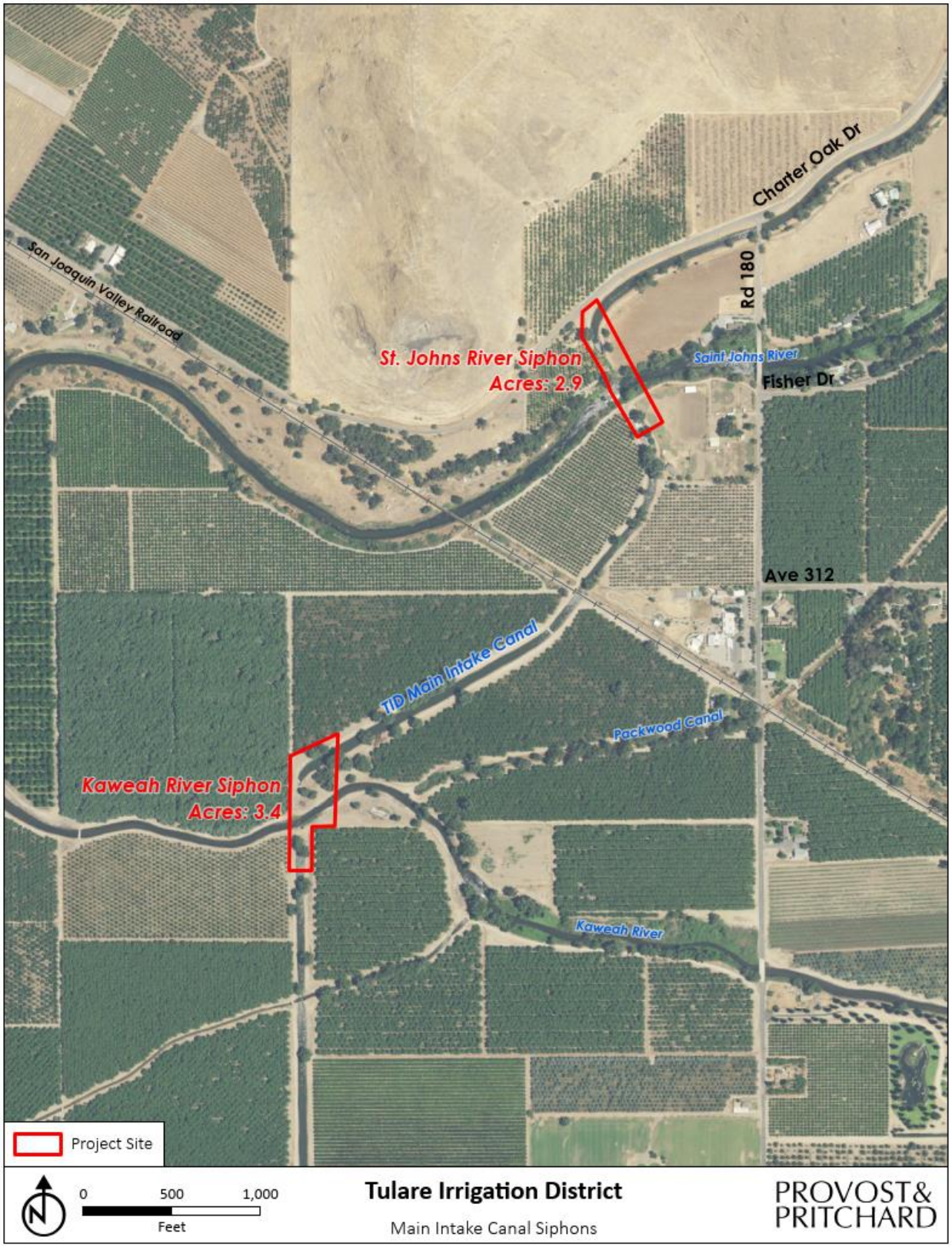


Figure 2-2: Aerial Site Map

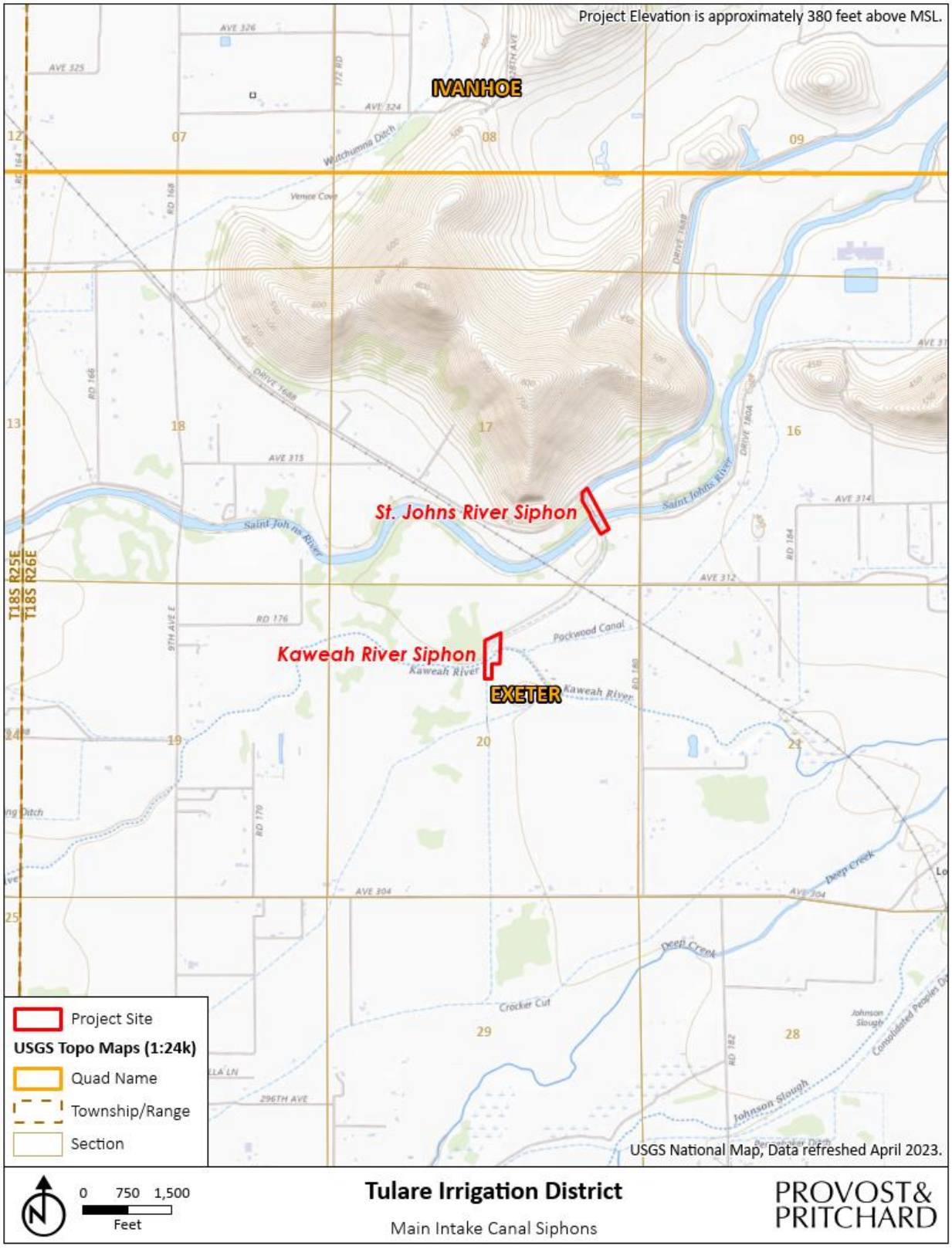


Figure 2-3: Topo Quad Map

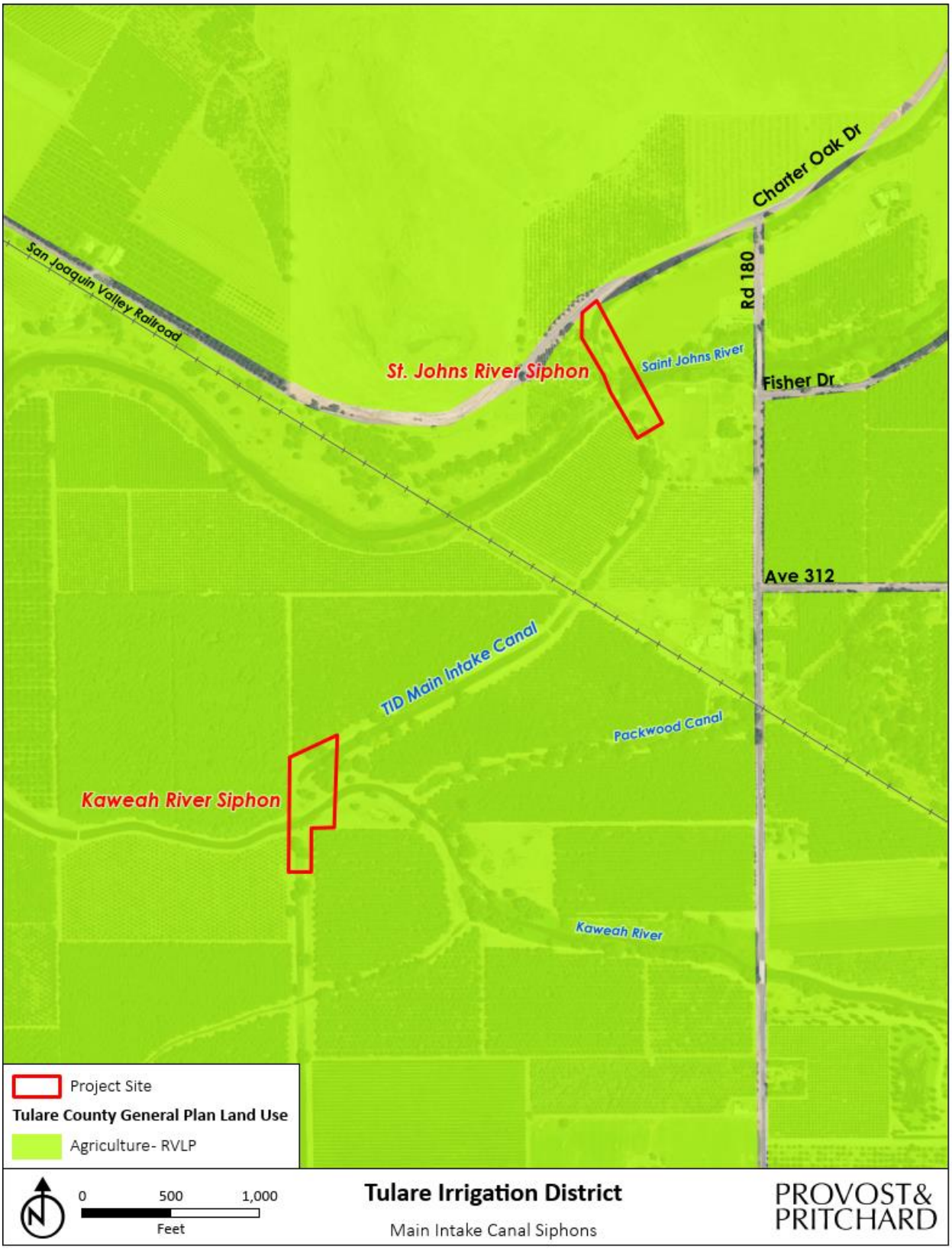


Figure 2-4: General Plan Land Use Designation Map

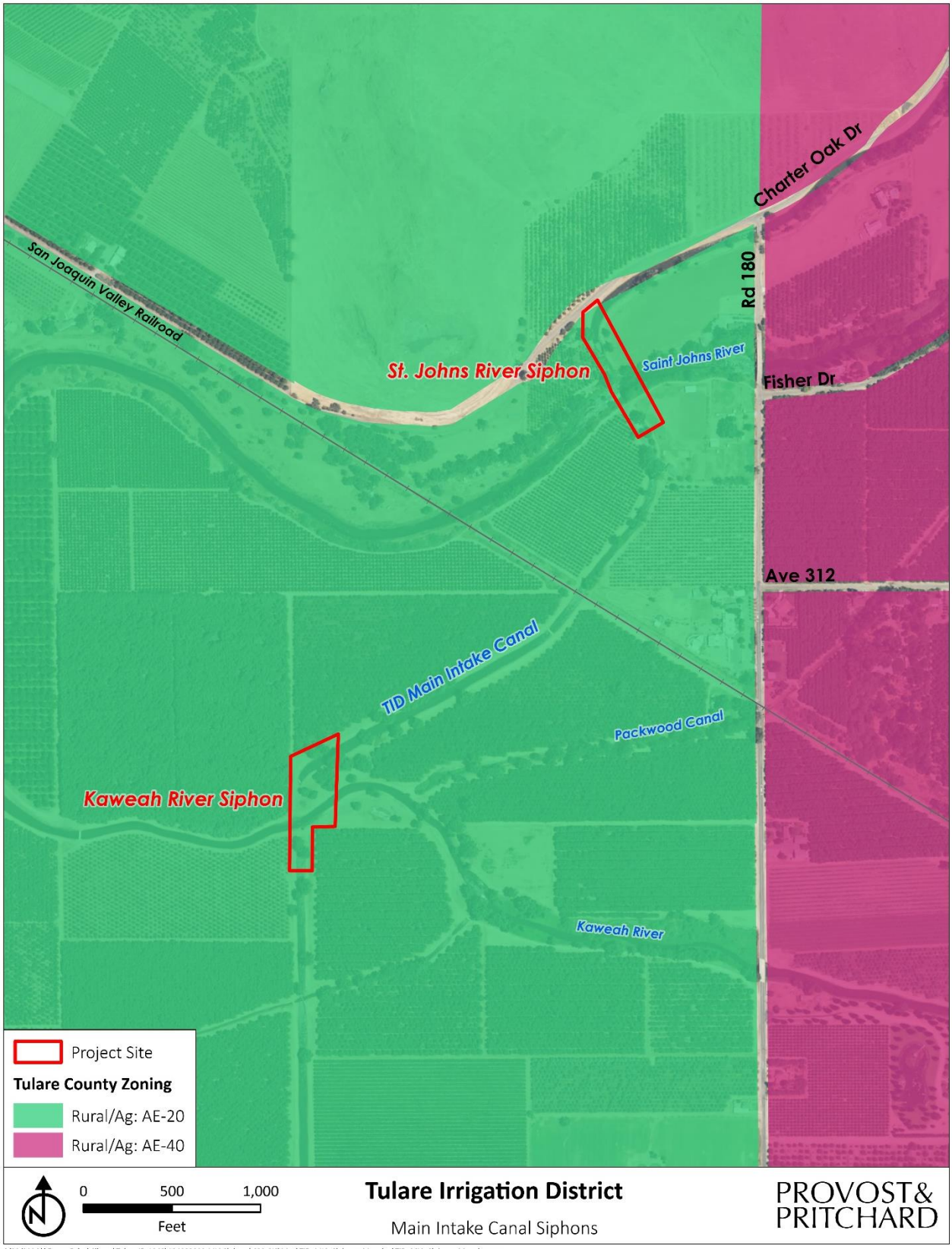


Figure 2-5: Zone District Map

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.

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

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

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

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

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

No Impact. This category applies when a project would not create an impact in the specific environmental issue area. "No Impact" answers do not require a detailed explanation if they are adequately supported by the information sources cited by the lead agency, which show that the impact does not apply to the specific project (e.g., the Project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the Project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

3.2 DETERMINATION

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

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

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

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

☐ I find that the proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

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

Signature

January 15, 2025

Date

Aaron Fukuda, General Manager

Printed Name/Position

CHAPTER 4 ENVIRONMENTAL IMPACT ANALYSIS

4.1 AESTHETICS

Table 4-1: Aesthetics Impacts

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

4.1.1 Baseline Conditions

The Project is located in Tulare County in the Central San Joaquin Valley. Land in the vicinity consists of relatively flat irrigated farmland. Agricultural practices in the vicinity consist of row crops, field crops, orchard cultivation, and pastureland. At its nearest point from the location of the new Kaweah River siphon, the closest eligible "designated State Scenic Highway" identified by Caltrans is a portion of State Route (SR) 198 located approximately 1.75 miles south of the Project site.[1] Farming residences, rural roadways, agricultural ditches, canals, and other infrastructure typical of rural agricultural areas in the San Joaquin Valley are also in the vicinity.

[1] (California Department of Transportation 2023)

4.1.2 Impact Analysis

a) Have substantial adverse effect on a scenic vista?

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

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

a-c) Less than Significant Impact. The Tulare County General Plan does not identify any scenic vistas within the immediate vicinity of the Project sites; however, the peaks of the Sierra Nevada mountain range are clearly visible on many days of the year. A scenic vista is generally considered a view of an area that has remarkable scenery or a resource that is indigenous to the area.

The Project is consistent with the existing character and uses of the surrounding area as the existing siphons are structures within the project sites, the new siphons will be constructed below the ground surface. As such, Project operations will not degrade the existing visual character of the site.

There are no state designated scenic highways within the immediate proximity to the Project sites. California Department of Transportation Scenic Highway Mapping System identifies SR 198 east of SR 99 as an Eligible State Scenic Highway.[2] At the nearest point this section of SR 198 is located approximately 5.4 miles south of the Project sites; however, the Project sites are both physically and visually separated from SR 198 by intervening land uses. The Project would not cause damage to rock outcroppings or historic buildings within a State scenic highway corridor. Any impact 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. The Project sites are surrounded by active agriculture farmland. Any lighting sources during construction would be utilized during non-daylight hours to ensure safety of the public, construction personnel and the public water system; however, lighting would be directed downward to minimize light and glare on adjacent properties and roadways. Additional vehicular traffic after construction will be limited to maintenance and monitoring on an as-needed basis, which will be performed during daylight hours, except in an unforeseen emergency situation. Therefore, the Project will not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area or be inconsistent with existing conditions. Any impacts due to light or glare would be considered less than significant.

4.1.3 Federal Cross-Cutting Topic

Wild, Scenic, and Recreational Rivers Act

The National Wild and Scenic Rivers Act was established in 1968, to maintain the natural beauty, biology, and wildness of federally designated "wild," "scenic," or "recreational" rivers that may be threatened by construction of dams, diversions, and canals. The act seeks to preserve these designated rivers in their

[2] (California Department of Transportation 2023)

free-flowing condition, and to protect their immediate environments for the benefit and enjoyment of present and future generations. While the Project sites are located along the Kaweah and St Johns River neither are designated as "wild" or "scenic" rivers.

4.2 AGRICULTURE AND FORESTRY RESOURCES

Table 4-2: Agriculture and Forest Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

4.2.1 Baseline Conditions

Tulare County is located in California's agricultural heartland. From the most recently available Tulare County Crop and Livestock Report, the county's total gross production value for 2021 was $8,089,621,300. There were forty-two commodities valued at over $1 million, with milk being number one at more than $1.9 billion. A wide range of commodities are grown in the county, with major production of milk, poultry, livestock, and other animal commodities; row crops, nuts, and fruit tree crops; and vegetables. Rich soil, irrigation water, Mediterranean climate, and steady access to local, national, and global markets make this possible.[3]

The Project's setting is surrounded by irrigated farmland and two waterways. The Project sites and surrounding lands are designated as Valley Agriculture by Tulare County and zoned for agricultural uses. The Project sites do not include or are near any forestry or timberland areas.

[3] (Tulare County Agricultural Commisioner 2021)

4.2.2 Applicable Regulations

Farmland Mapping and Monitoring Program (FMMP): The 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's (DOC) 2012 FMMP is a non-regulatory program that produces "Important Farmland" maps and statistical data used for analyzing impacts on California's agricultural resources. The Important Farmland maps identify eight land use categories, summarized below:

• PRIME FARMLAND (P): Farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

• FARMLAND OF STATEWIDE IMPORTANCE (S): Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

• UNIQUE FARMLAND (U): Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated but may include non- irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.

• FARMLAND OF LOCAL IMPORTANCE (L): Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.

• GRAZING LAND (G): Land on which the existing vegetation is suited to the grazing of livestock. The minimum mapping unit for Grazing Land is 40 acres.

• URBAN AND BUILT-UP LAND (D): Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, institutional, public administrative purposes, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.

• OTHER LAND (X): Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

•WATER (W): Perennial water bodies with an extent of at least 40 acres.

As demonstrated in Figure 4-1, the FMMP for Tulare County designates the Project sites as Prime Farmland for the Kaweah River site, while the St. Johns River site has designations of Farmland of Local Importance and Farmland of State Importance.[4]

[4] (California Department of Conservation 2023)

Williamson Act: The Williamson Act, also known as the California Land Conservation Act of 1965, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive property tax assessments which are much lower than normal because they are based upon farming and open space uses as opposed to full market value.

The Department of Conservation assists all levels of government and landowners in the interpretation of the Williamson Act related government code. The Department also researches, publishes, and disseminates information regarding the policies, purposes, procedures, and administration of the Williamson Act according to government code. Participating counties and cities are required to establish their own rules and regulations regarding implementation of the Act within their jurisdiction. These rules include but are not limited to: enrollment guidelines, acreage minimums, enforcement procedures, allowable uses, and compatible uses.

4.2.3 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?

Less than Significant Impact Project implementation will take place on existing waterways, however as demonstrated in Figure 4-1, the FMMP for Tulare County designates the surrounding areas within the Project sites as Farmland of State Importance, Farmland of Local Importance, Unique Farmland, and Prime Farmland in the St. Johns River site while the Kaweah River site is designated as Unique Farmland, and Prime Farmland. Implementation of the Project will not result in the conversion of any farmland to a non-agricultural use. There will be no need to remove any existing farmland for the new siphons. However, construction of the new siphons may include the removal of minor vegetation from each siphon site, but this will not cause a loss of existing farmland.. Therefore, any impact would be less than significant.

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

Less than Significant Impact. Chapter 3, Section 9.5 of the Tulare County Zoning Ordinance addresses the AE zone districts. Section 9.5 does not list siphons as a permitted use. However, pursuant to Government Code Section 53091(e), location, or construction of facilities for the production, generation, storage, treatment, or transmission of water by a special district are not subject to the zoning ordinance of the county in which the Project would be located. Although the Project is not required to comply with the Tulare County Zoning Ordinance, it is the Project's intent to enhance the conveyance of surface water into the District's boundaries, thereby helping to sustain agriculture in the region. The replacement siphons will address the structural concerns of the existing siphons and will also enhance the maximum capacity to approximately 1,100 CFS, inherently promoting the agricultural zoning and Williamson Act intentions. The Project site parcels are not currently under a Williamson Act contract, but a number of the adjacent properties within the Kaweah River site are under contract. The principal objectives of the Williamson Act program include the protection of agricultural resources, preservation of open space land, and promotion of efficient urban growth patterns. The implementation of the Project would enhance existing water resources for District users, inherently protecting agricultural resources. Therefore, impacts would be less than significant.

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

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

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

c-d) No Impact. The Project sites are designated as Agriculture per the Tulare County General Plan and zoned AE-20 (Agriculture, 20 acre minimum) under the Tulare County Zoning Ordinance. The Project would not convert the land from its existing agricultural designation to any other land use. Additionally, there are no lands zoned for forest or timberland use in the Project sites or the surrounding area. There would be no impact.

4.2.4 Federal Cross-Cutting Topic

Farmland Protection Act

The Farmland Protection and Policy Act (FPPA) was enacted in 1981 to minimize the loss of prime farmland and unique farmlands because of federal actions that converted these lands to nonagricultural uses. The act assures that federal programs are compatible with state and local governments, and private programs and policies to protect farmland.

As defined by the FPPA, prime farmland is farmland that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and also is available for these uses. A unique farmland is land other than prime farmland that is used for production of specific, high-value food and fiber crops; it has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops.

As previously concluded, the proposed Project is located on land classified by the (California) Department of Conservation DOC as Prime Farmland, Farmland of Statewide Importance, and Farmland of Local Importance. These classifications recognize a land' s suitability for agricultural production by considering the physical and chemical characteristics of the soil, such as soil temperature range, depth of the groundwater table, flooding potential, rock fragment content, and rooting depth. The classifications also consider location, growing season, and moisture available to sustain high-yield crops. Together, Important Farmland and Grazing Land are defined by the DOC as "Agricultural Land."

While the proposed Project would be on land that is classified as Prime Farmland, Farmland of Statewide Importance, and Farmland of Local Importance, the Project would provide additional water resources for irrigation to lands within the District boundaries. Additionally, no farmland would be converted as a result of the Project. Therefore, the Project would not conflict with the Farmland Protection and Policy Act or adversely affect prime or unique farmland.

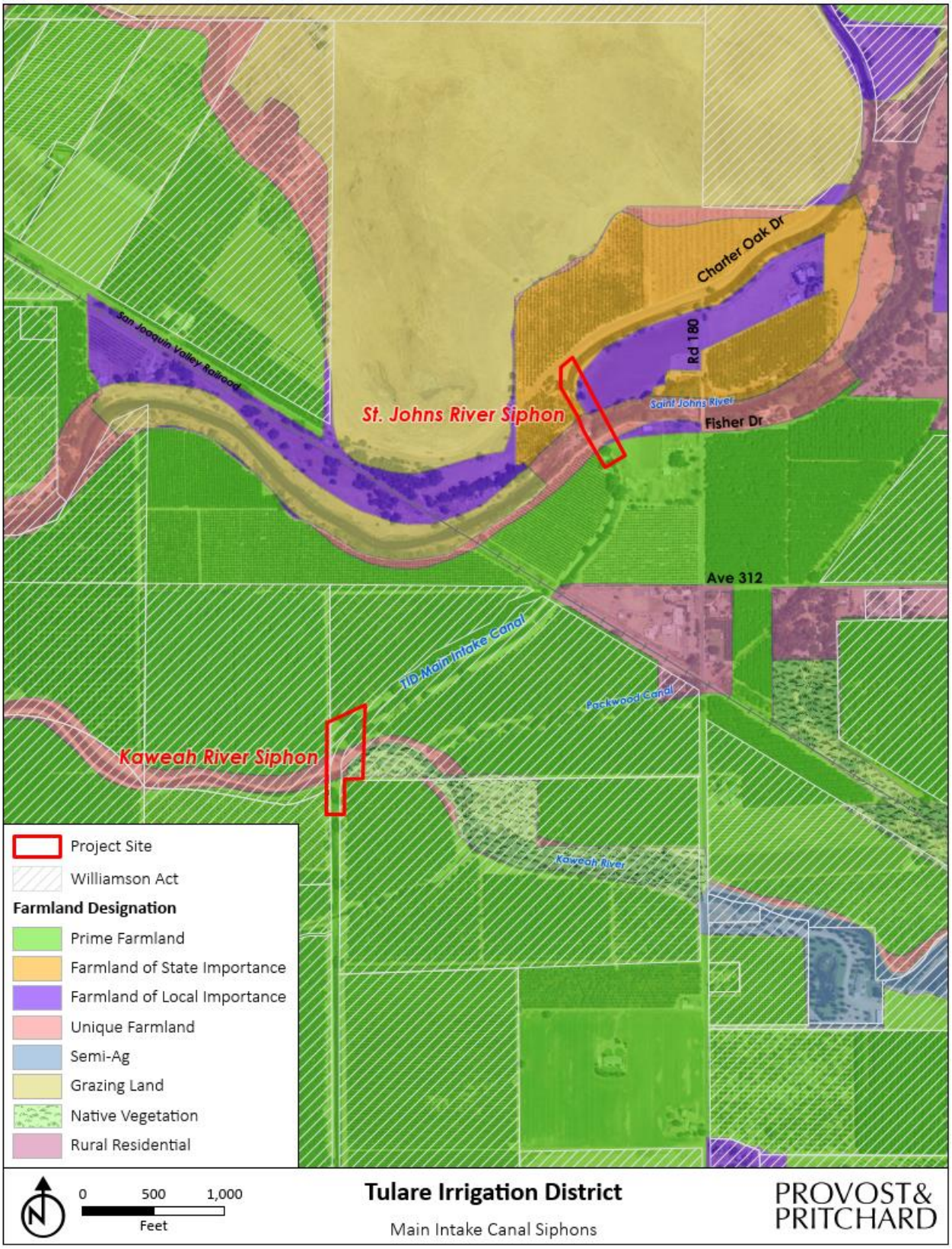


Figure 4-1: Farmland Designation Map

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

4.3.1 Baseline Conditions

The Project sites are located within the boundaries of the San Joaquin Valley Air Pollution Control District (SJVAPCD) and the San Joaquin Valley Air Basin (SJVAB). The SJVAB is positioned within the San Joaquin Valley of California. The San Joaquin Valley is bounded by the Sierra Nevada Mountain Range to the east and the Coastal Mountain Range to the west. Wind within the SJVAB typically channels south-southwest during the summer months, while wind flows to the north-northwest during the winter months. Wind velocity for the region is considered low for an area of such size.[5] Due to a lack of strong wind and the natural confinement of the mountain ranges surrounding the SJVAB, the region experiences some of the worst air quality in the world.

Regulatory Attainment Designations

Under the California Clean Air Act (CCAA), the California Air Resources Board (CARB) is required to designate areas of the State as attainment, nonattainment, or unclassified with respect to applicable standards. An "attainment" designation for an area signifies that pollutant concentrations did not violate the applicable standard in that area. A "nonattainment" designation indicates that a pollutant concentration violated the applicable standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. Depending on the frequency and severity of pollutants exceeding applicable standards, the nonattainment designation can be further classified as serious nonattainment, severe nonattainment, or extreme nonattainment, with extreme nonattainment being the most severe of the classifications. An "unclassified" designation signifies that the data does not support 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, CO, and NO_2 as "does not meet the primary standards," "cannot be classified," or "better than national standards." For SO_2, areas are designated as "does not meet the primary standards," "does not meet the secondary

[5] (San Joaquin Valley Air Pollution Control District 2012)

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 PM_{10} based on the likelihood that they would violate national PM_{10} standards. All other areas are designated "unclassified."

According to the USEPA the SJVAPCD was not in non-attainment for two pollutant concentrations, with $PM_{2.5}$ (2012) being classified as in serious non-attainment, and 8-hour Ozone (2015) classified as being in extreme non-attainment as of July 25th, 2023.[6]

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

Pollutant	Averaging Time	California Standards*		National Standards*	
		Concentration*	Attainment Status	Primary	Attainment Status
Ozone (O_3)	1-hour	0.09 ppm	Nonattainment/ Severe	–	No Federal Standard
	8-hour	0.070 ppm	Nonattainment	0.075 ppm	Nonattainment (Extreme)**
Particulate Matter (PM_{10})	AAM	20 µg/m^3	Nonattainment	–	Attainment
	24-hour	50 µg/m^3		150 µg/m^3	
Fine Particulate Matter ($PM_{2.5}$)	AAM	12 µg/m^3	Nonattainment	12 µg/m^3	Nonattainment
	24-hour	No Standard		35 µg/m^3	
Carbon Monoxide (CO)	1-hour	20 ppm	Attainment/ Unclassified	35 ppm	Attainment/ Unclassified
	8-hour	9 ppm		9 ppm	
	8-hour (Lake Tahoe)	6 ppm		–	
Nitrogen Dioxide (NO_2)	AAM	0.030 ppm	Attainment	53 ppb	Attainment/ Unclassified
	1-hour	0.18 ppm		100 ppb	
Sulfur Dioxide (SO_2)	AAM	–	Attainment	--	Attainment/ Unclassified
	24-hour	0.04 ppm		--	
	3-hour	–		0.5 ppm	
	1-hour	0.25 ppm		75 ppb	
Lead (Pb)	30-day Average	1.5 µg/m^3	Attainment	–	No Designation/ Classification
	Calendar Quarter	–		--	
	Rolling 3-Month Average	–		0.15 µg/m^3	
Sulfates (SO_4)	24-hour	25 µg/m^3	Attainment	No Federal Standards	
Hydrogen Sulfide (H_2S)	1-hour	0.03 ppm (42 µg/m^3)	Unclassified		
Vinyl Chloride (C_2H_3Cl)	24-hour	0.01 ppm (26 µg/m^3)	Attainment		
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient: 0.23/km-visibility of 10 miles or more due	Unclassified		

[6] (United States Environmental Protection Agency 2023)

Pollutant	Averaging Time	California Standards*		National Standards*	
		Concentration*	Attainment Status	Primary	Attainment Status
		to particles when the relative humidity is less than 70%.			

** 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 (July 25, 2023).*
****Secondary Standard*
Source: CARB 2015; SJVAPCD 2015

Construction-Generated Emissions

Construction of the Project is assumed to be completed over approximately eight months. Emissions associated with the Project were calculated using CalEEMod Air Quality Model, Version 2020.4.0. The emissions modeling includes emissions generated by off-road equipment, haul trucks, and worker commute trips. Emissions were quantified based on anticipated construction schedules and the default parameters contained in the model. Localized air quality impacts associated with the Project would be minor and were qualitatively assessed. Modeling assumptions and output files are included in Appendix A.

Thresholds of Significance

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

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

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

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

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

Pollutant	Significance Threshold	
	Construction Emissions (tons/year)	Operational Emissions (tons/year)
ROG	10	10
NO_X	10	10

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

Source: SJVAPCD. 2015. Guidance for Assessing and Mitigating Air Quality Impacts. Website: https://www.valleyair.org/transportation/GAMAQI-2015/FINAL-DRAFT-GAMAQI.PDF. Accessed July 25, 2023.

4.3.2 Impact Analysis

Short-Term Construction-Generated Emissions

Estimated construction-generated emissions are summarized in Table 4-6 and Table 4-7. Operational emissions of the proposed Project would be considered negligible due to the type of use proposed on-site. A negligible amount of emissions could result from use of water conveyance infrastructure.

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

Source	Annual Emissions (Tons per Year)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Maximum Annual Project Construction Emissions	0.0581	0.4383	0.5138	9.7000e-004	0.0373	0.0235
SJVAPCD Threshold	*10*	*10*	*100*	*27*	*15*	*15*
Threshold Exceeded?	No	No	No	No	No	No

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

Source	Daily Emissions Maximum (in pounds)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Construction – Summer	1.6234	14.4905	13.8696	0.0255	7.7695	4.0029
Construction – Winter	1.6116	14.4945	13.8031	0.0254	7.7695	4.0029
SJVAPCD Threshold	*100*	*100*	*100*	*100*	*100*	*100*
Threshold Exceeded?	No	No	No	No	No	No

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

No Impact The Project would not conflict with or obstruct implementation of any applicable air quality plan. The proposed Project would not exceed any threshold for air quality emissions that has been set by the SJVAPCD. Therefore, there would be no impact.

b) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Less than Significant Impact. The proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment. As shown in Table 4-6 and Table 4-7, the Project would not exceed an emissions threshold which has been set by the SJVAPCD

for construction related emissions. The proposed Project would result in negligible quantities of operational emissions. Therefore, impacts would be less than significant.

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

Less than Significant Impact. As discussed above, the proposed Project would not result in significant long-term operational emissions. Construction related emissions, shown in Table 4-6 and Table 4-7, would be temporary in nature and would cease upon Project completion. Short-term construction activities, however, could result in temporary increases in pollutant concentrations that could impact nearby sensitive receptors. Sensitive Receptors are groups that would be more affected by air, noise, light pollution, pesticides, and other toxic chemicals moreso than others. This includes infants, children under 16, elderly over 65, athletes, and people with cardiovascular and respiratory diseases. High concentrations of these groups would include daycares, residential areas, hospitals, elder care facilities, schools, and parks. While the Project would be located in an area near sensitive receptors, such as the residential homes surrounding the site, the Project would not exceed the daily emission thresholds set by the SJVAPCD. Additionally, the HARP2 air dispersion model was run for the Project sites to show the health risk the Project would have on sensitive receptors in the area. The model run, which can be viewed in Appendix A, indicates that the Project would result in a cancer risk of 0.0174 in one million, which is less than the SJVAPCD's threshold of 20 in one million. The Project would also present a chronic risk of 0.24 in one million and an acute risk of 0 in one million, which would be less than the SJVAPCD's threshold of one in one million for both chronic and acute. 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?

Less than Significant Impact. During construction activities, construction equipment exhaust and structural coating and other construction applications would temporarily emit odors. Construction would be completed within rural Tulare County and would have an effect on some rural residences that are located near the construction area of the Project. Construction of the Project would be temporary, and odors would not remain after Project completion. Therefore, impacts would be less than significant.

4.3.3 Federal Cross-Cutting Topic

Clean Air Act (CAA)

Under the federal CAA, federal actions conducted in air basins that are not in attainment with the federal ozone standard (such as the SJVAB) must demonstrate conformity with the State Implementation Plan (SIP). Conformity to a SIP is defined in the federal CAA as meaning conformity to a SIP's purpose of eliminating or reducing the severity and number of violations of the national standards and achieving an expeditious attainment of such standards. The SJVAPCD has published Regulation IX, Rule 9110 (referred as the General Conformity Rule) that indicates how most federal agencies can make such a determination.[7]

The SJVAPCD specifies that a project is conforming to the applicable attainment or maintenance plan if it:

- complies with all applicable SJVAPCD rules and regulations,
- complies with all applicable control measures from the applicable plans, and

[7] The SJVAPCD's Rule 9110 is consistent with USEPA 's General Conformity Rule, Determining Conformity of General Federal Actions to State or Federal Implementation Plans (40 CFR, Part 93), available online at http://www.valleyair.org/rules/currntrules/r9110.pdf.

- is consistent with the growth forecast in the applicable plans.

The SJVAPCD does not require a detailed quantification of construction emissions unless the Project's indirect source emissions are expected to increase pollutant emissions of ROG or NO_x in excess of 10 tons per year. Because proposed Project construction would not exceed this threshold, the proposed Project would comply with the conformity criteria.

4.4 BIOLOGICAL RESOURCES

Table 4-8: Biological Resources Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

4.4.1 Baseline Conditions

General

The District is pursuing the construction of the two reinforced concrete pipe or box siphons, each connecting to the MIC. The Project includes anticipates two new reinforced concrete pipe or box siphons adjacent and upstream of the existing siphons at each site. The Project proposes to install two new siphons adjacent and upstream of the existing siphons at each site. The new siphons will address the structural concerns of the existing siphons and will also enhance the maximum capacity to approximately 1,100 CFS. The Project will be completed in multiple construction phases. The initial phase will involve clearing and grubbing outside of the St. Johns and Kaweah River channels at the individual siphon sites, which could include minor vegetation removal. Upon completion of the first phase, the second phase of Project

construction will be the excavation of the sending and receiving pits, one pit on either side of the Rivers at each siphon site. These pits are utilized for the jack and bore drilling pipe installation method. In the sending pit, a boring machine and auger will drill into the earth beneath each river installing pipe casing along the way to the receiving pit. It is anticipated the sending and receiving pits will be gravel or rock lined to stabilize the operation of the pipelines. This phase will also see the installation of head walls and wing walls on upstream and downstream sides as well as trash racks on the upstream side of the siphon intakes. The third phase of the Project will consist of reconditioning the water flow into the new siphons and into the MIC. The existing box culvert siphons will remain in place once construction of the new siphons is complete. The existing siphons will provide added erosion protection for the new siphons in the Rivers by stabilizing the river bottom sediment in place. The Biological Evaluation report prepared for the Project is presented in Appendix B.

The topography of the St. Johns River site slopes down towards the St. Johns River channel and then slopes back up outside of the channel. The elevations of this site is between 358 and 400 feet above mean sea level. The topography of the Kaweah River site is relatively flat except for the MIC and Kaweah River channel. The elevation of this site is between 370 and 390 feet above mean sea level.

Like most of California, the Project sites experience a Mediterranean climate. Warm, dry summers are followed by cool, moist winters. Summer temperatures often reach above 85 degrees Fahrenheit (°F), and the humidity is generally low. Winter temperatures are often below 60 °F during the day and rarely exceed 70 °F. On average, the City of Visalia receives approximately 13 inches of precipitation in the form of rainfall yearly, most of which occurs between November and April[8] and the Project sites would be expected to receive similar amounts of precipitation.

Hydrology

A watershed is the topographic region that drains into a stream, river, or lake. Watersheds are made up of many smaller subwatersheds that drain into a particular stream, river, or lake, and the Project sites are located within different watersheds, as follows:

- St. Johns River Site: This site lies within the Upper Cross Creek watershed; Hydrologic Unit Code (HUC): 1803000711, and a single subwatershed; the Saint Johns River subwatershed; HUC: 180300071102. The nearest surface waters to the St. Johns River site are the St. Johns River and the TID MIC, which are both within the Project sites and included in Project activities.
- Kaweah River Site: This site lies within two watersheds; the Horse Creek-Kaweah River watershed; (HUC): 1803000709, and the Middle Branch Cross Creek watershed; HUC: 1803000714, and two subwatersheds; the Lake Kaweah-Kaweah River subwatershed; HUC: 180300070902, and the Packwood Creek subwatershed; HUC: 180300071401. The nearest surface waters to the Kaweah River site are the Kaweah River and the TID MIC, which are both within the Project sites and included in Project activities.

The St. Johns River and Kaweah River are known waters of the United States and state and are subject to the jurisdiction of the United States Army Corp of Engineers and the State Water Resources Control Board (SWRCB). These rivers and floodplains are also under the jurisdiction of the Central Valley Flood Protection Board (CVFPB) and California Department of Fish and Wildlife (CDFW).

[8] (WeatherSpark 2023)

Soil

Three soil mapping units representing three soil types were identified within the Project sites and are listed in Table 4-9 (see Appendix B for the complete Web Soil Survey Reports). The soils are displayed with their core properties in the table below, according to the Major Land Resource Area of California. Generally, Exeter and Grangeville soils are used for agriculture[9]. Riverwash is found within the channels of the St. Johns River and the Kaweah River.

Table 4-9: List of Soils Located Onsite and Their Basic Properties

Project Site Name(s)	Map Unit Name	Percent of Project Site	Major Component Hydric Soil Rating	Minor Component Hydric Soil Rating	Drainage	Permeability	Runoff
St. Johns River	Exeter loam, 0 to 2 percent slopes	46.%	No	No	Moderately well drained	Moderately slow permeability	Very slow to medium runoff
St. Johns River Kaweah River	Grangeville sandy loam, drained, 0 to 2 percent slopes	16.9% 68.6%	Yes	Yes	Somewhat poorly drained	Moderate permeability	Negligible runoff
St. Johns River Kaweah River	Riverwash	36.7% 31.4%	-	-	-	-	-

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 soils at each site are considered partially hydric. The Riverwash identified in the sites is within the St. Johns River and the Kaweah River, which are natural waterways.

Biotic Habitats

Three biotic habitats were identified within the Project sites: ruderal/agricultural, riverine, and canal. These biotic habitats and their constituent plant and animal species are described in more detail in the following sections. The biotic habitats within each Project site are mapped in Figure 4-2. Selected photographs of these habitats in the St. Johns River site and the Kaweah River site are presented in Appendix B.

[9] (Natural Resource Conservation Service (NRCS) 2023)

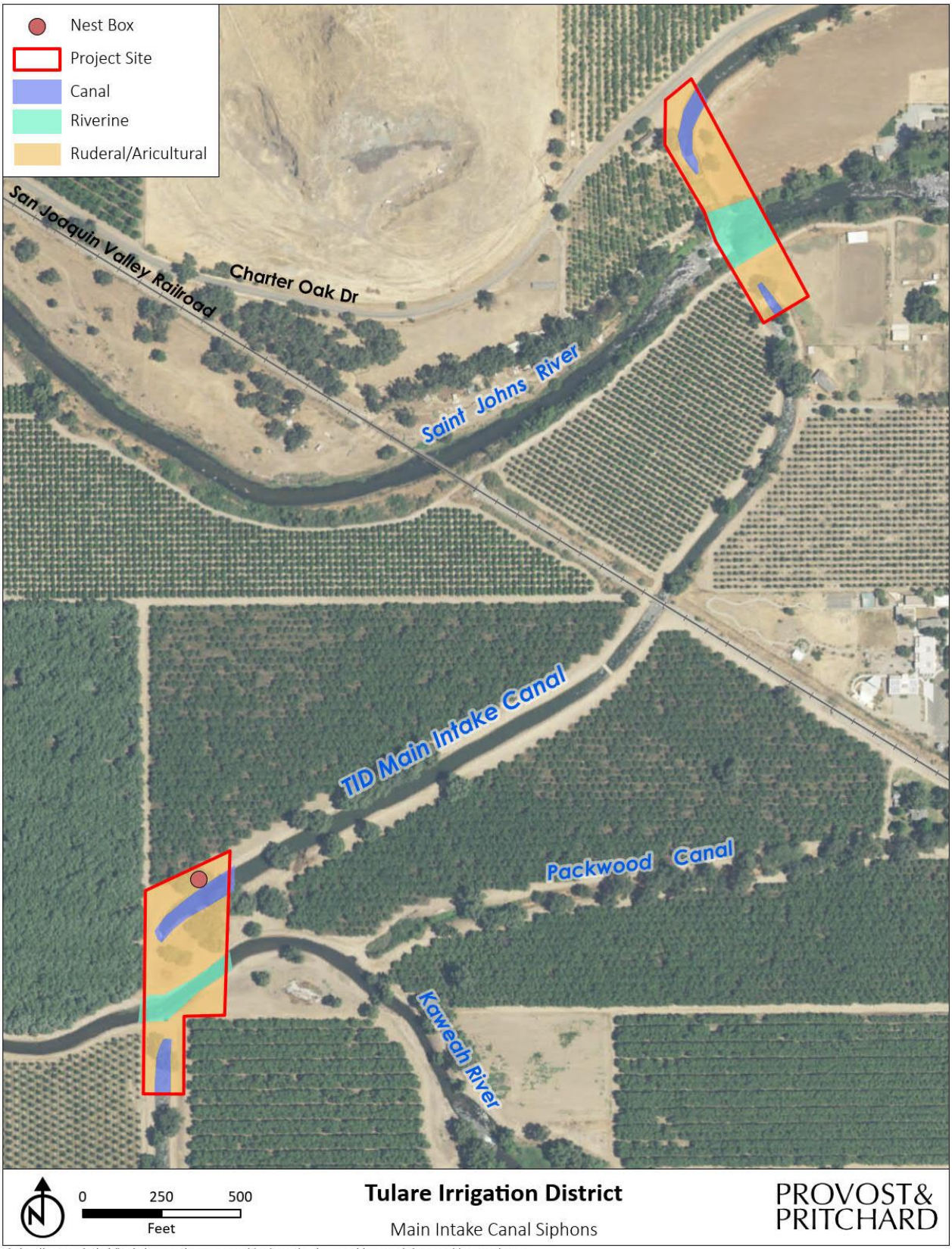


Figure 4-2: Habitats Map

Ruderal/Agricultural

The Project sites included ruderal/agricultural habitat, which consisted of hard-packed dirt roads, agricultural fields and orchards, and livestock pens. Vegetation observed in this habitat included Bermuda grass (*Cynodon dactylon*), puncture vine (*Tribulus terrestris*), mustard (*Brassica* sp.), valley oak trees (*Quercus lobata*), peach trees (*Prunus persica*), olive trees (*Olea europaea*), great brome (*Bromus diandrus*), Johnson grass (*Sorghum halepense*), apple trees (*Malus domestica*), field bindweed (*Convolvulus arvensis*), horseweed (*Erigeron canadensis*), Maltese star thistle (*Centaurea melitensis*), and common spikeweed (*Centromadia pungens*).

Within the ruderal/agricultural habitat, cliff swallow (*Petrochelidon pyrrhonota*), northern mockingbird (*Mimus polyglottos*), American robin (*Turdus migratorius*), house finch (*Haemorhous mexicanus*), black phoebe (*Sayornis nigricans*), European starling (*Sturnus vulgaris*), mourning dove (*Zenaida macroura*), and western fence lizard (*Sceloporus occidentalis*) were observed. Virginia opossum (*Didelphis virginiana*) tracks and cows (*Bos taurus*) were observed within this habitat at the St. Johns River site. A nest box was observed within this habitat at the Kaweah River site.

The ruderal/agricultural habitat within the Project sites is disturbed by agricultural activities. This habitat provides foraging opportunities for birds, including raptors, during the day, and potentially for bats, coyotes, and other nocturnal animals at night. Ground nesting birds, such as killdeer (*Charadrius vociferus*) and mourning dove, may nest within this habitat.

Riverine

The Project sites contain riverine habitat within the St. Johns River and the Kaweah River. The St. Johns River has abundant riparian vegetation within this habitat, while the Kaweah River contained minimal vegetation within this habitat and appeared to experience routine maintenance along this section of the river.

Vegetation within this habitat includes valley oak trees, tree tobacco (*Nicotiana glauca*), pale smartweed (*Persicaria lapathifolia*), California mugwort (*Artemisia douglasiana*), willow (*Salix* sp.), great stinging nettle (*Urtica dioica*), white horehound (*Marrubium vulgare*), milk thistle (*Silybum marianum*), California wild grape (*Vitis californica*), blue elderberry (*Sambucus cerulea*), palm tree (*Arecaceae* sp.), and bulrushes (*schoenoplectus* sp.). While no species were observed in the riverine habitat during the survey, fish are known to occur in these rivers. These species include rainbow trout (*Oncorhynchus mykiss*), brown trout (*Salmo trutta*), and smallmouth bass (*Micropterus dolomieu*). Various species such as racoons (*Procyon lotor*), coyotes, Virginia opossum, and other wildlife species may utilize the rivers as a wildlife movement corridor.

Canal

Each Project site contains a section of the MIC, which is a dirt canal that experiences routine maintenance. The MIC was full of water at the time of the survey. Vegetation within this habitat included red-stemmed filaree (*Erodium cicutarium*), wall barley (*Hordeum murinum*), rabbitfoot grass (*Polypogon monspeliensis*), common sowthistle (*Sonchus oleraceus*), summer cypress (*Bassia scoparia*), prickly lettuce (*Lactuca serriola*), sacred datura (*Datura wrightii*), wine grape (*Vitis vinifera*), pecan tree (*Carya illinoinensis*), horseweed, and blue elderberry. Species such as western toad, Pacific tree frog (*Pseudacris regilla*), and bullfrog (*Lithobates catesbeianus*) would be expected to occur in this habitat. Various species such as racoons, coyotes, Virginia opossum, and other wildlife species may utilize the canal habitat as a wildlife movement corridor.

Wildlife and Plant Species

A query of the California Natural Diversity Database (CNDDB) for occurrences of special status animal and plant species was conducted for the *Exeter* 7.5-minute United States Geological Survey (USGS) quadrangle that contains the Project sites in their entirety, and for the eight surrounding quadrangles *Cairns Corner*, *Ivanhoe*, *Lindsay*, *Monson*, *Rocky Hill*, *Tulare*, *Visalia*, and *Woodlake*. These species, and their potential to occur within the Project sites, are listed in Table 4-10 and Table 4-11 on the following pages. Other species that have the potential to occur within the Project sites that did not show up in the CNDDB and United States Fish and Wildlife Service's Information for Planning and Consultation system (IPaC) queries are also included in Table 4-10. Species lists obtained from CNDDB and IPaC are available in Appendix B. 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 may occur within the Project sites.

Table 4-10: List of Special Status Animals with Potential to Occur Onsite and/or in the Vicinity.

Species	Status*	Habitat	Occurrence within the Project Sites*	
			St. Johns River Site	Kaweah River Site
American badger (*Taxidea taxus*)	CSSC	Grasslands, savannas, and mountain meadows near timberline are preferred. Most abundant in drier open spaces of shrub and grassland. Burrows in soil.	**Unlikely.** The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for this species. An American badger could potentially pass through and forage along the river in this site, but it is unlikely they would den within this site. The only recorded observation of this species within the vicinity was approximately 2 miles south of this site in 1994.	**Unlikely.** This site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for this species. An American badger could potentially pass through this site, but it is unlikely they would forage or live within this site. The only recorded observation of this species within the vicinity was approximately 1.5 miles south of this site in 1994.
Blunt-nosed leopard lizard (*Gambelia sila*)	FE, CE, CFP	Inhabits semi-arid grasslands, alkali flats, low foothills, canyon floors, large washes, and arroyos, usually on sandy, gravelly, or loamy substrate, sometimes on hardpan. Often found where there are abundant rodent burrows in dense vegetation or tall grass. Cannot survive on lands under cultivation. Known to bask on kangaroo rat mounds and often seeks shelter at the base of shrubs, in small mammal burrows, or in rock piles. Adults may excavate shallow burrows but rely on deeper pre-existing rodent burrows for hibernation and reproduction.	**Absent.** Suitable habitat for this species was absent within the site and surrounding lands. The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for this species. The CNDDB query resulted in no observations of this species within the regional vicinity of the Project.	**Absent.** Suitable habitat for this species was absent within the site and surrounding lands. The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for this species. The CNDDB query resulted in no observations of this species within the regional vicinity of the Project.
Buena Vista Lake ornate shrew (*Sorex ornatus relictus*)	FE, CSSC	Prefers moist soils, in marshes, swamps, and riparian shrublands. Uses stumps, logs, and leaf litter for cover.	**Unlikely.** Marsh habitat required by this species was absent within the site and surrounding areas. The St. Johns River is controlled for irrigation purposes and does not hold water year-round, making it unsuitable for this species. The CNDDB query resulted in no observations of this species within the regional vicinity of the Project.	**Unlikely.** Marsh habitat required by this species is absent within the site and surrounding areas. The Kaweah River is controlled for irrigation purposes and does not hold water year-round, making it unsuitable for this species. The CNDDB query resulted in no observations of this species within the regional vicinity of the Project.
Burrowing owl (*Athene cunicularia*)	CSSC	Resides in open, dry annual or perennial grasslands, deserts, and scrublands with low growing vegetation. Nests	**Unlikely.** The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for	**Unlikely.** The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for

Species	Status*	Habitat	Occurrence within the Project Sites*	
			St. Johns River Site	Kaweah River Site
		underground in existing burrows created by mammals, most often ground squirrels.	this species. No sign of this species was observed during the field survey. The nearest recorded observation of this species within the vicinity was approximately 9 miles northwest of the site in 2006.	this species. No sign of this species was observed during the field survey. The nearest recorded observation of this species within the vicinity was approximately 9 miles northwest of this site in 2006.
California condor (*Gymnogyps californianus*)	FE, CE, CFP	Typically nests in cavities in canyon or cliff faces but has also been recorded nesting in giant sequoias in Tulare County. Requires vast expanse of open savannah, grassland, and/or foothill chaparral in mountain ranges of moderate altitude. Forages up to 100 miles from roost/nest site for carrion.	**Unlikely.** There was no suitable habitat for nesting and foraging within the site. The CNDDB query resulted in no observations of this species within the regional vicinity of the Project.	**Unlikely.** There was no suitable habitat for nesting and foraging within the site. The CNDDB query resulted in no observations of this species within the regional vicinity of the Project.
California tiger salamander (*Ambystoma californiense*)	FT, CT	Requires vernal pools or seasonal ponds for breeding and small mammal burrows for aestivation. Generally found in grassland and oak savannah plant communities in central California from sea level to 1,500 feet in elevation. Can migrate up to 1.3 miles to breed.	**Absent.** Required vernal pools and upland habitat with burrows were absent within the site. The nearest recorded observation of this species within the vicinity was approximately 7 miles northeast of the site in 2011.	**Absent.** Required vernal pools and upland habitat with burrows were absent within the site. The nearest recorded observation of this species within the vicinity was approximately 7.5 miles northeast of this site in 2011.
Crotch bumble bee (*Bombus crotchii*)	CCE	Occurs throughout coastal California, as well as east to the Sierra-Cascade crest, and south into Mexico. Food plant genera include *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia*, and *Eriogonum*.	**Unlikely.** Most of the site and surrounding areas are regularly maintained for irrigation and agricultural purposes and plants this species forages on were absent. The nearest recorded observation of this species within the vicinity was approximately 5 miles northeast of this site in 1955.	**Unlikely.** Most of the site and surrounding areas are regularly maintained for irrigation and agricultural purposes and plants this species forages on were absent. The nearest recorded observation of this species within the vicinity was approximately 5.5 miles northeast of this site in 1955.
Foothill yellow-legged frog (*Rana boylii*)	CCT, CSSC	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. This species occurs in the Coast Ranges from the Oregon border south to the Transverse Mountains in Los	**Absent.** This site is outside of the current range of this species.	**Absent.** This site is outside of the current range of this species.

Species	Status*	Habitat	Occurrence within the Project Sites*	
			St. Johns River Site	Kaweah River Site
		Angeles County and along the western flank of the Sierra Mountains south to Kern County.		
Monarch butterfly (*Danaus plexippus*)	FC	Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby. Larval host plants consist of milkweeds (*Asclepias* sp.). Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico.	**Unlikely.** Foraging and roosting habitat was absent within the site. The site did not contain milkweeds or groves of trees. The CNDDB query resulted in no observations of this species within the regional vicinity of the Project.	**Unlikely.** Foraging and roosting habitat was absent within the site. The site contained minimal vegetation with no nectar sources, milkweeds, or groves of trees. The CNDDB query resulted in no observations of this species within the regional vicinity of the Project.
Northern California legless lizard (*Anniella pulchra*)	CSSC	Found primarily underground, burrowing in loose, sandy soil. Forages in loose soil and leaf litter during the day. Occasionally observed on the surface at dusk and night.	**Possible.** Suitable habitat for this species was present within the site and surrounding lands. The St. Johns River contained, moist loose soils with oak trees and leaf litter. The nearest recorded observation of this species within the vicinity was approximately 2 miles south of the site in 2015.	**Possible.** Suitable habitat for this species was present within the site and surrounding lands. The Kaweah River contained moist, loose soils with surrounding oak trees and leaf litter. The only recorded observation of this species within the vicinity was approximately 1.5 miles south of this site in 2015.
Northern leopard frog (*Lithobates pipiens*)	CSSC	Inhabits grassland, wet meadows, potholes, forests, woodland, brushlands, springs, canals, bogs, marshes, and reservoirs. Generally prefers permanent water with abundant riparian vegetation. The leopard frog is established in Modoc County, possibly eastern Lassen County, the Colorado River, and in irrigated portions of Imperial, Tulare and Kern Counties.	**Absent.** This site is outside of the current range of this species.	**Absent.** This site is outside of the current range of this species.
Pallid bat (*Antrozous pallidus*)	CSSC	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.** The site contained large oak trees that had suitable roosting habitat. Foraging habitat was also present within the site and surrounding areas. The only recorded observation of this species within the vicinity was approximately 2.5 miles west of this site in 2004.	**Possible.** The site contained large oak trees that had suitable roosting habitat. Foraging habitat was also present within the site and surrounding areas. The only recorded observation of this species within the vicinity was approximately 2 miles west of the site in 2004.
San Joaquin kit fox (*Vulpes macrotis mutica*)	FE, CT	Utilizes underground dens with multiple entrances in alkali sink, valley grassland,	**Possible.** Most of the site and surrounding areas are regularly maintained for irrigation and agricultural purposes but this species is	**Possible.** Most of the site and surrounding areas are regularly maintained for irrigation and agricultural purposes but this species is

Species	Status*	Habitat	Occurrence within the Project Sites*	
			St. Johns River Site	Kaweah River Site
		and woodland in valleys and adjacent foothills.	known to den in berms along canals. The nearest recorded observation of this species within the vicinity was within the site in 1975.	known to den in berms along canals. The nearest recorded observation of this species within the vicinity was approximately 0.5 mile north of the site in 1975.
Swainson's hawk (*Buteo swainsoni*)	CT	Nests in large trees in open areas adjacent to grasslands, grain or alfalfa fields, or livestock pastures suitable for supporting rodent populations.	**Possible.** There were large oak trees within the site that were suitable for this species to nest in. The nearest recorded observation of this species within the vicinity was approximately 10.5 miles south of the site in 2017.	**Possible.** There were large oak trees within the site that were suitable for this species to nest in. The only recorded observation of this species within the vicinity was approximately 10 miles south of the site in 2017.
Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*)	FE, CE	Prefers saltbush scrub and sink scrub communities in the Tulare Lake Basin of the southern San Joaquin Valley. Needs soft friable soils that are unlikely to flood. Digs burrows in elevated soil mounds at bases of shrubs.	**Absent.** Suitable habitats required by this species were absent from the site. The only recorded observation of this species within the vicinity was approximately 15.5 miles south of the site in 1943.	**Absent.** Suitable habitats required by this species were absent from the site. The only recorded observation of this species within the vicinity was approximately 15 miles south of the site in 1943.
Tricolored blackbird (*Agelaius tricolor*)	CT, CSSC	Nests colonially near fresh water in dense cattails or tules, or in thickets of riparian shrubs. Forages in grassland and cropland. Large colonies are often found on dairy farm forage fields.	**Possible.** Riparian vegetation was observed during the field survey. This species could potentially forage or nest along the St. Johns River in the site. The nearest recorded observation of this species within the vicinity was approximately 7 miles southeast of the site in 2014.	**Unlikely.** Minimal riparian vegetation or suitable nesting habitat was observed along the Kaweah River. This species could potentially fly through or forage within the site. The nearest recorded observation of this species within the vicinity was approximately 7 miles southeast of the site in 2014.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT	This species occurs throughout California's Central Valley from Shasta County through Madera County. Lives in mature elderberry shrubs of the Central Valley and foothills. Adults are active from March to June.	**Absent.** While elderberry shrubs were observed this site is outside of the current range of this species.	**Absent.** While elderberry shrubs were observed this site is outside of the current range of this species.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	Occupies vernal pools with clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools.	**Absent.** Vernal pool habitat was absent from the site and surrounding lands. The nearest recorded observation of this species within the vicinity was approximately 5 miles east of the site in 1993.	**Absent.** Vernal pool habitat was absent from the site and surrounding lands. The nearest recorded observation of this species within the vicinity was approximately 5.5 miles east of the site in 1993.

Species	Status*	Habitat	Occurrence within the Project Sites*	
			St. Johns River Site	Kaweah River Site
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE	Occurs in vernal pools with clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools.	**Absent.** Vernal pool habitat was absent from the site and surrounding lands. The nearest recorded observation of this species within the vicinity was approximately 7.5 miles northwest of the site in 2002.	**Absent.** Vernal pool habitat was absent from the site and surrounding lands. The nearest recorded observation of this species within the vicinity was approximately 8 miles northwest of the site in 2002.
Western mastiff bat (*Eumops perotis californicus*)	CSSC	Found in open, arid to semi-arid habitats, including dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas, where it feeds on insects in flight. Roosts most commonly in crevices in cliff faces but may also use high buildings and tunnels.	**Unlikely.** The site did not contain suitable roosting habitat. Foraging habitat was present along the St. Johns River in the site. The nearest recorded observation of this species within the vicinity was approximately 5 miles northeast of the site in 1990.	**Unlikely.** The site did not contain suitable roosting habitat. Foraging habitat was present along the Kaweah River in the site. The nearest recorded observation of this species within the vicinity was approximately 5.5 miles northeast of the site in 1990.
Western pond turtle (*Emys marmorata*)	CSSC	An aquatic turtle of ponds, marshes, slow-moving rivers, streams, and irrigation ditches with riparian vegetation. Requires adequate basking sites and sandy banks or grassy open fields to deposit eggs.	**Possible.** The St. Johns River and the MIC provide suitable aquatic habitat for this species. The only recorded observation of this species within the vicinity was approximately 6 miles southwest of the site in 1879.	**Possible.** The Kaweah River and the MIC provide suitable aquatic habitat for this species. The only recorded observation of this species within the vicinity was approximately 5.5 miles southwest of the site in 1879.
Western spadefoot (*Spea hammondii*)	CSSC	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.	**Unlikely.** Suitable pond habitat was absent within the site and surrounding areas. The St. Johns River flows too quickly and contains fish which are unsuitable for this species. The nearest recorded observation of this species within the vicinity was approximately 5.5 miles southeast of the site in 1991.	**Unlikely.** Suitable pond habitat was absent within the site and surrounding areas. The Kaweah River flows too quickly and contains fish which are unsuitable for this species. The nearest recorded observation of this species within the vicinity was approximately 6 miles southeast of the site in 1991.
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	FT, CE	Suitable nesting habitat in California includes dense riparian willow-cottonwood and mesquite habitats along a perennial river. Once a common breeding species in riparian habitats of lowland California, this species currently breeds consistently in	**Absent.** The site is outside of the known breeding areas.	**Absent.** The site is outside of the known breeding areas.

Species	Status*	Habitat	Occurrence within the Project Sites*	
			St. Johns River Site	Kaweah River Site
		only two locations in the state: along the Sacramento and South Fork Kern Rivers.		

Table 4-11: List of Special Status Plants with Potential to Occur Onsite and/or in the Vicinity.

Species	Status*	Habitat	Occurrence within the Project Sites	
			St. Johns River Site	Kaweah River Site
Alkali-sink goldfields (*Lasthenia chrysantha*)	CNPS 1B	Found in vernal pool and wet saline flat habitats of the Central Valley at elevations below 700 feet. Blooms February - April.	**Absent.** Vernal pool habitat was absent within the site and surrounding area. The nearest recorded observation of this species within the vicinity was approximately 1.5 miles south of the site in the 1990s.	**Absent.** Vernal pool habitat was absent within the site and surrounding area. The only recorded observation of this species within the vicinity was approximately 1 mile southwest of the site in the 1990s.
Brittlescale (*Atriplex depressa*)	CNPS 1B	Found in the Central Valley in alkaline or clay soils, typically in meadows or annual grasslands at elevations below 1,050 feet. Sometimes associated with vernal pools. Blooms June–October.	**Absent.** Vernal pool habitat was absent within the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 6 miles southwest of the site in 1881.	**Absent.** Vernal pool habitat was absent within the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 5.5 miles southwest of the site in 1881.
Calico monkeyflower (*Diplacus pictus*)	CNPS 1B	Found in the foothills of the Sierra Nevada and the Tehachapi mountains in bare, sunny, shrubby areas, and around granite outcrops within foothill woodland communities at elevations between 450 and 4,100 feet. Blooms March – May.	**Absent.** The site is outside of the current range of this species.	**Absent.** The site is outside of the current range of this species.
California alkali grass (*Puccinellia simplex*)	CNPS 1B	Found in the San Joaquin Valley and other parts of California in saline flats and mineral springs within valley grassland and wetland-riparian communities at elevations below 3,000 feet. Blooms March–May.	**Absent.** Suitable habitat was absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 8.5 miles northwest of the site in 1936.	**Absent.** Suitable habitat was absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 8.5 miles northwest of the site in 1936.
California jewelflower (*Caulanthus californicus*)	FE, CE, CNPS 1B	Found in the San Joaquin Valley and western Transverse Ranges in sandy soils. Occurs on flats and slopes, generally in non-alkaline grassland at elevations between 230 feet and 6,100 feet. Blooms February–April.	**Absent.** Suitable habitat was absent from the site and surrounding areas. The only recorded observation of this species within the vicinity was approximately 12.5 miles southwest of the site in 1986.	**Absent.** Suitable habitat was absent from the site and surrounding areas. The only recorded observation of this species within the vicinity was approximately 12 miles southwest of the site in 1986.
California satintail (*Imperata brevifolia*)	CNPS 2B	Although this facultative species is equally likely to occur in wetlands and non-wetlands, it is often found in wet springs,	**Possible.** Suitable habitat is found within the riverine habitat along the St. Johns River within the site. The only recorded	**Possible.** Suitable habitat is found within the riverine habitat along the Kaweah River within the site. The only recorded

Species	Status*	Habitat	Occurrence within the Project Sites	
			St. Johns River Site	Kaweah River Site
		meadows, streambanks, and floodplains at elevations below 1,600 feet. Blooms September – May.	observation of this species within the vicinity was approximately 6 miles southwest of the site in 1895.	observation of this species within the vicinity was approximately 5.5 miles southwest of the site in 1895.
Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*)	CNPS 1B	Found on alkaline or saline soils in vernal pools and playas in grasslands at elevations below 4,500 feet. Blooms April–May.	**Absent.** Suitable habitat and saline soils were absent from the site and surrounding areas. The only recorded observation of this species within the vicinity was approximately 9 miles northwest of the site in 2015.	**Absent.** Suitable habitat and saline soils were absent from the site and surrounding areas. The only recorded observation of this species within the vicinity was approximately 9.5 miles northwest of the site in 2015.
Earlimart orache (*Atriplex cordulata* var. *erecticaulis*)	CNPS 1B	Found in the San Joaquin Valley in saline or alkaline soils, typically within valley and foothill grassland at elevations below 375 feet. Blooms August–September.	**Unlikely.** Suitable habitat and alkaline soils were absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 9 miles northwest of this site in 2010.	**Unlikely.** Suitable habitat and alkaline soils were absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 9.5 miles northwest of this site in 2010.
Greene's tuctoria (*Tuctoria greenei*)	FE, 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 3,500 feet. Blooms May – September.	**Absent.** Required vernal pool habitat was absent within the site. The nearest recorded observation of this species within the vicinity was approximately 4.5 miles northeast of the site in 2010.	**Absent.** Required vernal pool habitat was absent within this site. The nearest recorded observation of this species within the vicinity was approximately 5 miles northeast of the site in 2010.
Hoover's spurge (*Euphorbia hooveri*)	FT, CNPS 1B	Found in the Central Valley in vernal pools within valley grassland, freshwater wetland, and riparian communities at elevations below 800 feet. Blooms July – September.	**Absent.** Required vernal pool habitat was absent within the site. The nearest recorded observation of this species within the vicinity was approximately 7.5 miles northwest of the site in 2022.	**Absent.** Required vernal pool habitat was absent within the site. The nearest recorded observation of this species within the vicinity was approximately 8 miles northwest of the site in 2022.
Kaweah brodiaea (*Brodiaea insignis*)	CE, CNPS 1B	Found in the foothills of the Sierra Nevada in foothill woodland and valley grassland communities at elevations between 650 and 1,650 feet. Blooms May – June.	**Absent.** The site is outside of the current range of this species.	**Absent.** The site is outside of the current range of this species.
Lesser saltscale (*Atriplex minuscula*)	CNPS 1B	Found in the San Joaquin Valley in sandy, alkaline soils in alkali scrub, valley and foothill grassland, and alkali sink communities at elevations below 750 feet. Blooms April–October.	**Absent.** Required habitat and alkaline soils were absent from the site and surrounding lands. The nearest recorded observation of this species within the vicinity was approximately 9 miles northwest of the site in 2010.	**Absent.** Required habitat and alkaline soils were absent from the site and surrounding lands. The nearest recorded observation of this species within the vicinity was approximately 9.5 miles northwest of the site in 2010.

Species	Status*	Habitat	Occurrence within the Project Sites	
			St. Johns River Site	Kaweah River Site
Recurved larkspur (*Delphinium recurvatum*)	CNPS 1B	Occurs in poorly drained, fine, alkaline soils in grassland and alkali scrub communities at elevations between 100 and 2,600 feet. Blooms March–June.	**Absent.** Suitable habitat and alkaline soils were absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 4.5 miles northeast of the site in 1974.	**Absent.** Suitable habitat and alkaline soils were absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 5 miles northeast of the site in 1974.
San Joaquin adobe sunburst (*Pseudobahia peirsonii*)	FT, CE, CNPS 1B	Found in the San Joaquin Valley and foothills of the Sierra Nevada in bare, dark, clay soils in valley and foothill grassland and cismontane woodland communities at elevations between 325and 2,950 feet. Blooms March–May.	**Absent.** Suitable habitat and clay soils were absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 5 miles southeast of this site in 2010.	**Absent.** Suitable habitat and clay soils were absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 5 miles southeast of the site in 2010.
San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*)	FT, CE, CNPS 1B	Found in eastern San Joaquin Valley and the foothills of the Sierra Nevada in vernal pools within valley grassland, freshwater wetland, and wetland-riparian communities at elevations below 2,600 feet. Blooms April – September.	**Absent.** Suitable habitat was absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 9.5 miles northwest of the site in 2017.	**Absent.** Suitable habitat was absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 9.5 miles northwest of the site in 2017.
Sanford's arrowhead (*Sagittaria sanfordii*)	CNPS 1B	Found in the San Joaquin Valley and other parts of California in freshwater-marsh, primarily ponds and ditches, at elevations below 1,000 feet. Blooms May–October.	**Possible.** Suitable habitat was present within the canal habitat along the MIC and within the riverine habitat along the St. Johns River within the site. The nearest recorded observation of this species within the vicinity was approximately 5.5 miles north of the site in 2018.	**Possible.** Suitable habitat was present within the canal habitat along the MIC and within the riverine habitat along the Kaweah River within the site. The nearest recorded observation of this species within the vicinity was approximately 6 miles north of the site in 2018.
Spiny-sepaled button-celery (*Eryngium spinosepalum*)	CNPS 1B	Found in the San Joaquin Valley and foothills of the Sierra Nevada in vernal pools, swales, and roadside ditches. Often associated with clay soils in vernal pools within grassland communities. Occurs at elevations between 50 and 4,160 feet. Blooms April–July.	**Possible.** Suitable habitat was present along the MIC within the site. The nearest recorded observation of this species within the vicinity was approximately 4 miles southeast of the site in 1992.	**Possible.** Suitable habitat was present along the MIC within the site. The nearest recorded observation of this species within the vicinity was approximately 3.5 miles southeast of the site in 1992.
Striped adobe-lily (*Fritillaria striata*)	CT, CNPS 1B	Found in the foothills of the Sierra Nevada in adobe soil within valley grassland and foothill woodland communities at elevations below 3,300 feet. Blooms February – April.	**Absent.** Suitable habitat was absent from the site and surrounding areas. The only recorded observation of this species within the vicinity was approximately 9 miles	**Absent.** Suitable habitat was absent from the site and surrounding areas. The only recorded observation of this species within the vicinity was approximately 9 miles

Species	Status*	Habitat	Occurrence within the Project Sites	
			St. Johns River Site	Kaweah River Site
			southeast of the site in 1983 but is listed as extirpated.	southeast of the site in 1983 but is listed as extirpated.
Subtle orache (*Atriplex subtilis*)	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.** Suitable habitat was absent from the site and surrounding areas. The only recorded observation of this species within the vicinity was approximately 14.5 miles south of this site in 1999.	**Unlikely.** Suitable habitat was absent from the site and surrounding areas. The only recorded observation of this species within the vicinity was approximately 14 miles south of this site in 1999.
Vernal pool smallscale (*Atriplex persistens*)	CNPS 1B	Occurs in the Central Valley in alkaline vernal pools at elevations below 375 feet. Blooms June–September.	**Absent.** Required vernal pool habitats were absent within the site and surrounding lands. The nearest recorded observation of this species within the vicinity was approximately 9 miles northwest of the site in 2010.	**Absent.** Required vernal pool habitats were absent within the site and surrounding lands. The nearest recorded observation of this species within the vicinity was approximately 9.5 miles northwest of the site in 2010.
Winter's sunflower (*Helianthus winteri*)	CNPS 1B	Found in the foothills of the Sierra Nevada on steep, south-facing grassy slopes, rock outcrops, and road-cuts at elevations ranging from 600 to 1,500 feet. Blooms year-round.	**Absent.** The site is outside of the elevational requirements for this species.	**Absent.** The site is outside of the elevational requirements for this species.

***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	CCE	California Endangered (Candidate)
FC	Federal Candidate	CT	California Threatened
		CCT	California Threatened (Candidate)
		CFP	California Fully Protected
		CSSC	California Species of Special Concern

CNPS LISTING

1B	Plants rare, threatened, or endangered in California and elsewhere.	2B	Plants rare, threatened, or endangered in California, but more common elsewhere.

4.4.2 Applicable Regulations

Threatened and Endangered Species

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

Designated Critical Habitat

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

Migratory Birds

The Migratory Bird Treaty Act (MBTA: 16 USC 703-712) prohibits killing, possessing, or trading in any bird species covered in one of four international conventions to which the United States is a party, except in accordance with regulations prescribed by the Secretary of the Interior. The name of the act is misleading, as it covers almost all birds native to the United States, even those that are non-migratory. The MBTA encompasses whole birds, parts of birds, and bird nests and eggs. Additionally, California Fish and Game Code makes it unlawful to take or possess any non-game birds covered by the MBTA (Section 3513), as well as any other native non-game birds (Section 3800).

Birds of Prey

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

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"

The definition of "waters of the United States" often changes from one presidential administration to the next. The current definition, established under the new rule that became effective on March 20, 2023, has established measurable distances for qualifying jurisdictional waters that no administration has set before. Traditional navigable waters, territorial seas, and interstate waters remain covered under the new rule. Natural drainage channels and adjacent wetlands may be considered "waters of the United States" or "jurisdictional waters" subject to the jurisdiction of the United States Army Corp of Engineers (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 the following categories:

- Traditional Navigable Waters - 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;
- Territorial Seas - waters that extend three miles out to sea from the coast;
- Interstate Waters - waters including lakes, streams, or wetlands that cross or form part of state boundaries;
- Impoundments - impounded waters created in or from "waters of the United States;"
- Tributaries - waters that ultimately flow into jurisdictional water bodies. Tributaries are jurisdictional if they meet either the relatively permanent standard or significant nexus standard;
- Adjacent Wetlands - wetlands next to, abutting, or near jurisdictional waters, and most often within a few hundred feet of jurisdictional waters. These wetlands are jurisdictional if they meet either the relatively permanent standard or the significant nexus standard;
- of waters identified in paragraphs (a)(1)-(4) (i.e., the bulleted items above).
- 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;

Familiar and longstanding exclusions under the new definition include the following:

- Prior converted cropland;
- Waste treatment systems, including treatment ponds or lagoons;
- Ditches and canals excavated wholly in and draining only dry land and do not carry a relatively permanent flow of water;
- Artificially irrigated areas that would revert to dry land if irrigation ceased;
- Artificial lakes or ponds created by excavating or diking dry land for the use of stock watering, irrigation, settling basins or rice growing;
- Artificial reflecting or swimming pools;
- Waterfilled depressions created in dry land;
- Swales and erosional features (ex. gullies and small washes);

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 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 USEPA and 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 CWA. 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 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.

Tulare County General Plan

The Tulare County General Plan Document contains the following goals and policies, related to the Project[10]:

Environmental Resources Management (ERM)-1: To preserve and protect sensitive significant habitats, enhance biodiversity, and promote healthy ecosystems throughout the County.

ERM-1.1: Protection of Rare and Endangered Species. The County shall ensure the protection of environmentally sensitive wildlife and plant life, including those species designated as rare, threatened, and/or endangered by state and/or Federal government, through compatible land use development.

[10] (Tulare County 2012)

ERM-1.2: Development in Environmentally Sensitive Areas. The County shall limit or modify proposed development within areas that contain sensitive habitat for special status species and direct development into less significant habitat areas. Development in natural habitats shall be controlled so as to minimize erosion and maximize beneficial vegetative growth.

ERM-1.4: Protect Riparian Areas. The County shall protect riparian areas through habitat preservation, designation as open space or recreational land uses, bank stabilization, and development controls.

ERM-1.6: Management of Wetlands. The County shall support the preservation and management of wetland and riparian plant communities for passive recreation, groundwater recharge, and wildlife habitats.

ERM-1.12: Management of Oak Woodland Communities. The County shall support the conservation and management of oak woodland communities and their habitats.

ERM-1.16: Cooperate with Wildlife Agencies. The County shall cooperate with state and federal wildlife agencies to address linkages between habitat areas.

ERM-1.17: Conservation Plan Coordination. The County shall coordinate with local, state, and federal habitat conservation planning efforts (including Section 10 Habitat Conservation Plan) to protect critical habitat areas that support endangered species and other special-status species.

Water Quality

Water Resources (WR)-2: To provide for the current and long-range water needs of the County and for the protection of the quality of surface water and groundwater resources.

WR-2.1: Protect Water Quality. All major land use and development plans shall be evaluated as to their potential to create surface and groundwater contamination hazards from point and non-point sources. The County shall confer with other appropriate agencies, as necessary, to assure adequate water quality review to prevent soil erosion; direct discharge of potentially harmful substances; ground leaching from storage of raw materials, petroleum products, or wastes; floating debris; and runoff from the site.

WR-2.3: Best Management Practices (BMPs). The County shall continue to require the use of feasible BMPs, and other mitigation measures designed to protect surface water and groundwater from the adverse effects of construction activities, agricultural operations requiring a County Permit and urban runoff in coordination with the Water Quality Control Board.

WR-2.4: Construction Site Sediment Control. The County shall continue to enforce provisions to control erosion and sediment from construction sites.

4.4.3 Impact Analysis

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

Less than Significant Impact with Mitigation Incorporated. Of the 23 regionally occurring special status animal species, 17 are considered absent from or unlikely to occur within the sites due to past or ongoing disturbance and/or the absence of suitable habitat. These species include: American badger, blunt-nosed leopard lizard, Buena Vista Lake ornate shrew, burrowing owl, California condor, California tiger salamander, Crotch bumble bee, foothill yellow-legged frog, monarch butterfly, northern leopard frog, Tipton kangaroo rat, valley elderberry longhorn beetle, vernal pool fairy shrimp, vernal pool tadpole shrimp, western mastiff bat, western spadefoot, and western yellow-billed cuckoo. Since it is unlikely these species would occur onsite, implementation of the Project should have no impact on these 17 special status species through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted.

Of the 21 regionally occurring special status plant species, 18 are considered absent from or unlikely to occur within the sites due to past or ongoing disturbance and/or the absence of suitable habitat. These species include: alkali-sink goldfields, brittlescale, calico monkeyflower, California alkali grass, California jewelflower, Coulter's goldfields, Earlimart orache, Greene's tuctoria, Hoover's spurge, Kaweah brodiaea, lesser saltscale, recurved larkspur, San Joaquin adobe sunburst, San Joaquin Valley Orcutt grass, striped adobe-lily, subtle orache, vernal pool smallscale, winter's sunflower. Since it is unlikely 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.

Species identified as candidate, sensitive, or special status species by California Fish and Game Code, CDFW, USFWS, or California Native Plant Society or are protected by state or federal laws that have the potential to be impacted by Project activities at the St. Johns River and Kaweah River sites include: northern California legless lizard, pallid bat and maternity roosting bats, San Joaquin kit fox, Swainson's hawk, tricolored blackbird, western pond turtle, California satintail, Sanford's arrowhead, spiny-sepaled button-celery, nesting migratory birds and raptors, jurisdictional waters, wildlife movement corridors, and native wildlife nursery sites. Discussion and corresponding mitigation measures are provided below.

Project-Related Mortality and/or Disturbance to Northern California Legless Lizard

The Project sites contain suitable ruderal habitat with leaf litter for Northern California legless lizards to use. This species is known to forage in loose soil and leaf litter during the day and is occasionally observed on the surface at dusk and at night. Northern California legless lizards occurring within the Project sites during construction have the potential to be injured or killed by Project-related activities. Projects that adversely affect the success of Northern California legless lizards or result in the mortality of individuals would be considered a potentially significant impact under CEQA and NEPA.

Mitigation measures are warranted and are identified in Section 4.4.4 below. Implementation of mitigation measures **BIO-1**, **BIO-2**, and **BIO-3** will reduce potential impacts to northern California legless lizard to a less than significant level under CEQA and NEPA.

Project-Related Mortality and/or Disturbance of Maternity Roosting Bats and Special Status Bats, Including the Pallid Bat

Pallid bats and maternity roosting bats have the potential to occur within the cavities observed in the large valley oak trees located in the Project sites and surrounding areas. These could be used by a variety of maternity roosting bats, including the pallid bat(March 1 through August 31), and by overwintering pallid bats (approximately December 1 through February 28). Should these trees be disturbed or removed during these time periods, these rare and sensitive roosting bats could be impacted.

Mitigation measures are warranted and are identified in Section 4.4.4 below. Implementation of mitigation measures BIO-1, BIO-2, BIO-4, BIO-5, and BIO-6 will reduce potential impacts to special status bats to a less than significant level under CEQA and NEPA and ensure compliance with state and federal laws protecting these species.

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

While no suitable burrows were observed during the field survey, the Project sites contain suitable denning and foraging habitat for San Joaquin kit fox (SJKF). SJKF denning within the Project sites during construction have the potential to be injured or killed by Project-related activities. Projects that result in the mortality of individuals would be considered a violation of state and federal laws and a potentially significant impact under CEQA and NEPA.

Mitigation measures are warranted and are identified in Section 4.4.4 below. Implementation of mitigation measures BIO-1, BIO-2, BIO-7, BIO-8, and BIO-9 will reduce potential impacts to SJKF to a less than significant level under CEQA and NEPA and will ensure compliance with state and federal laws protecting this species.

Project-Related Mortality and/or Nest Abandonment of Migratory Birds, Raptors, and Special Status Birds, including Swainson's Hawks and Tricolored Blackbird

The Project sites contain suitable nesting and/or foraging habitat for a variety of protected bird species, such as migratory birds, raptors, Swainson's hawk, and tricolored blackbird. Swainson's hawks could nest in the large valley oak trees within the Project sites and trees along the rivers. Suitable nesting habitat for tricolored blackbirds is present within the riparian vegetation in the riparian habitat of the St. Johns River site, and this species would be expected to forage throughout the site. Protected birds located within or adjacent to the Project sites during construction have the potential to be injured or killed by project-related activities. In addition to the direct "take" of protected birds within the Project site or adjacent areas, birds nesting in these areas could be disturbed by Project-related activities, resulting in nest abandonment. Projects that adversely affect the nesting success of protected birds or result in the mortality of these birds would be a violation of state and federal laws and considered a potentially significant impact under CEQA and NEPA.

While foraging habitat for migratory birds and raptors, including Swainson's hawk and tricolored blackbird, is present on the Project sites, suitable foraging habitat is located adjacent to the sites and within the vicinity of the sites, and loss of foraging habitat from implementation of the Project is not considered a significant impact.

Mitigation measures are warranted and are identified in Section 4.4.4 below. Implementation of mitigation measures BIO-1, BIO-2, BIO-10, BIO-11, and BIO-12 will reduce potential impacts to protected nesting birds to a less than significant level under CEQA and NEPA and ensure compliance with state and federal laws protecting these bird species.

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

The Project sites contained habitat within the rivers that could be used for western pond turtle dispersal or basking and foraging. These features were located within the riverine and ruderal habitats onsite. Noise, vegetation removal, movement of workers, construction, and ground disturbance as a result of Project activities have the potential to significantly impact western pond turtle. Without appropriate avoidance and minimization measures for western pond turtle, potentially significant impacts associated

with Project activities could include inadvertent entrapment and direct mortality. Project activities that impact western pond turtle would be considered a potentially significant impact under CEQA and NEPA.

Mitigation measures are warranted and are identified in Section 4.4.4 below. Implementation of mitigation measures BIO-1, BIO-2, BIO-13, and BIO-14 will reduce impacts to western pond turtle to a less than significant level under CEQA and NEPA.

Project-Related Impacts to Special Status Plant Species, Including California Satintail, Sanford's Arrowhead, and Spiny-sepaled Button-celery

The following special status plant species were identified to potentially occur within or adjacent to the riverine and canal habitat on the Project sites: California satintail, Sanford's arrowhead, and spiny-sepaled button-celery. The field survey of the Project sites was conducted outside of the blooming season for most of these plants. Projects that adversely affect special status plants or result in the mortality of special status plants would be considered a violation of state and federal laws for listed species and considered a potentially significant impact under CEQA and NEPA.

Mitigation measures are warranted and are identified in Section 4.4.4 below. Implementation of mitigation measures BIO-1, BIO-2, and BIO-15, BIO-16, and BIO-17 will reduce potential impacts to special status plants to a less than significant level under CEQA and NEPA and will ensure compliance with state and federal laws protecting these listed plant species.

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

Less than Significant Impact with Mitigation Incorporated. Riparian habitat is present on the Project sites within the riverine habitat along the St. Johns River and the Kaweah River. Permits with USACE and CDFW (see BIO-18, BIO-19, and BIO-20) would include mitigation to protect or fully mitigate any impacts to riparian habitat. There are no CNDDB-designated "natural communities of special concern" recorded within the Project sites or surrounding lands[11]. Additional mitigation is not warranted.

The USFWS often designates areas of "Critical Habitat" when it lists species as threatened or endangered. Critical habitat is a specific geographic area that contains features essential for the conservation of a threatened or endangered species, which may require special management and protection. According to the CNDDB and IPaC, designated critical habitat is absent within the Project sites and no mitigation measures are warranted.

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

Less than Significant Impact with Mitigation Incorporated. The USFWS National Wetlands Inventory Map was consulted for known waters in the area and riverine and freshwater forested/shrub wetland was delineated on the St. Johns River site and riverine was delineated on the Kaweah River site. During the field survey the St. Johns River and the Kaweah River contained water. The St. Johns River and the Kaweah River are waters of the United States and state. Project-related impacts to some or all of these waters would be considered a potentially significant impact under CEQA and NEPA. Impacts to waters of the U.S.

[11] (California Natural Diversity Database 2023)

are also subject to the permit requirements of Sections 404 and 401 of the Clean Water Act. The placement of fill within any jurisdictional features will require a 404 permit from the USACE, a 401 Water Quality Certification from the RWQCB, a permit from the CVFPB, and a Lake or Streambed Alteration Agreement from CDFW.

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

Mitigation measures are warranted and are identified in Section 4.4.4 below. Implementation of mitigation measures BIO-18, BIO-19, and BIO-20 will reduce potential impacts to waters and riparian habitat to a less than significant level under CEQA and NEPA and will ensure compliance with state and federal laws protecting these resources.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less than Significant Impact with Mitigation Incorporated. 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 Project sites contain features that would be likely to function as wildlife movement corridors. The riverine and canal habitat could be used as wildlife movement corridors, but impacts would be temporary and minimal, and wildlife may be able to continue using it during construction and would be able to continue utilizing it after construction activities are completed.

Native wildlife nursery sites are areas where a species or group of similar species raise their young in a concentrated place, such as a maternity bat roost. The Project site has suitable features such as the St. Johns River, Kaweah River, and large trees, which could be used as native wildlife nursery sites by aquatic and avian species. Project-related impacts to any native wildlife nursery sites would be considered a significant impact under CEQA.

Mitigation measures are warranted and are identified in Section 4.4.4 below. The potential impacts to species that could use the trees and riverine habitat as a wildlife nursery site have mostly been addressed in Mitigation Measures BIO-4 through BIO-12. Implementation of these, and mitigation measures BIO-21, BIO-22, and BIO-23 will reduce potential impacts to native wildlife nursery sites to a less than significant level under CEQA and NEPA and will ensure compliance with state and federal laws protecting this habitat.

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

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

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. The project is not located within the boundaries of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or state habitat conservation plan. There would be no impact and mitigation measures are not warranted.

4.4.4 Mitigation

General Project-Related Impacts:

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

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

(i) Vehicles will observe a 15-mph speed limit while on unpaved access routes.

(ii) Workers will inspect areas beneath parked vehicles, equipment, and materials prior to mobilization. If special status species are detected, the individual will either be allowed to leave of its own volition or will be captured by the qualified biologist (must possess appropriate collecting/handling permits) and relocated out of harm's way to the nearest suitable habitat beyond the influence of the Project work area. "Take" of a state or federal special status (rare, California Species of Special Concern, threatened, or endangered) species is prohibited.

Northern California Legless Lizard

BIO-3 **(*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. Lizards that are detected will be allowed to leave the work area of their own volition or will be moved out of harm's way by a qualified biologist to suitable habitat at least 50 feet away from the Project work site.

Maternity Roosting Bats and Special Status Bats, Including the Pallid Bat

BIO-4 ***(Avoidance*):** Project activities should not occur during the maternity roosting bat season (March 1 through August 31). Project activities will not occur during the pallid bat

overwintering season (December 1 through February 28). Project activities should occur, if feasible, between September 1 and November 30 (outside of the maternity roost and overwintering seasons).

BIO-5 (*Pre-Construction Survey*): If Project activities must occur within the maternity roosting bat season (March 1 to August 31), a pre-construction survey should be performed within five days of construction. A qualified biologist will inspect the trees for active roosts and if the trees are determined to be clear of bats, construction and tree removal can begin.

BIO-6 (*Avoidance Buffers*): On discovery of any active maternity roosts in the Project sites, a qualified biologist should determine appropriate construction setback distances (avoidance buffers) based on the biology of the species, conditions of the maternity roost(s), and the level of Project disturbance. Buffers will be removed once a qualified biologist has determined the maternity bat roosts are no longer occupied.

San Joaquin Kit Fox

BIO-7 (*Pre-Construction Survey*): Within seven (7) days prior to the start of construction a pre-construction survey for San Joaquin Kit Fox (SJKF) will be conducted on and within 200 feet of proposed work areas.

BIO-8 (*Establish Buffers*): On discovery of any SJKF dens near the Project area, a qualified biologist will determine appropriate construction setback distances (avoidance buffers) based on applicable CDFW and/or USFWS guidelines (see below). If needed, construction buffers will be identified with flagging, fencing, or other easily visible means. They will be maintained until the biologist has determined that the den will no longer be impacted by construction.

1. At least 100 feet around den(s);

2. At least 200 feet around natal dens (which SJKF young are reared); and

3. At least 500 feet around any natal dens with pups (except for any portions of the buffer zone that is already fully developed).

BIO-9 (*Avoidance and Minimization*): The Project will observe all avoidance and minimization measures during construction and on-going operational activities as required by the qualified biologist and the USFWS's *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance* (2011), including, but not limited to: maintaining buffer zones, construction speed limits, covering of pipes, installation of escape structures, restriction of herbicide and rodenticide use, proper disposal of food items and trash, prohibition of pets and firearms, and completion of an employee education program (see BIO-1a).

Nesting Migratory Raptors and Birds, Including Swainson's Hawks and Tricolored Blackbird

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

BIO-11 (*Pre-construction Surveys*): If activities must occur within the nesting bird season (February 1 to September 15), a qualified biologist will conduct a pre-construction survey for active nests within five (5) calendar days prior to the start of construction. The qualified biologist will survey Swainson's hawk nests onsite and within a 0.5-mile radius for both sites. This one-time take avoidance survey will be conducted in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*,[12] or current guidance. The qualified biologist will survey for tricolored blackbird nests onsite and within a 300-foot radius at the St. Johns River site. This one-time take avoidance survey will be conducted in accordance with the *Staff Guidance Regarding Avoidance of Impacts to Tricolored Blackbird Breeding Colonies on Agricultural Fields*,[13] or current guidance. The pre-construction survey would also provide a presence/ absence survey for all other nesting birds within both Project sites, and up to 100 feet outside of the Project sites for nesting migratory birds and up to 500 feet outside of the Project sites for nesting raptors. All raptor nests would be considered "active" upon the nest-building stage. If no active nests are observed, no further mitigation is required.

BIO-12 (*Avoidance Buffers*): On discovery of any active nests or breeding colonies near work areas, a qualified biologist will determine appropriate avoidance buffer distances based on applicable CDFW and/or USFWS guidelines, the biology of the species, conditions of the nest(s), and the level of Project disturbance. If necessary, avoidance buffers will be identified with flagging, fencing, or other easily visible means, and will be maintained until the biologist has determined that the nestlings have fledged.

Western Pond Turtles

BIO-13 (*Pre-construction Survey and Avoidance Buffers*): Within seven (7) days prior to the start of construction, a qualified biologist will conduct a pre-construction survey for western pond turtle within the Project sites and surrounding areas up to 330 feet from each Project site. Pre-construction surveys will be conducted in accordance with the draft *Western Pond Turtle (Emys marmorata) Visual Survey Protocol for the Southcoast Ecoregion*.[14] 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 seven (7) days, another pre-construction survey for western pond turtle will be conducted. If the surveys result in the identification of a western pond turtle or an individual is found on the site during construction activities, it will be allowed to leave the site on its own and the qualified biologist will determine appropriate buffers to be implemented to avoid impacts to the individual(s).

BIO-14 (*Monitor*): If western pond turtles are observed on a project site, a qualified biologist will conduct a pre-activity clearance survey each day and remain onsite to oversee all vegetation clearing and ground disturbing activities. If they are detected, the individual will either be allowed to leave of its own volition or will be captured by the qualified biologist (must possess appropriate collecting/handling permits) and relocated out of harm's way to the nearest suitable habitat beyond the influence of the Project work area.

[12] (Swainson's Hawk Technical Advisory Committee 2000)
[13] (California Department of Fish and Wildlife 2015)
[14] (United States Geological Survey 2006)

Special Status Plant Species

BIO-15 (*Focused Botanical Surveys*): A qualified botanist/biologist will conduct focused botanical surveys during the appropriate blooming seasons for California satintail, Sanford's arrowhead, and spiny-sepaled button-celery, according to CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*[15] for areas where ground disturbance will occur and prior to the start of Project activities. If possible, reference sites for these plants will be visited prior to completing surveys within the Project site.

BIO-16 (*Avoidance*): If California satintail, Sanford's arrowhead, or spiny-sepaled button-celery are identified during the focused botanical surveys, an avoidance buffer and, if necessary, use of exclusion fencing, will be placed around the area as to not disturb the plants or its root system.

BIO-17 (*Formal Consultation*): If California satintail, Sanford's arrowhead, or spiny-sepaled button-celery are detected within the Project work sites during the focused botanical surveys, and the plants cannot be avoided, the Project proponent will consult with CNPS, CDFW, and/or USFWS to determine next steps for relocation.

Regulated Waters, Wetlands, and Water Quality

BIO-18 (*Aquatic Resources Delineation*): If USACE determines that waters of the United States will be impacted as a result of Project activities, then an Aquatic Resource Delineation (ARD) will be performed to determine the extent of the rivers and riparian habitats on the Project sites. The ARD will be conducted in accordance with the USACE's Wetland Delineation Manual (1987) and Arid West Regional Supplement (1987), and the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (State Water Resources Control Board 2021).

BIO-19 (*Permits*): Permits with USACE, RWQCB, CVFPB, and CDFW will be obtained if required. These permits, certifications, and agreements would ensure there are no indirect downstream effects to jurisdictional waters.

BIO-20 (*Storm Water Pollution Prevention Plan*): 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 to ensure construction activities do not adversely affect water quality. This plan will be prepared in support of the Construction General Permit application..

Wildlife Movement Corridors and Native Wildlife Nursery Sites

BIO-21 (*Operational Hours*): Construction activities would be limited to a half hour after sunrise through a half hour before sunset to reduce potential impacts to wildlife movement corridors.

[15] (California Department of Fish and Wildlife (CDFW) 2018)

BIO-22 (*Wildlife Access*): Access will not be blocked outside of construction hours or during overnight hours or weekends. If construction must block both sides of a wildlife access route, an alternative route through the construction area should be identified by a qualified biologist and maintained throughout the construction schedule timeframe.

BIO-23 (*Cover Excavations*): Pipeline/culvert/siphon excavations and vertical pipes will 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 4-12: Cultural Resources Impacts

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

4.5.1 Baseline Conditions

Many of the historic resources in Tulare County, which date back to the days of its founding in the late 1800s. Throughout the County, historic era buildings reflect its changing role through time as a center of agriculture and commercial activities.

The general vicinity of the Project APE has a very low potential for buried archaeological deposits. Additionally, the Project APE consists of water conveyance features. The APE for the St. John's River siphon site is approximately 2.9 acres (ac.), and the Kaweah River siphon site is approximately 3.4 ac.; the surrounding area at both sites has been heavily disturbed from agricultural use as far back as 1927. Buried sites and cultural resources are therefore considered unlikely within the Project APE. (Appendix C)

Records Search

A records search from the Southern San Joaquin Valley Information Center (SSJVIC) of the California Historical Resources Information System (CHRIS), located at California State University, Bakersfield was conducted in July 2023. The SSJVIC 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 listings were reviewed for the above referenced APE and an additional ¼-mile radius. Due to the sensitive nature of cultural resources, archaeological site locations are not released. (Appendix C).

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

Native American Outreach

The Native American Heritage Commission (NAHC) in Sacramento was contacted in July 2023. They were provided with a brief description of the Project and a map showing its location and requested a search of the Sacred Lands File 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, among many other powers and duties. NAHC provide a current list of Native American Tribal contacts to notify of the Project.

The following is a list of the tribal representatives that were notified of the Project:

1. Big Sandy Rancheria of Western Mono Indians, Elizabeth D. Kipp, Chairperson
2. Big Sandy Rancheria of Western Mono Indians, Joel Marvin, Vice Chairperson
3. Big Sandy Rancheria of Western Mono Indians, Tom Zizzo, Tribal Administrator
4. North Fork Mono Tribe, Ron Goode, Chairperson
5. North Fork Mono Tribe, Jesse Valdez, Council Member - Archaeological Director
6. North Fork Mono Tribe, Anna Phipps, Tribal Secretary
7. Santa Rosa Rancheria Tachi Yokut Tribe, Leo Sisco, Chairperson
8. Tule River Indian Tribe, Neil Peyron, Chairperson
9. Tule River Indian Tribe, Kerri Vera, Environmental Department
10. Wuksache Indian Tribe/Eshom Valley Band, Kenneth Woodrow, Chairperson

The 10 tribal representatives identified by NAHC, listed above, were contacted in writing via United States Postal Service in a letter dated August of 2023, informing each Tribal contact of the Project. Follow-up emails were sent on August 15, 2023. No responses were received to date.

Phase 1 Cultural Resources Pedestrian Survey

A Class III inventory/Phase I survey fieldwork of the Project APE was conducted in July 2023 with parallel transects at 15 meters (m.) intervals. The survey included a review of the Project APE for the presence of built environment features. The field methods employed also included intensive pedestrian examination of the ground surface for evidence of archaeological sites in the form of artifacts, surface features (such as bedrock mortars, historical mining equipment), and archaeological indicators (e.g., organically enriched midden soil, burnt animal bone); the identification and location of any discovered sites, should they be present; tabulation and recording of surface diagnostic artifacts; site sketch mapping; preliminary evaluation of site integrity; and site recording, following the California Office of Historic Preservation (OHP) Instructions for Recording Historic Resources using California Department of Parks and Recreation (DPR) series 523 forms. Parallel survey transects spaced at maximum intervals of 15 m. apart were employed for pedestrian survey of the 6.3 ac. Project APE.

Two segments of P-54-005296 (TID Main Canal) were identified and recorded. Additional built environment resources were identified and recorded within the APE, including the St. Johns River siphon and the Kaweah River siphon, service roads in both APEs, a concrete walkway, and an additional debris-catching structure at the St. Johns Siphon APE, a water measuring structure along the Kaweah River, and power line poles within the Kaweah River APE. An evaluation of the TID Main Canal, the St. Johns River siphon and the Kaweah River siphon, the concrete walkway along the St. Johns Siphon APE area, and a water measuring structure along the Kaweah River is provided below. The service roads within both APEs appear from historic aerials to be constructed between 1984 and 1994. The power line poles within the Kaweah River section of the APE appear from historic aerials to be constructed between 1984 and 1994. As such, these resources have not reached the appropriate age threshold for evaluation. Additionally, research has not revealed that these resources have achieved significance or exceptional importance within the last 50 years. Therefore, they have not been formally evaluated.

No additional built environment resources and no archaeological resources were identified within the APE. (Appendix C)

The proposed Project APE consists of water conveyance features and agricultural fields adjacent to unpaved and paved roads. The APE is bounded by agricultural fields, orchards, and residential and agricultural structures. Much of the Project APE appears to have been disturbed to create an access road for the TID (see Figure 9 of Appendix C). Due to the previous disturbances, ground surface visibility within the APE was excellent (greater than 95 percent) in the access road and poor (approximately 15 percent) outside the access road for the Class III inventory/Phase I survey. Soils consisted of tan to brown sandy loam throughout the Project APE. Leaf litter and non-native vegetation inhibited visibility. Modern refuse including plastic buckets, Styrofoam coolers, large concrete pipe, and a car bumper were observed. (Appendix C)

No archaeological resources of any kind were identified within the Project APE.

4.5.2 Impact Analysis

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

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

Less than Significant Impact with Mitigation Incorporated. A CHRIS records search, from the SSJVIC, was conducted in July 2023. According to the SSJVIC, a single previous study (TU-00134) has been conducted within the Project APE, and a single previous study (TU-01395) was identified within the 0.5 mi. buffer (Table 1). The SSJVIC results identified a single built environment resource within the APE, consisting of the Tulare Irrigation District Canal (P-54-005296). An additional built environment resource (P-54-004626) and California Historical Landmark 410 were identified within the 0.5 mi. buffer, with the nearest located approximately 0.2 mi. from the Project APE (Appendix C).

The proposed Project will result in the retention of the 1950s siphons as secondary structures to the two new siphons to safeguard the water supply through the TID MIC (P-54-005296). However, construction of the new siphons would require widening short segments of the MIC and extending the head walls of the intake and outtake structures of the extant St. Johns River Siphon and Kaweah River Siphon to construct two new siphons. As such, the Project will result in some physical effects to the TID MIC (P-54-005296), limited to the small segments to be widened. The Secretary of the Interior's Standards for the Treatment of Historic Properties for Rehabilitation allows for reasonable change to a historic property, including related new construction and changes to the setting, provided that change does not destroy character-defining features unnecessarily or impair a historic property's ability to convey its significance. Thus, the following is an analysis of the proposed Project for compliance with the Standards for Rehabilitation.

Per the Standards for Rehabilitation, the TID MIC would continue to irrigate agricultural lands it has historically served. The historic character of the TID MIC would be preserved because the majority of extant materials, features, and spatial relationships that characterize the linear resource would be retained. Only a small amount of the historic materials will be impacted, which will result in an almost immeasurable percent of change to the entire TID MIC. The spatial relationship between the TID MIC and its setting would remain unchanged. The new siphons would be differentiated from the historic features of the canal, but still visually compatible in terms of materials, features, size, scale, and proportion. Additionally, views of the setting from the APE, including the canal, will remain the same. After

completion of the project, the TID MIC will remain eligible for the NRHP and CRHR. Therefore, it is recommended that the Project would not result in an adverse effect to historic properties under Section 106 of the Historic Preservation Act and a less-than-significant impact to a historical resource pursuant to CEQA.

Implementation of mitigation measure **CULT-1** outlined below, would reduce 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. The Project would consist of the construction of two reinforced concrete pipe or box siphons, each connecting to the MIC. There is no evidence or record that the Project has the potential to be an unknown burial site, or the site of buried human remains. In the unlikely event of such a discovery, mitigation shall be implemented. With the incorporation of mitigation measure **CUL-2** outlined below, impacts resulting from the unlikely discovery of remains interred on the Project site would be less than significant.

4.5.3 Federal Cross-Cutting Topic

National Historic Preservation Act

The National Historic Preservation Act of 1966 as amended created the National Register of Historic Places and extended protection to historic places of State, local, and national significance. It established the Advisory Council on Historic Preservation, State Historic Preservation Officer (SHPO), Tribal Preservation Officers, and a preservation grants-in-aid program. Section 106 directs federal agencies to take into account effects of their actions ("undertakings") on properties in or eligible for the National Register. Section 106 of the act is implemented by regulations of the Advisory Council on Historic Preservation (36 Code of Federal Regulations [CFR] Part 800).

The U.S. Department of the Interior criteria and procedures for evaluating a property's eligibility for inclusion in the National Register are at 36 CFR Part 60. The 36 CFR Part 800 regulations, implementing Section 106, call for consultation with the SHPO, Native American tribes, and interested members of the public throughout the Section 106 compliance process. The four principal steps are to:

- Initiate the Section 106 process (36 CFR Part 800.3);
- Identify historic properties, cultural resources that are eligible for inclusion in the National Register of Historic Places (36 CFR Part 800.4);
- Assess the effects of the undertaking to historic properties within the area of potential effect (36 CFR Part 800.5); and
- Resolve adverse effects (36 CFR Part 800.6).

Adverse effects on historic properties often are resolved through the preparation of a Memorandum of Agreement (MOA), developed in consultation with Reclamation, the SHPO, Native American tribes, the Advisory Council on Historic Preservation, and interested members of the public. The MOA stipulates procedures that treat historic properties to mitigate adverse effects (36 CFR Part 800.14[b]).

As a result of the physical effects and impacts to the segments of the MIC from the Project, it is recommended that a finding of ***no adverse effect*** under Section 106 of the NHPA and ***less-than-significant impact*** under CEQA. (Appendix C)

4.5.4 Mitigation

CUL-1 (Archaeological Remains) Should archeological remains or artifacts be unearthed during any stage of Project activities, work in the area of the discovery shall cease until the area is evaluated by a qualified archaeologist. If mitigation is warranted, the Project proponent shall abide by the recommendations of the archaeologist.

CUL-2 (Human Remains) In the event that human remains are discovered on the Project site, the Tulare County Coroner must be notified of that discovery (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 shall 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 4-13: Energy Impacts

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

4.6.1 Baseline Conditions

The proposed Project would be located within rural Tulare County, northeast of the City of Visalia. The Project area is served by Southern California Edison for its energy needs, while Southern California Gas Company is the natural gas provider for the area.

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. Fuel consumed by construction equipment would be the primary energy resource expended over the course of Project construction. For heavy-duty construction equipment, horsepower and load factor were assumed using default data from the CalEEMod model. Fuel use associated with construction vehicle trips generated by the Project was also estimated; trips include construction worker trips, haul trucks trips for material transport, and vendor trips for construction material deliveries. Fuel use from these vehicles traveling to the Project was based on (1) the projected number of trips the Project would generate (CalEEMod default values), (2) default average trip distance by land use in CalEEMod, and (3) fuel efficiencies estimated in the ARB 2017 Emissions Factors model (EMFAC2017) mobile source emission model.

Construction is estimated to consume a total of 14,620.01 gallons of diesel fuel and 981.31 gallons of gasoline fuel (See Appendix A). California Code of Regulations Title 13, Motor Vehicles, Section 2449(d)(2), Idling, limits idling times of construction vehicles to no more than 5 minutes, thereby precluding unnecessary and wasteful consumption of fuel because of unproductive idling of construction equipment. In addition, the energy consumption for construction activities would not be ongoing as they would be limited to the duration of Project construction.

Energy consumption of non-residential uses is currently governed by the 2022 California Building Code, Part 6 for structures, and Title 20 of the California Code of Regulations for appliances. Energy consumption is anticipated to decrease over time as more energy efficient standards take effect and energy-consuming equipment reaches its end-of-life and necessitates replacement. Therefore, impacts would be less than significant.

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

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

4.7 GEOLOGY AND SOILS

Table 4-14: Geology and Soils Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994) creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☐	☐	☒

4.7.1 Baseline Conditions

Geology and Soils

The Project is located in the western Tulare County, in the southern section of California's Great Valley Geomorphic Province, or Central Valley. The Sacramento Valley makes up the northern third and the San Joaquin Valley makes up the southern two-thirds of the geomorphic province. Both valleys are watered by large rivers flowing west from the Sierra Nevada Range, with smaller tributaries flowing east from the Coast Ranges. Most of the surface of the Great Valley is covered by Quaternary (present day to 1.6 million years ago) alluvium. The sedimentary formations are steeply upturned along the western margin due to the uplifted Sierra Nevada Range. From the time the Valley first began to form, sediments derived from erosion

of igneous and metamorphic rocks and consolidated marine sediments in the surrounding mountains have been transported into the Valley by streams.

Faults and Seismicity

The Project sites are not located within an Alquist-Priolo Earthquake Fault Zone and no known faults cut through the soil at the site.[16] The nearest major fault is the San Andreas Fault, located approximately 76 miles southwest of the Project sites. 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.

Liquefaction

The potential for liquefaction, which is the loss of soil strength due to seismic forces, is dependent on soil types and density, the groundwater table, and the duration and intensity of ground shaking. Although no specific liquefaction hazard areas have been identified in the County, this potential is recognized throughout the San Joaquin Valley where unconsolidated sediments and a high-water table coincide. It is reasonable to assume that due to the depth to groundwater within the southern portion of Tulare County, liquefaction hazards would be negligible. Soil conditions are key factors in selecting locations for direct groundwater recharge projects.

Soil Subsidence

Subsidence occurs when a large land area settles due to over-saturation or extensive withdrawal of ground water, oil, or natural gas. These areas are typically composed of open-textured soils that become saturated, high in silt or clay content.

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?

a-i and a-ii) Less than Significant Impact. The Project sites are not located within an Alquist-Priolo Earthquake Fault Zone and no known faults cut through the soil at the site. The nearest major fault is the San Andreas Fault, located over 60 miles southwest of the Project sites. 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 Pond Fault, is approximately 35 miles southeast of the site. The Project does not include habitable residential, agricultural, commercial, or industrial structures. Operation of the Project would require infrequent, routine maintenance by current District employees. Any impact would be less than significant.

[16] (California Department of Conservation 2023)

The Project sites are located in an area traditionally characterized by relatively low seismic activity. The Project sites are not located in an Alquist-Priolo Earthquake Fault Zone as established by the Alquist-Priolo Fault Zoning Act (Section 2622 of Chapter 7.5, Division 2 of the California Public Resources Code.

iii. Seismic-related ground failure, including liquefaction?

Less than Significant Impact. Liquefaction occurs when loose, water-saturated sediments lose strength and fail during strong ground shaking. Generally, liquefiable areas are generally confined to the Valley floor covered by Quaternary-age alluvial deposits, Holocene soil deposits, current river channels, and active wash deposits and their historic floodplains, marshes, and dry lakes. Specific liquefaction hazard areas have not been identified in Tulare County. The Project sites are not located within a wetland area, and it is located in the southwestern portion of the County where liquefaction risk is considered low to moderate. The impact would be less than significant.

iv. Landslides?

No Impact. The Project is located on the Valley floor where no major geologic landforms exist on or near the site that could result in a landslide event. The potential landslide impact at this location is minimal as the sites are more than five miles from the foothills and the local topography is essentially flat and level. There will be no impact.

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

Less than Significant Impact. Earthmoving activities associated with the Project would include excavation and siphon construction. These activities could expose soils to erosion processes and the extent of erosion would vary depending on slope steepness/stability, vegetation/cover, concentration of runoff, and weather conditions. Dischargers whose projects disturb one (1) or more acres of soil, or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling or excavation but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development of a SWPPP by a certified Qualified SWPPP Developer. The impact would be less than significant.

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less than Significant Impact. Most of the Project site and the surrounding area do not have any substantial grade changes to the point where the proposed siphons would expose people or structures to potential substantial adverse effects on- or offsite such as landslides, lateral spreading, subsidence, liquefaction, or collapse. Subsidence and liquefaction risk are low to moderate at the site. 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 soil at the Project sites is predominately Gambogy loam soil (0 to 1 percent slopes). Permeability is moderately slow. The Project will not contain any facilities that could be affected by expansive soils, nor would substantial grading change the topography such that the Project would generate substantial risks to life or property. The Project will be consistent with the California Building Standards Code; 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 sites are located in an area with a significant depth to saturation, consistent with the south side of Tulare County. Septic installation or alternative wastewater disposal systems are not necessary for the Project. There would be no impact.

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

No Impact. There are no known paleontological resources or unique geological features that have been identified at the Project site, at either of the siphon locations. There would be no impact.

4.8 GREENHOUSE GAS EMISSIONS

Table 4-15: Greenhouse Gas Emissions Impacts

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

4.8.1 Baseline Conditions

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

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

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

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

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

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

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

Chlorofluorocarbons (CFCs) are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). CFCs were first synthesized in 1928 for use as

refrigerants, aerosol propellants, and cleaning solvents. CFCs destroy stratospheric ozone; therefore, their production was stopped as required by the Montreal Protocol in 1987.

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

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

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

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

Emissions of GHGs contributing to global climate change are largely attributable to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. About three-quarters of human emissions of CO_2 to the global atmosphere during the past 20 years are due to fossil fuel burning. Atmospheric concentrations of CO_2, CH_4, and N_2O have increased by at least 40 percent, 150 percent, and 20 percent respectively since the year 1750. GHG emissions are typically expressed in carbon dioxide-equivalents (CO_2e), based on the GHG's Global Warming Potential (GWP). The GWP is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, one ton of CH_4 has the same contribution to the greenhouse effect as approximately 25 tons of CO_2. Therefore, CH_4 is a much more potent GHG than CO_2. In accordance with SJVAPCD's *CEQA Greenhouse Gas Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects*[17], proposed projects complying with Best Performance Standards (BPS) would be determined to have a less-than-significant impact. Projects not complying with BPS would be considered less than significant if operational GHG emissions would be reduced or mitigated by a minimum of 29 percent, in comparison to business-as-usual (year 2004) conditions. In addition, project-generated emissions complying with an approved plan or mitigation program would also be determined to have a less-than-significant impact.

4.8.2 Impact Analysis

Project Related Emissions

Short-term construction emissions associated with the Project were calculated using CalEEMod, Version 2020.4.0. The emissions modeling includes emissions generated by off-road equipment, haul trucks, and worker commute trips. Emissions were quantified based on an anticipated construction schedule of approximately eight months. Remaining assumptions were based on the default parameters contained in

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

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

Table 4-16: Short Term Construction Related GHG Emissions

	Emissions (MT CO2e) in Tons per Year
Maximum Annual Construction CO2e Emissions	82.2839
AB 32 Consistency Threshold for Land-Use Development Projects*	1,1OO
AB 32 Consistency Threshold for Stationary Source Projects*	10,000
Threshold Exceeded?	No

* As published in the Bay Area Air Quality Management District's CEQA Air Quality Guidelines. Available online at http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en Accessed 7/25/23.

Construction related generation of GHGs would be a maximum of 82.2839 Metric Tons of Carbon Dioxide Equivalent ($MTCO_2e$) per year, during construction. While some operational emissions could result from the proposed Project, this quantity would be negligible. The Project would not exceed the AB 32 consistency threshold for land use projects for both short term construction emissions and long-term operational emissions as a result.

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

Less than Significant Impact. The Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. As shown in Table 4-16, the Project is not expected to result in the generation of GHG emissions that would exceed the AB 32 consistency threshold of 1,100 $MTCO_2e$ annually during both construction and operational activities. Long term operational activities would result in negligible quantities of GHG emissions being generated due to use of pumps, valves, and associated water conveyance infrastructure. Therefore, impacts would be less than significant.

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

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

4.9 HAZARDS AND HAZARDOUS MATERIALS

Table 4-17: Hazards and Hazardous Materials Impacts

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

4.9.1 Baseline Conditions

Hazardous Materials

The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies, and developers to comply with CEQA requirements in providing information about the location of hazardous materials release sites. Government Code Section 65962.5 requires the California Environmental Protection Agency to develop at least annually an updated Cortese List. The Department of Toxic Substances Control (DTSC) is responsible for a portion of the information contained in the Cortese List. Other State and local government agencies are required to provide additional hazardous material release information for the Cortese List. DTSC's EnviroStor database provides DTSC's component of Cortese List data (DTSC, 2010). In addition to the EnviroStor database, the State Water Resources Control Board

(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 June 30, 2023 determined that there are no known active hazardous waste generators or hazardous material spill sites within the Project sites.

Airports

The Visalia Municipal Airport is located approximately eight miles northeast of the Project sites. The Fresno-Yosemite International Airport is located approximately 40 miles northwest of the Project sites.

Emergency Response Plan

The Tulare County Office of Emergency Services coordinates the development and maintenance of the Tulare County Operational Area Master Emergency Services Plan.

Sensitive Receptors

There are a limited number of rural residential homes in the vicinity; including a home located approximately 600 feet to the south of the St. Johns River site.

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 Impacts. There would be no transport, use, or disposal of hazardous materials associated with Project construction, with the exception of diesel fuel for construction equipment. Any potential accidental hazardous materials spills during Project construction are the responsibility of the contractor to remediate in accordance with industry best management practices and State and county regulations. Any impacts would therefore be less than significant.

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

No Impact. The Project is not located within a quarter-mile of an existing or a proposed school. Therefore, there would be no impact.

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. The California Department of Toxic Substances Control's EnviroStor database tracks cleanup, permitting, enforcement, and investigation efforts at hazardous waste facilities and sites with known contamination. According to the database search, no sites or facilities listed in the database are located within or adjacent to the stormwater capture Project sites. The nearest identified active site is the Washington Elementary School, an inactive, withdrawn site, located approximately 1 mile northeast of

the Project sites (DTSC 2023). The SWRCB's GeoTracker database identifies leaking underground storage tanks, waste discharge sites, oil and gas sites, and other waste or cleanup sites. A review of GeoTracker did not identify any sites or facilities within or adjacent to the Project sites. The nearest identified sites with open-site assessment statuses include the following: Former Bryan Dry Cleaners (ID No. SL204BA2350), a Cleanup Program Site, located approximately 0.4 miles east of the Project sites, and G & M Oil Station (ID No. T0603705453), a Leaking Underground Storage Tank Cleanup Site, located approximately 0.5 miles north of the Project sites (SWRCB 2023). These hazardous materials sites are located at adequate distances from the Project sites such that they would be of no concern to present a worker hazard for construction crews. Therefore, no impact would occur.

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?

No Impact. The Project is not located within an airport land use plan or within two miles of an airport. The Visalia Municipal Airport is the nearest airport located approximately eight miles northeast of the Project site at the St. Johns River. There would be no impact.

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

No Impact. The Project does not involve any physical barriers or interfere any roadways in such a way that would impede emergency or hazards response; therefore, the Project would not interfere with implementation of an emergency response plan or evacuation plan. There would be no impact.

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

Less than Significant Impact. Activities taking place at the Project sites and the surrounding lands consist of operations related to agriculture uses and irrigation. The Project does not include any residential components, nor would it require any employees to be stationed permanently at the site on a daily basis. Any impact would be less than significant.

4.10 HYDROLOGY AND WATER QUALITY

Table 4-18: Hydrology and Water Quality Impacts

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

4.10.1 **Baseline Conditions**

The Project is located within the Greater Kaweah Groundwater Sustainability Agency (GKGSA) service area, which lies within the Kaweah Subbasin of the San Joaquin Valley Basin. The Project is located near the center of the Kaweah Subbasin, to the east of the City of Visalia and the Mid-Kaweah GSA.

In general, groundwater flows across the GKGSA in a southwesterly direction and to local cones of depression during the irrigation season. A single aquifer is present in the eastern half of the Subbasin but is split into two aquifers by the Corcoran Clay in the western half.

Land subsidence has occurred throughout much of the GKGSA area, and the Kaweah Subbasin in general but data are limited in scale and frequency. The largest amounts of subsidence occurred along the western

and southwestern portions of the GKGSA area. Greater amounts of subsidence are believed to have occurred beyond the Kaweah Subbasin to the west and south. Subsidence will occur when groundwater extraction decreases the water pressure in the aquifers (sand and gravel layers) and causes groundwater to flow out of the aquitards (clay layers). The lower water pressure in the clay layers allows the clay layers to compress which results in land subsidence. Sudden and variable land subsidence can damage infrastructure, including roads, bridges, canals, pipelines, and buildings. As much as 10 feet of subsidence has occurred in the northwestern GKGSA area since 1950 and as much as 20 feet in the southwestern GKGSA area.

4.10.2 Impact Analysis

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

Less than Significant Impact. The SWRCB requires that a SWPPP be prepared for projects that disturb one or more acres of soil. A SWPPP involves site planning and scheduling, limiting disturbed soil areas, and determining best management practices to minimize the risk of pollution and sediments being discharged from construction sites. Implementation of the SWPPP would minimize the potential for the Project to substantially alter the existing drainage pattern in a manner that would result in substantial erosion or siltation onsite or offsite.

The intent of the Project is to construct two new siphons along the St. Johns and Kaweah Rivers that will address the structural concerns of the existing siphons and will also enhance the maximum capacity of water delivered through the MIC. The Project would not generate any type of process or wastewater, therefore, would be no discharge of Project water to any surface source. As such, there would be no discharge directly associated with Project implementation that could impact water quality standards. Impacts would be less than significant.

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

Less than Significant Impact. The Project will benefit groundwater storage by securing additional surface water supplies for irrigation in-lieu of pumping of groundwater. The Project will address the structural concerns of the existing siphons and will also enhance the maximum capacity of water delivered through the MIC. As a result, there will be less demand for groundwater. The Project will not interfere substantially with groundwater recharge, nor would the Project interfere substantially with the production rate of pre-existing nearby wells. The 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?

Less than Significant Impact. The Project does not propose significant alteration of the topography of the site. The Project entails constructing and installation of new siphons that would feed water into the MIC to transport surface water throughout the District boundaries. The siphon pipelines will run under the rivers, and this will minimize any impacts to site topography. In order to minimize erosion and run-off during construction activities, a SWPPP could be implemented, and the contractor will comply with all Cal/OSHA regulations regarding regular maintenance and inspection of equipment, spill prevention, and spill remediation in order to reduce the potential for incidental release of pollutants or hazardous substances onsite. Impacts would be less than significant.

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

Less than Significant Impact. The Project is and does not involve any habitable structures or the storing of any pollutants. The Project would not have the potential to release pollutants due to inundations. Any 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. The Project would not conflict or obstruct implementation of a water quality control plan or sustainable groundwater management plan in the Kaweah Subbasin. Furthermore, construction activities could require implementation of a SWPPP and compliance with all Cal/OSHA regulations in order to reduce the potential for incidental release of pollutants or hazardous substances into surface water or groundwater. There would be no impact.

4.10.3 Federal Cross-Cutting Topic

Flood Plain Management- Executive Order Numbers 11988, 12148, and 13690

The Federal Emergency Management Agency (FEMA) designates flood hazard and frequency for cities and counties on its Flood Insurance Rate Maps. The proposed Project area is within a designated 100-year floodplain, on a floodplain map, or otherwise designated by FEMA as shown in Figure 4-3: FEMA Flood Map Figure 4-3. However, the launching and receiving pits that will be excavated for the drilling process will be outside the floodway, once drilling is completed, siphon installation will be beneath ground surface.

Rivers and Harbors Act

The Rivers and Harbors Act of 1899 prohibits construction of any bridge, dam, dike, or causeway over or in navigable waterways of the U.S., without Congressional approval. Under Section 10 of the Act, the building of any wharfs, piers, jetties, and other structures is prohibited without Congressional approval, and excavation or fill within navigable waters requires the approval of the Chief of Engineers. The USACE is authorized to issue permits for the discharge of refuse matter into or affecting navigable waters under Section 13 of the act.

Safe Drinking Water Act, Sole Source Aquifer Protection

The Safe Drinking Water Act (SOWA) required USEPA to establish criteria through which an aquifer may be declared a critical aquifer protection area. Since 1977, it has been used by communities to help prevent contamination of groundwater from federally funded projects. These aquifers are defined as "sole source aquifers." USEPA's Sole Source Aquifer (SSA) Program was established under Section 1424(e) of the SOWA. These are, essentially, aquifers that are the only drinking water supply for the population of a region.

SSA designation protects an area's groundwater resources by requiring USEPA to review all proposed projects within the designated area that will receive federal financial assistance. The SSA Program states that if USEPA determines an area to have an aquifer which is the sole or principal drinking water source for the area, that if contaminated would create a significant hazard to public health, a notice of that determination needs to be published in the Federal Register. After publication of any such notice, no commitment for federal financial aid may be applied for any project that the Administrator determines may contaminate the aquifer through a recharge zone, so as to create a significant hazard to public health (USEPA 2019).

The Project sites are not located within a Sole Source Aquifer area in Region IX.[18]

[18] (US Environmental Protection Agency 2023)

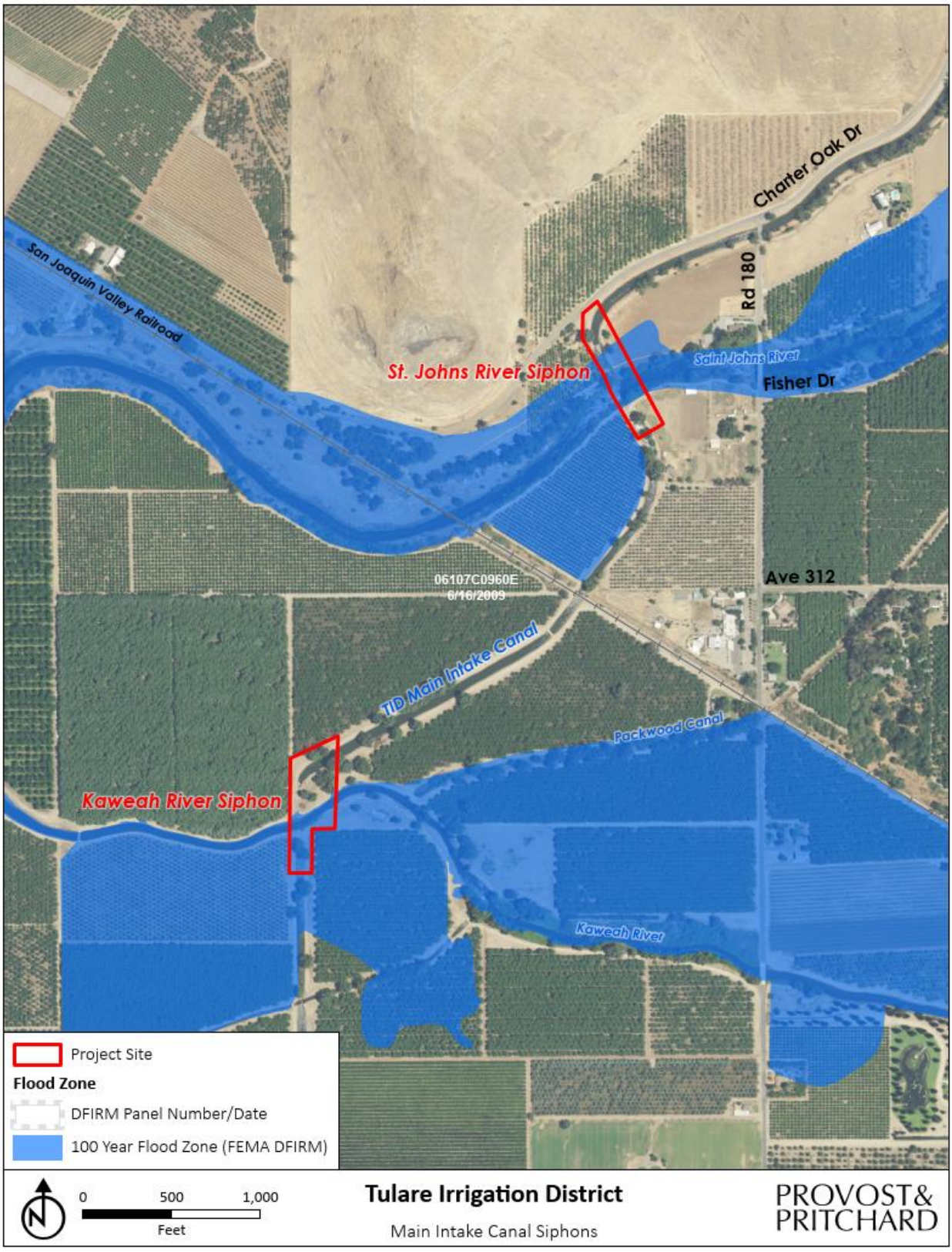


Figure 4-3: FEMA Flood Map

4.11 LAND USE AND PLANNING

Table 4-19: Land Use and Planning Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Physically divide an established community?	☐	☐	☐	☒
g) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

4.11.1 Baseline Conditions

The Project sites are existing waterways within an area designated as Agriculture by the Tulare County General Plan and are within the AE-20 (Exclusive Agriculture) zone district at both Project site locations. Properties directly surrounding the Project sites are currently in use for agriculture as well as ag-related manufacturing. The District is located on the Valley floor east of the Coast Ranges and west of the Sierra Nevada Mountain Range. Both sites are located approximately 2.5-miles north of SR 198. No forest or timber land is present at either the Project site location or in their vicinity.

4.11.2 Impact Analysis

a) Would the project physically divide an established community?

No Impact. As illustrated in Figure 2-4, the Project sites lie within an unincorporated portion of Tulare County and is not situated within an established county community. The Project sites are bordered by agricultural lands. The Project does not include the permanent alteration of roads, trails, or paths that could be considered a connectivity network or that would 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 sites are zoned Exclusive Agricultural. Construction of the Project would not develop new sources of water that would support any new housing or new permanent population growth that would exceed official regional or local population projections in the District service area. Therefore, no impacts to land use are anticipated. Additionally, the construction and operation of the Project is consistent with the land use within the vicinity. Therefore, the Project would not conflict with any applicable plans, policies, or regulations. There would be no impact.

4.11.3 Federal Cross-Cutting Topic

Coastal Zone Management Act

The Coastal Zone Management Act was enacted in 1972. This act, administered by the National Oceanic and Atmospheric Administration, provides management of the nation' s coastal resources. The California coastal zone generally extends 1,000 yards inland from the mean high tide line. The Project sites are more than 100 miles from the coastline. Therefore, the proposed Project would not conflict with the Coastal Zone Management Act.

4.12 MINERAL RESOURCES

Table 4-20: Mineral Resources Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

4.12.1 Baseline Conditions

The bulk of Tulare County's mineral extraction activities focus on aggregate (sand, gravel, and crushed stone), which is primarily used in building materials. Historically, the Kaweah River, Lewis Creek, and the Tule River have provided the main sources of high-quality sand and gravel in Tulare County. The highest quality deposits are located at the Kaweah and Tule Rivers. According to the Tulare County General Plan Background Report, all of the known potential mineral resource locations are mapped within the foothills and/or along major watercourses.[19] Similarly, the only active oil and gas fields are located in the foothills along Deer Creek.

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?

No Impact. The California Geological Survey Division of Mines and Geology has not classified the Project sites as a Mineral Resource Zone under the Surface Mining and Reclamation Act. California's Division of Oil, Gas and Geothermal Resources has no records of active oil or gas wells on the Project sites. No known mineral resources are within the Project area. Additionally, the Tulare County General Plan does not designate the Project sites as mineral resource sites, see Figure 4-4: Mineral Resource Sites Therefore, construction of the Project would not result in the loss of availability of a known mineral resource since no known mineral resources have been identified in this area. There would be no impact.

[19] (Tulare County 2010)

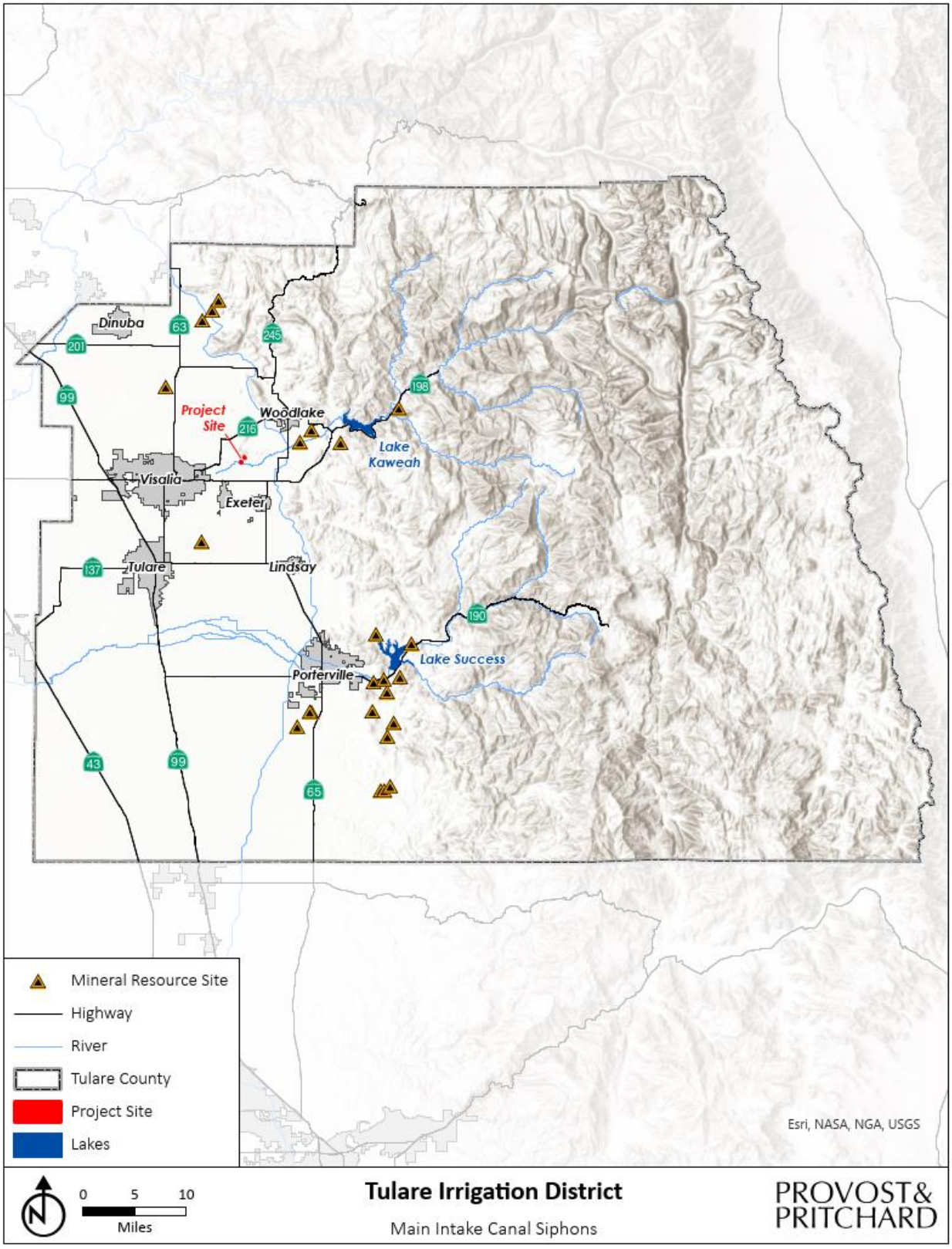


Figure 4-4: Mineral Resource Sites

4.13 NOISE

Table 4-21: Noise Impacts

Would the project result in:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive ground borne vibration or ground borne noise levels?	☐	☐	☒	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

4.13.1 Baseline Conditions

The Project sites and most of the surrounding area is designated as Agriculture by the Tulare County General Plan. Ivanhoe Elementary School, the closest school, is located approximately 3.25 miles northwest of the Project sites. The Project is located in an agricultural area approximately 4 miles northeast of the City of Visalia.

The Project is situated within a region dominated by agricultural uses, operations which may require diesel-powered equipment or other relatively loud machinery. Rural traffic is also a source of noise in the Project's vicinity, with Charter Oak Driver to the north and Road 180 to the east. While much of unincorporated Tulare County is composed of discrete small communities and remote rural residences, major noise generators include SR 216 and SR 245, located approximately 5 miles from the St Johns River Project site, and other highways, airports, and industrial operations. Maximum noise levels generated by farm-related tractors typically range from 77 to 85 dB at a distance of 50 feet from the tractor, depending on the horsepower of the tractor and the operating conditions. Due to the seasonal nature of the agricultural industry, there are often extended periods of time when little to no noise is generated at the Project sites, followed by short-term periods of intensive mechanical equipment usage and corresponding noise generation. The Tulare County General Plan identifies the normally acceptable noise range for agricultural land uses between 50 and 75 dB.

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. Project operation would not generate significant noise; however, Project construction would generate temporary noise from equipment used in the construction of the siphons. Construction equipment could include scrapers, backhoes, and drilling rigs. The Project is located within agricultural lands, which is accustomed to intermittent noise generated by farm equipment and industrial machinery. As construction noise would be temporary, and maintenance would take place as needed, impacts due to noise would be less than significant.

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

Less than Significant Impact. The Project would not generate ground borne vibration or noise greater than existing conditions as it takes place in an area of agricultural operations. Construction would require temporary excavation and grading and Project operations would not involve ground borne vibration or noise. 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?

No Impact. The Project is located within the Tulare County Comprehensive Airport Land Use Plan but is located outside any associated CNEL contours. Therefore, there would be no impact.

4.14 POPULATION AND HOUSING

Table 4-22: Population and Housing Impacts

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

4.14.1 Baseline Conditions

The immediate area surrounding the Project is used for agricultural operations. Properties within the immediate vicinity of the Project sites are designated and zoned for agricultural uses by Tulare County. The closest

According to 2020 Census data, Tulare County's population was 473,117 with an estimated percent change from 2010 to 2020 of 6.9%. As of 2022, there were 154,192 housing units in Tulare County with an average of 3.33 persons per household.

4.14.2 Impact Analysis

a) Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

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

a-b) No Impact. The Project involves the construction and replacement of two siphons along the St. Johns and Kaweah Rivers that facilitate water conveyance throughout TID. The Project is not designed to accommodate population growth directly or indirectly. No housing or habitable structures would be built, nor will any be removed. Implementation of the Project will not result in displacement of people or existing housing. Therefore, there will be no impact.

4.14.3 Federal Cross-Cutting Topic

Environmental Justice Executive Order 12898

Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, was issued in 1994. The EO directs federal agencies to identify and address the

disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law.

USEPA has developed a mapping and screening tool called EJSCREEN that uses nationally consistent data to identify minority or low-income communities. According to EJSCREEN, the proposed Project sites are not in the environmental justice community (USEPA 2015). In addition, the purpose of the Project would be to supply clean, reliable water to residents of the District. Because the proposed Project would directly benefit the local community only, no disproportional health of environmental effect would be imposed on minority or low-income populations. The proposed Project would not conflict with the purpose and objectives of EO 12898.

4.15 PUBLIC SERVICES

Table 4-23: Public Services

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

4.15.1 Baseline Conditions

Fire Protection: The Project area would be served by the Tulare County Fire Department. The closest fire station is Tulare County Fire Station 8, approximately 3.5 miles northwest of the Project in the community of Ivanhoe.

Police Protection: The Tulare County Sheriff's Department provides law enforcement protection services to the unincorporated County. The closest station is located in the City of Visalia approximately 10 miles southwest of the Project.

Schools: Public school services in the Project vicinity are provided by Exter Unified School District. Ivanhoe Elementary School, the closest school to the Project sites, is located approximately 3.25 miles northwest of the St Johns River site.

Parks: The Tulare County Resource Management Agency, Parks and Recreation Branch maintains and develops regional parks and landscaped areas. The Tulare County park closest to the Project sites is Cutler Park, approximately 3.1 miles to the west of the Kaweah River site.

Landfills: The nearest landfill to the Project sites is the Resource Management Agency-Visalia Landfill, located approximately 12 miles to the northeast.

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-v) No Impacts. The Project would not require new or altered governmental facilities in order to maintain acceptable service ratios, response times, or other performance objectives for public services. The Project involves the construction of two replacement siphons along the St. Johns and Kaweah Rivers and therefore would have no impact on the listed public services.

4.16 RECREATION

Table 4-24: Recreation Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

4.16.1 Baseline Conditions

Tulare County has several regional parks, as well as State and national parks, national forest, wilderness areas, and ecological reserves. There are 13 parks and recreation facilities that are owned and operated by Tulare County. The Tulare County Resource Management Agency, Parks and Recreation Branch maintains and develops regional parks and landscaped areas. Colonel Allensworth State Historic Park is the only State Park in Tulare County. Mountain Home State Forest, a State Forest managed by the California Department of Forestry and Fire Protection, is situated just east of Porterville, and contains numerous Giant Sequoias. Lake Kaweah and Lake Success are federal recreation areas within Tulare County, operated by the USACE. The majority of the recreational opportunities within Tulare County are found within Sequoia National Forest, Giant Sequoia National Monument, and in Sequoia and Kings Canyon National Parks.

Federal lands, such as wilderness, national forests, monuments, and parks occupy 52.2 percent of land area within Tulare County. Agricultural uses encompass 43 percent of the County's land. The remainder comprises miscellaneous uses, such as County parks, urban uses in cities, unincorporated communities, and hamlets, and infrastructure rights-of-way. The Tulare County General Plan sets forth guidelines in order to maintain an overall standard of five or more acres of public County parkland per 1,000 population in unincorporated areas, regional parks at one-acre per 1,000 population, neighborhood parks at three to six acres per 1,000 population, and community parks at one to two acres per 1,000 population.[20]

The closest recreational area to the Project sites is Kaweah Oaks Preserve, located approximately 1.7 miles to the south.

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?

[20] (Tulare County 2012)

No Impact. The proposed Project does not propose any residential development or job-creating commercial or industrial development and therefore is not expected to generate an increase in the demand for recreational facilities or put a strain on the existing recreational facilities in or around the area. Even though the Project occurs at two waterways that there is no public access in the area. Therefore, no impacts would occur.

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

No Impact. The Project does not include recreational facilities, nor the construction or expansion of any recreational facilities. There is no housing or population growth associated with the Project that could result in accelerated substantial physical deterioration of any such facilities. There would be no impact.

4.17 TRANSPORTATION

Table 4-25: Transportation Impacts

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

4.17.1 Baseline Conditions

The Project sites are surrounded by agricultural farmland plots on all sides. There are no State or interstate highways in the immediate vicinity. The Visalia Municipal Airport is located approximately 12.8 miles southwest of the Project sites and the Fresno Yosemite International Airport is located approximately 41 miles northwest of the Project sites. The St Johns River siphon site is currently accessed by Charter Oak Drive to the north, while the Kaweah River siphon site is accessed by Road 180 to the east of the site.

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?

No Impact. The Project would consist of the construction of two new siphons each connecting to TID's Main Intake Canal located along the St. Johns River and Kaweah River respectively. No additional roads would be constructed as a result of the Project. The Project would not affect a plan, ordinance, or policy addressing the circulation system, therefore it would not conflict with a plan, ordinance, or policy addressing the circulation system. There would be no impact.

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

Less than Significant Impact. Construction traffic associated with the Project would be temporary for excavation of soil, grading, site preparation, and construction of the siphons. Operational traffic would consist of as-needed maintenance trips. Due to the nature of the Project, the Project would not significantly conflict or be inconsistent with CEQA Guidelines section 15064.3 subdivision (b). 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 does not involve geometric roadway features or propose incompatible uses. No additional roads would be constructed as a result of the Project. There would be no impact.

d) Would the project result in inadequate emergency access?

No Impact. The Project does not propose new roadway design features or permanent alterations to roadways that would affect existing emergency access. Road closures and detours are not anticipated as part of the construction phase of the Project. The operational phase of the Project would have no effect on roadways or emergency access. Therefore, overall, there would be no potential Project-related impacts to emergency access on local roadways and would be considered to have no impact.

4.18 TRIBAL CULTURAL RESOURCES

Table 4-26: Tribal Cultural Resources Impacts

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

4.18.1 Baseline Conditions

Penutian-speaking Yokuts tribal groups occupied the southern San Joaquin Valley region and much of the nearby Sierra Nevada. For a variety of historical reasons, existing research information emphasizes the central Yokuts tribes who occupied both the valley and particularly the foothills of the Sierra. The northernmost tribes suffered from the influx of Euro-Americans during the Gold Rush and their populations were in substantial decline by the time ethnographic studies began in the early twentieth century. In contrast, the southernmost tribes were partially removed by the Spanish to missions and eventually absorbed into multi-tribal communities on the Sebastian Indian Reservation (on Tejon Ranch), and later the Tule River Reservation and Santa Rosa Rancheria to the north. The result is an unfortunate scarcity of ethnographic detail on southern Valley tribes, especially in relation to the rich information collected from the central foothills tribes where native speakers of the Yokuts dialects are still found. Regardless, the general details of indigenous life-ways were similar across the broad expanse of Yokuts territory, particularly in terms of environmentally influenced subsistence and adaptation and with regard to religion and belief, which were similar everywhere.

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

PRC 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.

Native American Outreach

The NAHC in Sacramento was contacted in July 2023. 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 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, among many other powers and duties. NAHC provide a current list of Native American Tribal contacts to notify of the project. The results of the Sacred Lands File Search were negative for the presence of tribal cultural resources. The 10 tribal representatives identified by NAHC were contacted in writing via United States Postal Service in a letter mailed in August 2023, informing each Tribe of the Project. A list of tribes contacted can be found above in Section 4.5

Phase 1 Cultural Resources Survey

To ensure the protection of all tribal cultural resources, an intensive Class III inventory/Phase I survey of the TID MIC Project APE was conducted by ASM Archaeologist in August 2023, to identify any resources within the Project APE. The Class III inventory/Phase I survey included a review of the Project APE for the presence of built environment features. The field methods employed also included intensive pedestrian examination of the ground surface for evidence of archaeological sites in the form of artifacts, surface features (such as bedrock mortars, historical mining equipment), and archaeological indicators (e.g., organically enriched midden soil, burnt animal bone); the identification and location of any discovered sites, should they be present; tabulation and recording of surface diagnostic artifacts; site sketch mapping; preliminary evaluation of site integrity; and site recording, following the California Office of Historic Preservation (OHP) Instructions for Recording Historic Resources using California Department of Parks and Recreation (DPR) series 523 forms. Parallel survey transects spaced at maximum intervals of 15 meters (m.) apart were employed for pedestrian survey of the 6.3 ac. Project APE. (Appendix C)

4.18.2 Impact Assessment

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

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

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Less than Significant Impact with Mitigation Incorporated. The District, as a public lead agency, has not received any formal requests for notification from any State tribes, pursuant to AB 52.

As stated above in **Section 4.5**, the NAHC SLF results indicated that there are no known tribal cultural resources or sacred sites located within or near the Project. Outreach letters and follow-up emails were sent to tribal organizations using the NAHC list to further identify Native American interests and concerns in the Project area. A response was received from the Santa Rosa Rancheria Tachi-Yokut Tribe stating that due to tribal knowledge and history in the vicinity of the Project, they are requesting a Cultural Awareness Training take place prior to any ground disturbing activities. No other responses were received from any other tribes.

Despite the District not having an AB52 letter on file, the District received email correspondence from the Santa Rosa Rancheria Tachi-Yokut Tribe during general tribal outreach efforts. The Tribe requested that a Cultural Awareness Training be presented to all construction staff prior to ground disturbing activities. With the implementation of mitigation measures **CUL-1** and **CUL-2** above in **Section 4.5**, and the implementation of mitigation measure **TCR-1** outlined below, any impacts to Tribal Cultural Resources would be less than significant.

4.18.3 Mitigation

TCR-1 (Cultural Awareness Training): Prior to construction or any ground disturbing activities, a Cultural Awareness Training Program shall be provided to all construction managers and construction personnel prior to commencing ground disturbance work at the Project site. The training shall be prepared and conducted by a qualified archaeologist to the satisfaction of the District. The training shall be a length of time adequate to explain applicable statues, regulations, enforcement provisions; the prehistoric and historic environmental setting and context, local tribal groups; show sample artifacts; and what prehistoric and historic archaeological deposits look like at the surface and when exposed during construction. The training may be discontinued to new workers to the site when ground disturbance is completed. Construction personnel shall not be permitted to operate equipment within the construction area unless they have attended the training. A list of the names of all personnel who attended the training, and copies of the signed acknowledgement forms shall be submitted to the District for their review and approval.

4.19 UTILITIES AND SERVICE SYSTEMS

Table 4-27: Utilities and Service Systems Impacts

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

4.19.1 Baseline Conditions

Water Supply

The Proposed Project is located within the Kaweah Sub-basin of the San Joaquin Valley Groundwater Basin, as defined by the California Department of Water Resources Groundwater Bulletin 118. Declines in groundwater basin storage and groundwater overdraft are recurring problems in Tulare County. Measures for ensuring the continued availability of groundwater for municipal needs have been identified and planned in several areas of the county. The measures include groundwater conservation and recharge and supplementing or replacing groundwater sources for irrigation with surface water.

Wastewater Collection and Treatment

The Farmersville Wastewater Treatment Plant is located 25 acres southwest of the City's urban development area. This is the closest wastewater facility to the Project sites, located approximately 5.3 miles southwest of the site. However, no wastewater would be generated during Project construction or operation.

Landfills

The closest landfill to the Project sites is The Tulare Resource Management Agency-Visalia Landfill which is approximately 11.7 miles northwest of the Project sites; however, no significant solid waste would be generated during Project construction or operation.

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 entails the construction and maintenance of two new siphons for TID's Main Intake Canal to deliver surface water into the District's boundaries. The Project will not generate wastewater, exceed wastewater treatment requirements, or require expansion of existing facilities. 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. The Project entails the construction and maintenance of two new siphons thereby reducing demands on declining groundwater supplies. The Project would have sufficient water supplies and be available to serve the Project future development during normal, dry, and multiple dry years. Impacts would be less than significant.

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. The Project does not require or propose any wastewater collection or treatment and therefore would not create or increase any wastewater demand on any wastewater treatment provider. There would be no impact.

d) Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less than Significant Impact. There will be no solid waste associated with the operational phase of the Project. Any solid waste associated with construction would be minimal and temporary and would be the responsibility of the contractor to remove and dispose of it at a County-approved landfill or recycling facility. Therefore, any impact would be less than significant.

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

Less than Significant Impact. The Project operation itself is not anticipated to produce any solid waste. However, the Project is required and would be expected to comply with any federal, State, and local regulations regarding solid waste management during the construction period. The impacts would be less than significant.

4.20 WILDFIRE

Table 4-28: Wildfire Impacts

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrollable spread of wildfire?	☐	☐	☐	☒
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

4.20.1 Baseline Conditions

The Project sites are located approximately 5.4-miles southwest of the nearest State Responsibility Area and approximately 8.11 miles southwest of the nearest Very High Fire Hazard Severity Area according to California Department of Forestry and Fire Protection.[21] The Project sites are not located in an area that is known for wildfires and would not face any potential impacts due to wildfire.

4.20.2 Impact Analysis

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

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

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

[21] (CAL FIRE 2023)

fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

d) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

a-d) No Impact. The Project sites are not located in or near a State Responsibility Areas nor located on lands classified as very high fire hazard severity zones. The nearest SRA Fire Hazard Zone is located 5.4 miles northeast of the Project sites. Construction of the new siphons would not impede any existing or future emergency response plans. The Project sites and the surrounding lands consist of agricultural and related infrastructure on relatively flat and open land. Additionally, the Project does not include the construction of any residential components or structures of any kind, nor would it require any employees to be stationed permanently at the site. There would be no impact.

4.21 CEQA MANDATORY FINDINGS OF SIGNIFICANCE

Table 4-29: CEQA Mandatory Findings of Significance

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

4.21.1 Statement of Findings

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

Less than Significant Impacts with Mitigation Incorporated. The analysis conducted in this IS/MND results in a determination that the Project, with incorporation of mitigation measures, will have a less than significant effect on the environment. The potential for impacts to biological resources, cultural resources, geology and soil resource, and tribal cultural resources from the construction and operation of the Project will be less than significant with the incorporation of the mitigation measures discussed in Chapter 5 Mitigation, Monitoring, and Reporting Program. Accordingly, the Project will involve no potential for significant impacts through the degradation of the quality of the environment, the reduction in the habitat or population of fish or wildlife, including endangered plants or animals, the elimination of a plant or animal community or example of a major period of California history or prehistory.

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

Less than Significant Impact. 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 include the construction of two siphons along the St. Johns and Kaweah Rivers. 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 incorporated into future Project design.

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 two new siphons along the Kaweah and St. Johns River that will feed water into TID's Main Intake Canal. 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 the Tulare Irrigation District. The MMRP lists mitigation measures recommended in the IS/MND for the Project and identifies monitoring and reporting requirements.

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

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

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

Mitigation Measure/Condition of Approval	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
Biological Resources					
General					
BIO–1 (WEAP Training)					
Prior to initiating construction activities (including staging and mobilization), all personnel associated with Project construction will attend a mandatory Worker Environmental Awareness Program (WEAP) training, conducted by a qualified biologist, to aid workers in identifying special status resources that may occur in the Project site. The specifics of this program will include identification of the sensitive species and suitable habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction and mitigation measures required to reduce impacts to biological resources within the work area. This training will discuss special status species, describe the laws and regulations in place to provide protection of these species, identify the penalties for violation of applicable environmental laws and regulations, and include a list of required protective measures to avoid "take." A fact sheet summarizing this information, along with photographs or illustrations of sensitive species and sensitive habitats such as wetlands 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 trainees will sign a form documenting that they have attended WEAP training and understand the information presented to them.	Prior to the start of any construction activities	As needed for any new construction personnel during construction activities	TID		
BIO-2 BMPs					
(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: i. Vehicles will observe a 15-mph speed limit on unpaved access routes. ii. Workers will inspect areas beneath parked vehicles, equipment, and materials prior to mobilization. If special status species are detected, the individual will either be allowed to leave of its own volition or will be captured by the qualified biologist (must possess appropriate collecting/handling permits) and relocated out of harm's way to the nearest suitable habitat beyond the influence of the Project work area. "Take" of a state or federal special status (rare, California Species of Special Concern, threatened, or endangered) species is prohibited.	Prior to the start of any construction activities	During Construction	TID		

Mitigation Measure/Condition of Approval	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
Northern California Legless Lizard					
BIO –3 (Pre-construction Survey)					
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. Lizards that are detected will be allowed to leave the work area of their own volition or will be moved out of harm's way by a qualified biologist to suitable habitat at least 50 feet away from the Project work site.	48 hours prior to construction activities	Prior to construction activities	TID		
Roosting Bats and Special Status Bats, Including the Pallid Bat					
BIO – 4 (Avoidance)					
Project activities should not occur during the maternity roosting bat season (March 1 through August 31). Project activities will not occur during the pallid bat overwintering season (December 1 through February 28). Project activities should occur, if feasible, between September 1 and November 30 (outside of the maternity roost and overwintering seasons.	September 1 and November 30	Prior to construction activities	TID		
BIO – 5 (Pre-Construction Survey)					
If Project activities must occur within the maternity roosting bat season (March 1 to August 31), a pre-construction survey should be performed within five days of construction. A qualified biologist will inspect the trees for active roosts and if the trees are determined to be clear of bats, construction and tree removal can begin.	March 1 to August 31	Prior to tree removal activities and the start of construction	TID		
BIO –6 (Avoidance Buffers)					
On discovery of any active maternity roosts in the Project sites, a qualified biologist should determine appropriate construction setback distances (avoidance buffers) based on the biology of the species, conditions of the maternity roost(s), and the level of Project disturbance. Buffers will be removed once a qualified biologist has determined the maternity bat roosts are no longer occupied.	Prior to construction activities	**Once,** Prior to tree disturbing activities and the start of construction	TID		
San Joaquin Kit Fox					
BIO – 7 (Pre-construction Survey)					
Within seven (7) days prior to the start of construction a pre-construction survey for San Joaquin kit fox will be conducted on and within 200 feet of proposed work areas.	7 days Prior to construction	Once, Prior to ground disturbing activities and the start of construction	TID		

Mitigation Measure/Condition of Approval	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
BIO – 8 (Establish Buffers)					
On discovery of any 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 (see below). If needed, construction buffers will be identified with flagging, fencing, or other easily visible means. They will be maintained until the biologist has determined that the den will no longer be impacted by construction. 1. At least 100 feet around dens; 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)	Prior to construction activities	**Once,** Prior to ground disturbing activities and the start of construction	TID		
BIO - 9 (Avoidance and Minimization).					
The Project will observe all avoidance and minimization measures during construction and on-going operational activities as required by the qualified biologist and the USFWS's Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance (2011), including, but not limited to: maintaining buffer zones, construction speed limits, covering of pipes, installation of escape structures, restriction of herbicide and rodenticide use, proper disposal of food items and trash, prohibition of pets and firearms, and completion of an employee education program (see BIO-1).	During construction activities	Daily, During construction activities	TID		
Migratory Birds, Raptors, and Special Status Birds, including Swainson's Hawks and Tricolored Blackbird					
BIO – 10 (Avoidance)					
The Project's construction activities will occur, if feasible, between September 16 and January 31 (outside of the nesting bird season) to avoid impacts to nesting birds.	September 16-January 31	During construction	TID		
BIO – 11 (Pre-construction Survey)					
If activities must occur within the nesting bird season (February 1 to September 15), a qualified biologist will conduct a pre-construction survey for active nests within five (5) calendar days prior to the start of construction. The qualified biologist will survey for Swainson's hawk nests onsite and within a 0.5-mile radius for both sites. This one-time take avoidance survey will be conducted in accordance with the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000), or current guidance. The qualified biologist will survey for tricolored blackbird nests onsite and within a 300-foot	During active nesting season February 1-September 15	Once, 5 days prior to initiating any construction activities	TID		

Mitigation Measure/Condition of Approval	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
radius at the St. Johns River site. This one-time take avoidance survey will be conducted in accordance with the Staff Guidance Regarding Avoidance of Impacts to Tricolored Blackbird Breeding Colonies on Agricultural Fields (California Department of Fish and Wildlife 2015), or current guidance. The pre-construction survey would also provide a presence/ absence survey for all other nesting birds within both Project sites, and up to 100 feet outside of the Project sites for nesting migratory birds and up to 500 feet outside of the Project sites for nesting raptors. All raptor nests would be considered "active" upon the nest-building stage. If no active nests are observed, no further mitigation is required.					
BIO – 12 (Avoidance Buffers)					
On discovery of any active nests or breeding colonies near work areas, a qualified biologist will determine appropriate avoidance buffer distances based on applicable CDFW and/or USFWS guidelines, the biology of the species, conditions of the nest(s), and the level of Project disturbance. If necessary, avoidance buffers will be identified with flagging, fencing, or other easily visible means, and will be maintained until the biologist has determined that the nestlings have fledged	During construction	As determined needed by qualified biologist during construction activities	TID		
Western Pond Turtle					
BIO-13 (Pre-construction Survey and Avoidance Buffers)					
Within seven (7) days prior to the start of construction, a qualified biologist will conduct a pre-construction survey for western pond turtle within the Project site and surrounding areas within up to 330 feet from each Project site. Pre-construction surveys will be conducted in accordance with the draft Western Pond Turtle (Emys marmorata) Visual Survey Protocol for the Southcoast Ecoregion (United States Geological Survey 2006). 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 seven (7) days, another pre-construction survey for western pond turtle will be conducted. If the surveys result in the identification of a western pond turtle or an individual is found on the site during construction activities, it will be allowed to leave the site on its own and the qualified biologist shall determine appropriate buffers to be implemented to avoid impacts to the individual(s).	7 days prior to construction activities	As determined needed by qualified biologist during construction activities	TID		

Mitigation Measure/Condition of Approval	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
BIO-14 (Monitor)					
If western pond turtles are observed on the Project site, a qualified biologist will conduct a pre-activity clearance survey each day and remain onsite to oversee all vegetation clearing and ground disturbing activities.	During Construction activities	Daily, during all vegetation clearing and ground disturbing activities	TID		
Special Status Plant Species Including California Satintail, Sanford's Arrowhead, and Spiny-sepaled Button-celery					
BIO-15 (Focused Botanical Survey)					
A qualified botanist/biologist will conduct focused botanical surveys during the appropriate blooming seasons for alkali-sink goldfields, Coulter's goldfields, Greene's tuctoria, Hoover's spurge, San Joaquin adobe sunburst, San Joaquin Valley Orcutt grass, Sanford's arrowhead, and spiny-sepaled button-celery, 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. Reference sites for these plants will be visited prior to completing surveys within the Project site.	Prior to construction activities	Once, Prior to construction activities	TID		
BIO-16 (Avoidance)					
If California satintail, Sanford's arrowhead, or spiny-sepaled button-celery are identified during the focused botanical surveys, an avoidance buffer and, if necessary, use of exclusion fencing, will be placed around the area as to not disturb the plants or its root system.	Prior to construction activities	As determined needed by qualified biologist during construction activities	TID		
BIO-17 (Consultation)					
If California satintail, Sanford's arrowhead, or spiny-sepaled button-celery are detected within the Project work sites during the focused botanical surveys, and the plants cannot be avoided, the Project proponent will consult with CNPS, CDFW, and/or USFWS to determine next steps for relocation.	Prior to construction activities	Once, Prior to construction activities	TID		
Project-Related Impacts to Regulated Waters, Wetlands, and Water Quality					
BIO-18 (Aquatic Resources Delineation)					
If USACE determines that waters of the United States will be impacted as a result of Project activities, then an Aquatic Resource Delineation (ARD) will be performed to determine the extent of the rivers and riparian habitats on the Project sites. The ARD will be conducted in accordance with the USACE's Wetland Delineation Manual (1987) and Arid West Regional Supplement (1987), and the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (State Water Resources Control Board 2021).	Prior to construction activities	Once, Prior to construction activities	TID		

Mitigation Measure/Condition of Approval	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
BIO-19 (Permits)					
Permits with USACE, RWQCB, CVFPB, and CDFW will be obtained if required. These permits, certifications, and agreements would ensure there are no indirect downstream effects to jurisdictional waters.	Prior to construction activities	Once, Prior to construction activities	TID		
BIO-20 (Storm Water Pollution Prevention Plan)					
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 to ensure construction activities do not adversely affect water quality. This plan will be prepared in support of the Construction General Permit application.	Prior to construction activities	Once, Prior to construction activities	TID		
Project-Related Impacts to Wildlife Movement Corridors and Native Wildlife Nursery Sites					
BIO-21 (Operational Hours)					
Construction activities would be limited to a half hour after sunrise through a half hour before sunset to reduce potential impacts to wildlife movement corridors.	During construction activities	During construction activities	TID		
BIO-31 (Wildlife Access)					
Access will not be blocked outside of construction hours or during overnight hours or weekends. If construction must block both sides of a wildlife access route, an alternative route through the construction area should be identified by a qualified biologist and maintained throughout the construction schedule timeframe	During Construction activities	During construction activities	TID		
BIO-32 (Cover Excavations)					
Pipeline/culvert/siphon excavations and vertical pipes will be covered each night to prevent wildlife from falling in and becoming trapped or injured during migratory or dispersal movements.	During Construction	During Construction	TID		
Cultural Resources					
CUL – 1 (Archaeological Remains)					
Should archaeological remains or artifacts be unearthed during any stage of project activities, work in the area of discovery shall cease until the area is evaluated by a qualified archaeologist. If mitigation is warranted, the project proponent shall abide by recommendations of the archaeologist.	During Construction Activities	During Construction Activities	TID		
CUL – 2 (Human Remains)					

Mitigation Measure/Condition of Approval	When Monitoring is to Occur	Frequency of Monitoring	Agency Responsible for Monitoring	Method to Verify Compliance	Verification of Compliance
In the event that any human remains are discovered on the Project site, the Tulare County Coroner 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 shall 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.	During Construction Activities	During Construction Activities	TID		
Tribal Cultural Resources					
TCR-1					
(Cultural Awareness Training): Prior to construction or any ground disturbing activties, a Cultural Awareness Training Program shall be provided to all construction managers and construction personnel prior to commencing ground disturbance work at the Project site. The training shall be prepared and conducted by a qualified archaeologist to the satisfaction of the District. The training shall be a length of time adequate to explain applicable statues, regulations, enforcement provisions; the prehistoric and historic environmental setting and context, local tribal groups; show sample artifacts; and what prehistoric and historic archaeological deposits look like at the surface and when exposed during construction. The training may be discontinued to new workers to the site when ground disturbance is completed. Construction personnel shall not be permitted to operate equipment within the construction area unless they have attended the training. A list of the names of all personnel who attended the training, and copies of the signed acknowledgement forms shall be submitted to the District for their review and approval.	Prior to Construction or Ground Disturbing Activities	One Cultural Awareness Training prior to construction activities	TID		

CHAPTER 6 REFERENCES

CAL FIRE. 2023. *Fire Hazard Severity Zones in State Responisbility Area.* Accessed July 2023. https://calfire-forestry.maps.arcgis.com/apps/webappviewer/index.html?id=988d431a42b242b29d89597ab693d008.

California Department of Conservation . 2023. *Fault Activity Map of California .* https://maps.conservation.ca.gov/cgs/fam/.

California Department of Conservation. 2023. *California Important Farmland Finder.* Accessed June 2023. https://maps.conservation.ca.gov/DLRP/CIFF/.

California Department of Fish and Wildlife (CDFW). 2018. "Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensative Natural Communities." March. Accessed March 2023. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline.

California Department of Fish and Wildlife. 2015. *Staff Guidance Regarding Avoidance of Impacts to Tricolored Blackbird Breeding Colonies on Agricultural Fields.* March. Accessed June 2023.

California Department of Transportation . 2023. *California State Scenic Highway System Map.* Accessed June 2023. https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa.

California Department of Transportation. 2023. *California State Scenic Highways.* Accessed July 2023. https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways.

California Natural Diversity Database. 2023. *California Department of Fish and Wildlife. California Natural Diversity Database.* Accessed May 2023. https://wildlife.ca.gov/Data/CNDD.

Natural Resource Conservation Service (NRCS). 2023. *websoilsurvey.* Accessed June 2023. http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

San Joaquin Valley Air Pollution Control District. 2012. *Air Quality Attainment Plans.* Accessed July 25, 2023. http://valleyair.org/Air_Quality_Plans/air-quality-plans.htm.

San Joaquin Valley Air Pollution Control District. 2009. "Guidance for Valley Land-use Agencies in Addressing GHG Emissions Impacts for New Projects under CEQA."

State Water Resources Control Board. 2021. "State Wetland Definition and Procedures for Discharge of Dredged or Fill Material to Waters of the State." April 6. Accessed June 2023.

Swainson's Hawk Technical Advisory Committee. 2000. "Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley." CA: CDFW, May. Accessed June 2023.

Tulare County . 2010. "Tulare County General Plan 2030 Update Background Report." Accessed May 2023. http://generalplan.co.tulare.ca.us/documents/GeneralPlan2010/BackgroundReport.pdf.

Tulare County Agricultural Commisioner. 2021. "Tulare County Crop & Livestock Report." Accessed June 2023. https://agcomm.co.tulare.ca.us/pest-exclusion-standardization/crop-reports1/crop-reports-2021-2030/crop-and-livestock-report-2021/.

Tulare County. 2012. "Tulare County General Plan 2030 Update." Accessed June 2023. http://generalplan.co.tulare.ca.us/documents/GP/001Adopted%20Tulare%20County%20General%20Plan%20Materials/000General%20Plan%202030%20Part%20I%20and%20Part%20II/GENERAL%20PLAN%202012.pdf.

United States Army Corps of Engineers. 1987. *Corps of Engineers Wetlands Delineation Manual.* Department of the Army. Accessed July 2023.

—. 2008. *Regional Supplement to the Corps of Engineers Wetland Delienation Manual: Arid West Region (Version 2.0).* United States Army Corps of Engineers. Accessed July 2023.

United States Environmental Protection Agency. 2023. *Current Nonattainment Counties for all Criteria Pollutants.* Accessed July 25, 2023. https://www3.epa.gov/airquality/greenbook/ancl.html.

United States Geological Survey. 2006. *United States Geological Survey Western Pond Turtle (Emys marmorata) Visual Survey Protocol for the Southcoast Ecoregion.* Accessed May 2023. https://sdmmp.com/upload/SDMMP_Repository/0/4fnpv18xm0sqtw29j7d3rz56bkychg.pdf.

US Environmental Protection Agency . 2023. *Map of Sole Source Aquifer Locations.* Accessed July 2023. https://www.epa.gov/dwssa/map-sole-source-aquifer-locations.

WeatherSpark. 2023. "Climate and Average Weather Year Round in Visalia California, Unites States." Accessed June 2023. https://weatherspark.com/y/1510/Average-Weather-in-Visalia-California-United-States-Year-Round.

Appendix A: CalEEMod Output Files

MIC Siphons - Tulare County, Annual

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

MIC Siphons

Tulare County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	52.41	1000sqft	1.20	52,410.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	51
Climate Zone	3			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction Schedule

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	90.00
tblConstructionPhase	PhaseEndDate	9/9/2024	4/8/2024
tblConstructionPhase	PhaseEndDate	9/23/2024	4/22/2024
tblConstructionPhase	PhaseStartDate	9/10/2024	4/9/2024

2.0 Emissions Summary

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	0.0344	0.3005	0.2896	5.5000e-004	0.0239	0.0134	0.0373	0.0108	0.0127	0.0235	0.0000	47.4544	47.4544	0.0100	3.3000e-004	47.8018
2024	0.0581	0.4383	0.5138	9.7000e-004	8.8500e-003	0.0175	0.0264	2.4000e-003	0.0169	0.0193	0.0000	81.6428	81.6428	0.0128	1.0800e-003	82.2839
Maximum	**0.0581**	**0.4383**	**0.5138**	**9.7000e-004**	**0.0239**	**0.0175**	**0.0373**	**0.0108**	**0.0169**	**0.0235**	**0.0000**	**81.6428**	**81.6428**	**0.0128**	**1.0800e-003**	**82.2839**

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	0.0344	0.3005	0.2896	5.5000e-004	0.0115	0.0134	0.0249	4.7800e-003	0.0127	0.0175	0.0000	47.4543	47.4543	0.0100	3.3000e-004	47.8018
2024	0.0581	0.4383	0.5138	9.7000e-004	8.8500e-003	0.0175	0.0264	2.4000e-003	0.0169	0.0193	0.0000	81.6427	81.6427	0.0128	1.0800e-003	82.2838
Maximum	**0.0581**	**0.4383**	**0.5138**	**9.7000e-004**	**0.0115**	**0.0175**	**0.0264**	**4.7800e-003**	**0.0169**	**0.0193**	**0.0000**	**81.6427**	**81.6427**	**0.0128**	**1.0800e-003**	**82.2838**

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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**38.02**	**0.00**	**19.56**	**45.56**	**0.00**	**14.07**	**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	**10-30-2023**	**1-29-2024**	0.4688	0.4688
2	**1-30-2024**	**4-29-2024**	0.3601	0.3601
		Highest	0.4688	0.4688

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	4.5300e-003	0.0000	4.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	**4.5300e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**9.4000e-004**	**9.4000e-004**	**0.0000**	**0.0000**	**1.0000e-003**

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	4.5300e-003	0.0000	4.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	**4.5300e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**9.4000e-004**	**9.4000e-004**	**0.0000**	**0.0000**	**1.0000e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/30/2023	11/24/2023	5	20	
2	Site Preparation	Site Preparation	11/25/2023	11/28/2023	5	2	
3	Grading	Grading	11/29/2023	12/4/2023	5	4	

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

4	Building Construction	Building Construction	12/5/2023	4/8/2024	5	90	
5	Paving	Paving	4/9/2024	4/22/2024	5	10	

Acres of Grading (Site Preparation Phase): 1.88

Acres of Grading (Grading Phase): 4

Acres of Paving: 1.2

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
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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

Building Construction	Welders	3	8.00	46	0.45

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
Demolition	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	22.00	9.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 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	0.0147	0.1432	0.1346	2.4000e-004		6.7700e-003	6.7700e-003		6.3300e-003	6.3300e-003	0.0000	21.0866	21.0866	5.3500e-003	0.0000	21.2202
Total	**0.0147**	**0.1432**	**0.1346**	**2.4000e-004**		**6.7700e-003**	**6.7700e-003**		**6.3300e-003**	**6.3300e-003**	**0.0000**	**21.0866**	**21.0866**	**5.3500e-003**	**0.0000**	**21.2202**

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

3.2 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	3.2000e-004	3.5300e-003	1.0000e-005	1.0400e-003	1.0000e-005	1.0400e-003	2.8000e-004	0.0000	2.8000e-004	0.0000	0.8224	0.8224	3.0000e-005	3.0000e-005	0.8311
Total	**4.5000e-004**	**3.2000e-004**	**3.5300e-003**	**1.0000e-005**	**1.0400e-003**	**1.0000e-005**	**1.0400e-003**	**2.8000e-004**	**0.0000**	**2.8000e-004**	**0.0000**	**0.8224**	**0.8224**	**3.0000e-005**	**3.0000e-005**	**0.8311**

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	0.0147	0.1432	0.1346	2.4000e-004		6.7700e-003	6.7700e-003		6.3300e-003	6.3300e-003	0.0000	21.0865	21.0865	5.3500e-003	0.0000	21.2202
Total	**0.0147**	**0.1432**	**0.1346**	**2.4000e-004**		**6.7700e-003**	**6.7700e-003**		**6.3300e-003**	**6.3300e-003**	**0.0000**	**21.0865**	**21.0865**	**5.3500e-003**	**0.0000**	**21.2202**

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

3.2 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	3.2000e-004	3.5300e-003	1.0000e-005	1.0400e-003	1.0000e-005	1.0400e-003	2.8000e-004	0.0000	2.8000e-004	0.0000	0.8224	0.8224	3.0000e-005	3.0000e-005	0.8311
Total	**4.5000e-004**	**3.2000e-004**	**3.5300e-003**	**1.0000e-005**	**1.0400e-003**	**1.0000e-005**	**1.0400e-003**	**2.8000e-004**	**0.0000**	**2.8000e-004**	**0.0000**	**0.8224**	**0.8224**	**3.0000e-005**	**3.0000e-005**	**0.8311**

3.3 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					6.2700e-003	0.0000	6.2700e-003	3.0000e-003	0.0000	3.0000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1300e-003	0.0124	6.6400e-003	2.0000e-005		5.1000e-004	5.1000e-004		4.7000e-004	4.7000e-004	0.0000	1.5114	1.5114	4.9000e-004	0.0000	1.5236
Total	**1.1300e-003**	**0.0124**	**6.6400e-003**	**2.0000e-005**	**6.2700e-003**	**5.1000e-004**	**6.7800e-003**	**3.0000e-003**	**4.7000e-004**	**3.4700e-003**	**0.0000**	**1.5114**	**1.5114**	**4.9000e-004**	**0.0000**	**1.5236**

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

3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.2000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0506	0.0506	0.0000	0.0000	0.0511
Total	**3.0000e-005**	**2.0000e-005**	**2.2000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0506**	**0.0506**	**0.0000**	**0.0000**	**0.0511**

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					2.4400e-003	0.0000	2.4400e-003	1.1700e-003	0.0000	1.1700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1300e-003	0.0124	6.6400e-003	2.0000e-005		5.1000e-004	5.1000e-004		4.7000e-004	4.7000e-004	0.0000	1.5114	1.5114	4.9000e-004	0.0000	1.5236
Total	**1.1300e-003**	**0.0124**	**6.6400e-003**	**2.0000e-005**	**2.4400e-003**	**5.1000e-004**	**2.9500e-003**	**1.1700e-003**	**4.7000e-004**	**1.6400e-003**	**0.0000**	**1.5114**	**1.5114**	**4.9000e-004**	**0.0000**	**1.5236**

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

3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.2000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0506	0.0506	0.0000	0.0000	0.0511
Total	**3.0000e-005**	**2.0000e-005**	**2.2000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0506**	**0.0506**	**0.0000**	**0.0000**	**0.0511**

3.4 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					0.0142	0.0000	0.0142	6.8500e-003	0.0000	6.8500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6700e-003	0.0289	0.0174	4.0000e-005		1.2100e-003	1.2100e-003		1.1100e-003	1.1100e-003	0.0000	3.6208	3.6208	1.1700e-003	0.0000	3.6501
Total	**2.6700e-003**	**0.0289**	**0.0174**	**4.0000e-005**	**0.0142**	**1.2100e-003**	**0.0154**	**6.8500e-003**	**1.1100e-003**	**7.9600e-003**	**0.0000**	**3.6208**	**3.6208**	**1.1700e-003**	**0.0000**	**3.6501**

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

3.4 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	7.0000e-005	5.0000e-005	5.4000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1265	0.1265	0.0000	0.0000	0.1279
Total	**7.0000e-005**	**5.0000e-005**	**5.4000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1265**	**0.1265**	**0.0000**	**0.0000**	**0.1279**

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					5.5200e-003	0.0000	5.5200e-003	2.6700e-003	0.0000	2.6700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6700e-003	0.0289	0.0174	4.0000e-005		1.2100e-003	1.2100e-003		1.1100e-003	1.1100e-003	0.0000	3.6208	3.6208	1.1700e-003	0.0000	3.6501
Total	**2.6700e-003**	**0.0289**	**0.0174**	**4.0000e-005**	**5.5200e-003**	**1.2100e-003**	**6.7300e-003**	**2.6700e-003**	**1.1100e-003**	**3.7800e-003**	**0.0000**	**3.6208**	**3.6208**	**1.1700e-003**	**0.0000**	**3.6501**

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

3.4 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	7.0000e-005	5.0000e-005	5.4000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1265	0.1265	0.0000	0.0000	0.1279
Total	**7.0000e-005**	**5.0000e-005**	**5.4000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1265**	**0.1265**	**0.0000**	**0.0000**	**0.1279**

3.5 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	0.0145	0.1113	0.1198	2.1000e-004		4.8900e-003	4.8900e-003		4.7200e-003	4.7200e-003	0.0000	17.2519	17.2519	2.9300e-003	0.0000	17.3252
Total	**0.0145**	**0.1113**	**0.1198**	**2.1000e-004**		**4.8900e-003**	**4.8900e-003**		**4.7200e-003**	**4.7200e-003**	**0.0000**	**17.2519**	**17.2519**	**2.9300e-003**	**0.0000**	**17.3252**

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

3.5 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	1.0000e-004	3.8500e-003	1.1600e-003	2.0000e-005	5.7000e-004	2.0000e-005	5.9000e-004	1.6000e-004	2.0000e-005	1.9000e-004	0.0000	1.6620	1.6620	1.0000e-005	2.5000e-004	1.7367
Worker	7.3000e-004	5.1000e-004	5.6800e-003	1.0000e-005	1.6600e-003	1.0000e-005	1.6700e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3222	1.3222	5.0000e-005	4.0000e-005	1.3361
Total	**8.3000e-004**	**4.3600e-003**	**6.8400e-003**	**3.0000e-005**	**2.2300e-003**	**3.0000e-005**	**2.2600e-003**	**6.0000e-004**	**3.0000e-005**	**6.4000e-004**	**0.0000**	**2.9842**	**2.9842**	**6.0000e-005**	**2.9000e-004**	**3.0727**

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	0.0145	0.1113	0.1198	2.1000e-004		4.8900e-003	4.8900e-003		4.7200e-003	4.7200e-003	0.0000	17.2519	17.2519	2.9300e-003	0.0000	17.3251
Total	**0.0145**	**0.1113**	**0.1198**	**2.1000e-004**		**4.8900e-003**	**4.8900e-003**		**4.7200e-003**	**4.7200e-003**	**0.0000**	**17.2519**	**17.2519**	**2.9300e-003**	**0.0000**	**17.3251**

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

3.5 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	1.0000e-004	3.8500e-003	1.1600e-003	2.0000e-005	5.7000e-004	2.0000e-005	5.9000e-004	1.6000e-004	2.0000e-005	1.9000e-004	0.0000	1.6620	1.6620	1.0000e-005	2.5000e-004	1.7367
Worker	7.3000e-004	5.1000e-004	5.6800e-003	1.0000e-005	1.6600e-003	1.0000e-005	1.6700e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3222	1.3222	5.0000e-005	4.0000e-005	1.3361
Total	**8.3000e-004**	**4.3600e-003**	**6.8400e-003**	**3.0000e-005**	**2.2300e-003**	**3.0000e-005**	**2.2600e-003**	**6.0000e-004**	**3.0000e-005**	**6.4000e-004**	**0.0000**	**2.9842**	**2.9842**	**6.0000e-005**	**2.9000e-004**	**3.0727**

3.5 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	0.0504	0.3928	0.4444	7.8000e-004		0.0160	0.0160		0.0154	0.0154	0.0000	64.4720	64.4720	0.0107	0.0000	64.7404
Total	**0.0504**	**0.3928**	**0.4444**	**7.8000e-004**		**0.0160**	**0.0160**		**0.0154**	**0.0154**	**0.0000**	**64.4720**	**64.4720**	**0.0107**	**0.0000**	**64.7404**

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

3.5 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	3.5000e-004	0.0144	4.2400e-003	6.0000e-005	2.1100e-003	9.0000e-005	2.2000e-003	6.1000e-004	9.0000e-005	7.0000e-004	0.0000	6.1148	6.1148	3.0000e-005	9.2000e-004	6.3892
Worker	2.5000e-003	1.6800e-003	0.0195	5.0000e-005	6.2200e-003	3.0000e-005	6.2500e-003	1.6500e-003	3.0000e-005	1.6800e-003	0.0000	4.7719	4.7719	1.5000e-004	1.5000e-004	4.8195
Total	**2.8500e-003**	**0.0161**	**0.0237**	**1.1000e-004**	**8.3300e-003**	**1.2000e-004**	**8.4500e-003**	**2.2600e-003**	**1.2000e-004**	**2.3800e-003**	**0.0000**	**10.8866**	**10.8866**	**1.8000e-004**	**1.0700e-003**	**11.2086**

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	0.0504	0.3928	0.4444	7.8000e-004		0.0160	0.0160		0.0154	0.0154	0.0000	64.4719	64.4719	0.0107	0.0000	64.7403
Total	**0.0504**	**0.3928**	**0.4444**	**7.8000e-004**		**0.0160**	**0.0160**		**0.0154**	**0.0154**	**0.0000**	**64.4719**	**64.4719**	**0.0107**	**0.0000**	**64.7403**

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

3.5 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	3.5000e-004	0.0144	4.2400e-003	6.0000e-005	2.1100e-003	9.0000e-005	2.2000e-003	6.1000e-004	9.0000e-005	7.0000e-004	0.0000	6.1148	6.1148	3.0000e-005	9.2000e-004	6.3892
Worker	2.5000e-003	1.6800e-003	0.0195	5.0000e-005	6.2200e-003	3.0000e-005	6.2500e-003	1.6500e-003	3.0000e-005	1.6800e-003	0.0000	4.7719	4.7719	1.5000e-004	1.5000e-004	4.8195
Total	**2.8500e-003**	**0.0161**	**0.0237**	**1.1000e-004**	**8.3300e-003**	**1.2000e-004**	**8.4500e-003**	**2.2600e-003**	**1.2000e-004**	**2.3800e-003**	**0.0000**	**10.8866**	**10.8866**	**1.8000e-004**	**1.0700e-003**	**11.2086**

3.6 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	3.0900e-003	0.0293	0.0441	7.0000e-005		1.4100e-003	1.4100e-003		1.3000e-003	1.3000e-003	0.0000	5.8870	5.8870	1.8700e-003	0.0000	5.9337
Paving	1.5700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.6600e-003**	**0.0293**	**0.0441**	**7.0000e-005**		**1.4100e-003**	**1.4100e-003**		**1.3000e-003**	**1.3000e-003**	**0.0000**	**5.8870**	**5.8870**	**1.8700e-003**	**0.0000**	**5.9337**

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

3.6 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	2.1000e-004	1.4000e-004	1.6200e-003	0.0000	5.2000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.3972	0.3972	1.0000e-005	1.0000e-005	0.4011
Total	**2.1000e-004**	**1.4000e-004**	**1.6200e-003**	**0.0000**	**5.2000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.3972**	**0.3972**	**1.0000e-005**	**1.0000e-005**	**0.4011**

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	3.0900e-003	0.0293	0.0441	7.0000e-005		1.4100e-003	1.4100e-003		1.3000e-003	1.3000e-003	0.0000	5.8870	5.8870	1.8700e-003	0.0000	5.9337
Paving	1.5700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.6600e-003**	**0.0293**	**0.0441**	**7.0000e-005**		**1.4100e-003**	**1.4100e-003**		**1.3000e-003**	**1.3000e-003**	**0.0000**	**5.8870**	**5.8870**	**1.8700e-003**	**0.0000**	**5.9337**

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

3.6 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	2.1000e-004	1.4000e-004	1.6200e-003	0.0000	5.2000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.3972	0.3972	1.0000e-005	1.0000e-005	0.4011
Total	**2.1000e-004**	**1.4000e-004**	**1.6200e-003**	**0.0000**	**5.2000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.3972**	**0.3972**	**1.0000e-005**	**1.0000e-005**	**0.4011**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	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
Other Asphalt Surfaces	0.509869	0.051139	0.167106	0.174849	0.031609	0.007996	0.012006	0.015707	0.000636	0.000471	0.023554	0.001465	0.003592

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

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	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**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	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**

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

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

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	4.5300e-003	0.0000	4.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
Unmitigated	4.5300e-003	0.0000	4.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.0900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.3900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	4.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
Total	**4.5200e-003**	**0.0000**	**4.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**9.4000e-004**	**9.4000e-004**	**0.0000**	**0.0000**	**1.0000e-003**

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.0900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.3900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	4.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
Total	**4.5200e-003**	**0.0000**	**4.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**9.4000e-004**	**9.4000e-004**	**0.0000**	**0.0000**	**1.0000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

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			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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			
Other Asphalt Surfaces	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

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			
Other Asphalt Surfaces	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			
Other Asphalt Surfaces	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

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

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

MIC Siphons

Tulare County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	52.41	1000sqft	1.20	52,410.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	51
Climate Zone	3			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction Schedule

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	90.00
tblConstructionPhase	PhaseEndDate	9/9/2024	4/8/2024
tblConstructionPhase	PhaseEndDate	9/23/2024	4/22/2024
tblConstructionPhase	PhaseStartDate	9/10/2024	4/9/2024

2.0 Emissions Summary

MIC Siphons - Tulare County, Summer

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

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	1.6234	14.4905	13.8696	0.0255	7.1647	0.6772	7.7695	3.4465	0.6333	4.0029	0.0000	2,423.0707	2,423.0707	0.6477	0.0337	2,438.7144
2024	1.5123	11.4955	13.2733	0.0255	0.2417	0.4540	0.6958	0.0655	0.4381	0.5036	0.0000	2,352.8759	2,352.8759	0.4141	0.0329	2,371.1363
Maximum	**1.6234**	**14.4905**	**13.8696**	**0.0255**	**7.1647**	**0.6772**	**7.7695**	**3.4465**	**0.6333**	**4.0029**	**0.0000**	**2,423.0707**	**2,423.0707**	**0.6477**	**0.0337**	**2,438.7144**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	1.6234	14.4905	13.8696	0.0255	2.8444	0.6772	3.4491	1.3574	0.6333	1.9138	0.0000	2,423.0707	2,423.0707	0.6477	0.0337	2,438.7144
2024	1.5123	11.4955	13.2733	0.0255	0.2417	0.4540	0.6958	0.0655	0.4381	0.5036	0.0000	2,352.8759	2,352.8759	0.4141	0.0329	2,371.1363
Maximum	**1.6234**	**14.4905**	**13.8696**	**0.0255**	**2.8444**	**0.6772**	**3.4491**	**1.3574**	**0.6333**	**1.9138**	**0.0000**	**2,423.0707**	**2,423.0707**	**0.6477**	**0.0337**	**2,438.7144**

MIC Siphons - Tulare County, Summer

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	58.33	0.00	51.04	59.48	0.00	46.36	0.00	0.00	0.00	0.00	0.00	0.00

MIC Siphons - Tulare County, Summer

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0251	5.0000e-005	5.3400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0122
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
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
Total	**0.0251**	**5.0000e-005**	**5.3400e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**		**0.0115**	**0.0115**	**3.0000e-005**	**0.0000**	**0.0122**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0251	5.0000e-005	5.3400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0122
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
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
Total	**0.0251**	**5.0000e-005**	**5.3400e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**		**0.0115**	**0.0115**	**3.0000e-005**	**0.0000**	**0.0122**

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	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/30/2023	11/24/2023	5	20	
2	Site Preparation	Site Preparation	11/25/2023	11/28/2023	5	2	
3	Grading	Grading	11/29/2023	12/4/2023	5	4	
4	Building Construction	Building Construction	12/5/2023	4/8/2024	5	90	
5	Paving	Paving	4/9/2024	4/22/2024	5	10	

Acres of Grading (Site Preparation Phase): 1.88

Acres of Grading (Grading Phase): 4

Acres of Paving: 1.2

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
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41

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

Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

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
Demolition	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	22.00	9.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

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

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4725	14.3184	13.4577	0.0241		0.6766	0.6766		0.6328	0.6328		2,324.3959	2,324.3959	0.5893		2,339.1278
Total	**1.4725**	**14.3184**	**13.4577**	**0.0241**		**0.6766**	**0.6766**		**0.6328**	**0.6328**		**2,324.3959**	**2,324.3959**	**0.5893**		**2,339.1278**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0530	0.0298	0.4119	9.8000e-004	0.1068	5.4000e-004	0.1073	0.0283	5.0000e-004	0.0288		98.6748	98.6748	3.0100e-003	2.8100e-003	99.5866
Total	**0.0530**	**0.0298**	**0.4119**	**9.8000e-004**	**0.1068**	**5.4000e-004**	**0.1073**	**0.0283**	**5.0000e-004**	**0.0288**		**98.6748**	**98.6748**	**3.0100e-003**	**2.8100e-003**	**99.5866**

MIC Siphons - Tulare County, Summer

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

3.2 Demolition - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4725	14.3184	13.4577	0.0241		0.6766	0.6766		0.6328	0.6328	0.0000	2,324.3959	2,324.3959	0.5893		2,339.1278
Total	**1.4725**	**14.3184**	**13.4577**	**0.0241**		**0.6766**	**0.6766**		**0.6328**	**0.6328**	**0.0000**	**2,324.3959**	**2,324.3959**	**0.5893**		**2,339.1278**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0530	0.0298	0.4119	9.8000e-004	0.1068	5.4000e-004	0.1073	0.0283	5.0000e-004	0.0288		98.6748	98.6748	3.0100e-003	2.8100e-003	99.5866
Total	**0.0530**	**0.0298**	**0.4119**	**9.8000e-004**	**0.1068**	**5.4000e-004**	**0.1073**	**0.0283**	**5.0000e-004**	**0.0288**		**98.6748**	**98.6748**	**3.0100e-003**	**2.8100e-003**	**99.5866**

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

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2662	0.0000	6.2662	3.0041	0.0000	3.0041			0.0000			0.0000
Off-Road	1.1339	12.4250	6.6420	0.0172		0.5074	0.5074		0.4668	0.4668		1,666.0573	1,666.0573	0.5388		1,679.5282
Total	**1.1339**	**12.4250**	**6.6420**	**0.0172**	**6.2662**	**0.5074**	**6.7736**	**3.0041**	**0.4668**	**3.4709**		**1,666.0573**	**1,666.0573**	**0.5388**		**1,679.5282**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0326	0.0183	0.2535	6.0000e-004	0.0657	3.3000e-004	0.0661	0.0174	3.0000e-004	0.0177		60.7230	60.7230	1.8500e-003	1.7300e-003	61.2840
Total	**0.0326**	**0.0183**	**0.2535**	**6.0000e-004**	**0.0657**	**3.3000e-004**	**0.0661**	**0.0174**	**3.0000e-004**	**0.0177**		**60.7230**	**60.7230**	**1.8500e-003**	**1.7300e-003**	**61.2840**

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

3.3 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.4438	0.0000	2.4438	1.1716	0.0000	1.1716			0.0000			0.0000
Off-Road	1.1339	12.4250	6.6420	0.0172		0.5074	0.5074		0.4668	0.4668	0.0000	1,666.0573	1,666.0573	0.5388		1,679.5282
Total	**1.1339**	**12.4250**	**6.6420**	**0.0172**	**2.4438**	**0.5074**	**2.9512**	**1.1716**	**0.4668**	**1.6384**	**0.0000**	**1,666.0573**	**1,666.0573**	**0.5388**		**1,679.5282**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0326	0.0183	0.2535	6.0000e-004	0.0657	3.3000e-004	0.0661	0.0174	3.0000e-004	0.0177		60.7230	60.7230	1.8500e-003	1.7300e-003	61.2840
Total	**0.0326**	**0.0183**	**0.2535**	**6.0000e-004**	**0.0657**	**3.3000e-004**	**0.0661**	**0.0174**	**3.0000e-004**	**0.0177**		**60.7230**	**60.7230**	**1.8500e-003**	**1.7300e-003**	**61.2840**

MIC Siphons - Tulare County, Summer

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

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560		1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**7.0826**	**0.6044**	**7.6869**	**3.4247**	**0.5560**	**3.9807**		**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0408	0.0229	0.3169	7.5000e-004	0.0822	4.1000e-004	0.0826	0.0218	3.8000e-004	0.0222		75.9037	75.9037	2.3200e-003	2.1600e-003	76.6051
Total	**0.0408**	**0.0229**	**0.3169**	**7.5000e-004**	**0.0822**	**4.1000e-004**	**0.0826**	**0.0218**	**3.8000e-004**	**0.0222**		**75.9037**	**75.9037**	**2.3200e-003**	**2.1600e-003**	**76.6051**

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

3.4 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7622	0.0000	2.7622	1.3357	0.0000	1.3357			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560	0.0000	1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**2.7622**	**0.6044**	**3.3666**	**1.3357**	**0.5560**	**1.8917**	**0.0000**	**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0408	0.0229	0.3169	7.5000e-004	0.0822	4.1000e-004	0.0826	0.0218	3.8000e-004	0.0222		75.9037	75.9037	2.3200e-003	2.1600e-003	76.6051
Total	**0.0408**	**0.0229**	**0.3169**	**7.5000e-004**	**0.0822**	**4.1000e-004**	**0.0826**	**0.0218**	**3.8000e-004**	**0.0222**		**75.9037**	**75.9037**	**2.3200e-003**	**2.1600e-003**	**76.6051**

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

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968		2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**		**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0105	0.3874	0.1206	1.8200e-003	0.0610	2.5800e-003	0.0636	0.0176	2.4700e-003	0.0200		192.6905	192.6905	9.0000e-004	0.0290	201.3450
Worker	0.0897	0.0504	0.6971	1.6500e-003	0.1807	9.1000e-004	0.1816	0.0479	8.4000e-004	0.0488		166.9882	166.9882	5.1000e-003	4.7500e-003	168.5311
Total	**0.1002**	**0.4378**	**0.8177**	**3.4700e-003**	**0.2417**	**3.4900e-003**	**0.2452**	**0.0655**	**3.3100e-003**	**0.0688**		**359.6787**	**359.6787**	**6.0000e-003**	**0.0337**	**369.8761**

MIC Siphons - Tulare County, Summer

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

3.5 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968	0.0000	2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**	**0.0000**	**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0105	0.3874	0.1206	1.8200e-003	0.0610	2.5800e-003	0.0636	0.0176	2.4700e-003	0.0200		192.6905	192.6905	9.0000e-004	0.0290	201.3450
Worker	0.0897	0.0504	0.6971	1.6500e-003	0.1807	9.1000e-004	0.1816	0.0479	8.4000e-004	0.0488		166.9882	166.9882	5.1000e-003	4.7500e-003	168.5311
Total	**0.1002**	**0.4378**	**0.8177**	**3.4700e-003**	**0.2417**	**3.4900e-003**	**0.2452**	**0.0655**	**3.3100e-003**	**0.0688**		**359.6787**	**359.6787**	**6.0000e-003**	**0.0337**	**369.8761**

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

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4200	11.0639	12.5172	0.0221		0.4506	0.4506		0.4348	0.4348		2,001.9214	2,001.9214	0.3334		2,010.2563
Total	**1.4200**	**11.0639**	**12.5172**	**0.0221**		**0.4506**	**0.4506**		**0.4348**	**0.4348**		**2,001.9214**	**2,001.9214**	**0.3334**		**2,010.2563**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0102	0.3874	0.1176	1.7900e-003	0.0610	2.6000e-003	0.0636	0.0176	2.4900e-003	0.0201		189.7174	189.7174	8.7000e-004	0.0285	198.2285
Worker	0.0821	0.0442	0.6385	1.6000e-003	0.1807	8.6000e-004	0.1816	0.0479	7.9000e-004	0.0487		161.2371	161.2371	4.5500e-003	4.3600e-003	162.6516
Total	**0.0923**	**0.4316**	**0.7562**	**3.3900e-003**	**0.2417**	**3.4600e-003**	**0.2452**	**0.0655**	**3.2800e-003**	**0.0688**		**350.9545**	**350.9545**	**5.4200e-003**	**0.0329**	**360.8800**

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

3.5 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4200	11.0639	12.5172	0.0221		0.4506	0.4506		0.4348	0.4348	0.0000	2,001.9214	2,001.9214	0.3334		2,010.2563
Total	**1.4200**	**11.0639**	**12.5172**	**0.0221**		**0.4506**	**0.4506**		**0.4348**	**0.4348**	**0.0000**	**2,001.9214**	**2,001.9214**	**0.3334**		**2,010.2563**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0102	0.3874	0.1176	1.7900e-003	0.0610	2.6000e-003	0.0636	0.0176	2.4900e-003	0.0201		189.7174	189.7174	8.7000e-004	0.0285	198.2285
Worker	0.0821	0.0442	0.6385	1.6000e-003	0.1807	8.6000e-004	0.1816	0.0479	7.9000e-004	0.0487		161.2371	161.2371	4.5500e-003	4.3600e-003	162.6516
Total	**0.0923**	**0.4316**	**0.7562**	**3.3900e-003**	**0.2417**	**3.4600e-003**	**0.2452**	**0.0655**	**3.2800e-003**	**0.0688**		**350.9545**	**350.9545**	**5.4200e-003**	**0.0329**	**360.8800**

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

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6180	5.8607	8.8253	0.0136		0.2810	0.2810		0.2594	0.2594		1,297.8688	1,297.8688	0.4114		1,308.1547
Paving	0.3144					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9324**	**5.8607**	**8.8253**	**0.0136**		**0.2810**	**0.2810**		**0.2594**	**0.2594**		**1,297.8688**	**1,297.8688**	**0.4114**		**1,308.1547**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0485	0.0261	0.3773	9.4000e-004	0.1068	5.1000e-004	0.1073	0.0283	4.7000e-004	0.0288		95.2765	95.2765	2.6900e-003	2.5800e-003	96.1123
Total	**0.0485**	**0.0261**	**0.3773**	**9.4000e-004**	**0.1068**	**5.1000e-004**	**0.1073**	**0.0283**	**4.7000e-004**	**0.0288**		**95.2765**	**95.2765**	**2.6900e-003**	**2.5800e-003**	**96.1123**

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

3.6 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6180	5.8607	8.8253	0.0136		0.2810	0.2810		0.2594	0.2594	0.0000	1,297.8688	1,297.8688	0.4114		1,308.1547
Paving	0.3144					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9324**	**5.8607**	**8.8253**	**0.0136**		**0.2810**	**0.2810**		**0.2594**	**0.2594**	**0.0000**	**1,297.8688**	**1,297.8688**	**0.4114**		**1,308.1547**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0485	0.0261	0.3773	9.4000e-004	0.1068	5.1000e-004	0.1073	0.0283	4.7000e-004	0.0288		95.2765	95.2765	2.6900e-003	2.5800e-003	96.1123
Total	**0.0485**	**0.0261**	**0.3773**	**9.4000e-004**	**0.1068**	**5.1000e-004**	**0.1073**	**0.0283**	**4.7000e-004**	**0.0288**		**95.2765**	**95.2765**	**2.6900e-003**	**2.5800e-003**	**96.1123**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	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
Other Asphalt Surfaces	0.509869	0.051139	0.167106	0.174849	0.031609	0.007996	0.012006	0.015707	0.000636	0.000471	0.023554	0.001465	0.003592

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

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas 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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	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**

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

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	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**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0251	5.0000e-005	5.3400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0122
Unmitigated	0.0251	5.0000e-005	5.3400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0122

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

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.9900e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0186					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.9000e-004	5.0000e-005	5.3400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0122
Total	**0.0250**	**5.0000e-005**	**5.3400e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0115**	**0.0115**	**3.0000e-005**		**0.0122**

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.9900e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0186					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.9000e-004	5.0000e-005	5.3400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0122
Total	**0.0250**	**5.0000e-005**	**5.3400e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0115**	**0.0115**	**3.0000e-005**		**0.0122**

7.0 Water Detail

7.1 Mitigation Measures Water

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

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

**HARP - Air Dispersion Modeling and Risk Tool v22118																		
**7/28/2023																		
**Exported Risk Results																		
REC	GRP	NETID	X	Y	RISK_SUM	SCENARIO	INHAL_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK	WATER_RISK	FISH_RISK	CROP_RISK	BEEF_RISK	DAIRY_RISK	PIG_RISK	CHICKEN_RISK	EGG_RISK
1	SENSITIV		304869	4026038	1.74E-10	0.8YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.74E-10	0	0	0	0	0	0	0	0	0	0	0
2	SENSITIV		304765	4025858	2.5777E-12	0.8YrCancerDerived_InhSoilDermMMilk_FAH16to70	2.5777E-12	0	0	0	0	0	0	0	0	0	0	0

3	SENSITIV		305032	4025809	2.5777E-12	0.8YrCancerDerived_InhSoilDermMMilk_FAH16to70	2.5777E-12	0	0	0	0	0	0	0	0	0	0	0

**HARP - Air Dispersion Modeling and Risk Tool v22118																				
**7/28/2023																				
**Exported Risk Results																				
REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL	MAXHI
1	SENSITIV		304869	4026038	NonCancerChronicDerived_InhSoilDermMMilk	0	0	0	0	0	0	2.4E-07	0	0	0	0	0	0	0	2.4E-07
2	SENSITIV		304765	4025858	NonCancerChronicDerived_InhSoilDermMMilk	0	0	0	0	0	0	3.5555E-09	0	0	0	0	0	0	0	3.5555E-09

3	SENSITIV		305032	4025809	Non Cancer Chronic Derived _Inh Soil Der mM Milk	0	0	0	0	0	0	3.5555E-09	0	0	0	0	0	0	0	3.5555E-09

**HARP - Air Dispersion Modeling and Risk Tool v22118																				
**7/28/2023																				
**Exported Risk Results																				
REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL	MAXHI
1	SENSITIV		304869	4026038	NonCancerAcute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	SENSITIV		304765	4025858	NonCancerAcute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	SENSITIV		305032	4025809	NonCancerAcute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

HARP Project Summary Report 7/28/2023 8:47:02 AM

PROJECT INFORMATION
HARP Version: 22118
Project Name: MIC SIPHONS
Project Output Directory: G:\Tulare ID-1248\124823002-MIC Siphons\200 Technical\215 Env Planning\Appendices\App A -Air Quality\MIC SIPHONS HARP
Database: NA

FACILITY INFORMATION
Origin
X (m):304901
Y (m):4026026
Zone:11
No. of Sources:1
No. of Buildings:0

EMISSION INVENTORY
No. of Pollutants:1
No. of Background Pollutants:0

Emissions
ScrID StkID ProID PolID PolAbbrev Multi Annual Ems MaxHr Ems MWAF (lbs/yr) (lbs/hr)
_____ PJT_AREA 0 0
9901 DieselExhPM 1 61.8 0.08465 1

Background
PolID PolAbbrev Conc (ug/m^3) MWAF

Ground level concentration files (\glc\)

9901MAXHR.txt
9901PER.txt

POLLUTANT HEALTH INFORMATION
Health Database: C:\HARP2\Tables\HEALTH17320.mdb
Health Table Version: HEALTH22013
Official: True

PolID PolAbbrev InhCancer OralCancer AcuteREL InhChronicREL OralChronicREL InhChronic8HRREL
9901 DieselExhPM 1.1 5

AIR DISPERSION MODELING INFORMATION Versions used in HARP. All executables were obtained from USEPA's Support Center for Regulatory Atmospheric Modeling website (http://www.epa.gov/scram001/) AERMOD: 18081
AERMAP: 18081
BPIPPRM: 04274
AERPLOT: 13329

METEOROLOGICAL INFORMATION
Version: 18081
Surface File: G:\Tulare ID-1248\124823002-MIC Siphons\200 Technical\215 Env Planning\Appendices\App A -Air Quality\MIC SIPHONS\Visalia_2007-2010.SFC
Profile File: G:\Tulare ID-1248\124823002-MIC Siphons\200 Technical\215 Env Planning\Appendices\App A -Air Quality\MIC SIPHONS\Visalia_2007-2010.PFL
Surface Station: 93144
Upper Station: 23230
On-Site Station: 0
Start Date & Time: 7 1 1 1
End Date & Time: 10 12 31 24
Hours Processed: 35064
Calm Hours: 9717
Missing Hours: 1213

LIST OF AIR DISPERSION FILES
AERMOD Input File: \MIC SIPHONS_AERMOD.inp
AERMOD Output File: \MIC SIPHONS_AERMOD.out
AERMOD Error File: \MIC SIPHONS_AERMOD.ERR
Plotfile list
_____
MAX1HRPJT_AREA.PLT
PERIODPJT_AREA.PLT
 LIST OF RISK ASSESSMENT FILES
Health risk analysis files (\hra\)
_____
CON_CancerRisk.csv
CON_CancerRiskSumByRec.csv
CON_GLCList.csv
CON_HRAInput.hra
CON_NCAcuteRisk.csv
CON_NCAcuteRiskSumByRec.csv
CON_NCChronicRisk.csv
CON_NCChronicRiskSumByRec.csv
CON_Output.txt
CON_PathwayRec.csv
CON_PolDB.csv

Spatial averaging files (\sa\)
_____

Appendix B: Biological Evaluation

Biological Evaluation

TULARE IRRIGATION DISTRICT

MAIN INTAKE CANAL SIPHONS PROJECT

FEBRUARY 2024

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

EST 1968
PROVOST& PRITCHARD
CONSULTING GROUP
An Employee Owned Company

Table of Contents

List of Figures

List of Tables

List of Appendices

1 Introduction

The following technical report prepared by Provost & Pritchard Consulting Group (Provost & Pritchard), in compliance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), includes a description of the biological resources present or with the potential to occur within the proposed Tulare Irrigation District (TID) Main Intake Canal (MIC) Siphons Project (project) and surrounding areas, and evaluates potential project-related impacts to those resources.

1.1 Project Description

The project includes the St. Johns River siphon site and the Kaweah River siphon site, which are located half a mile apart and approximately 4 miles northeast of the City of Visalia and approximately 5 miles southwest of the City of Woodlake in the center of Tulare County, within the eastern San Joaquin Valley (see Figure 1 and Figure 2). Both siphons are located along the TID MIC. The area of potential effect (APE) for the St. Johns River siphon site is approximately 2.9 acres in size and the Kaweah River siphon site is approximately 3.4 acres in size, which equals a total project size of approximately seven acres. This includes all construction staging and access areas needed for construction equipment. (see Figure 3).

The District is pursuing the construction of the two reinforced concrete box siphons, each connecting to the MIC. The Project includes one reinforced concrete box siphon at each site. The Project proposes to install two new siphons adjacent and upstream of the existing siphons at each site. The new siphons will address the structural concerns of the existing siphons and will also enhance the maximum capacity to approximately 1,100 CFS. The Project will be completed in multiple construction phases. The initial phase will involve clearing and grubbing outside of the St. Johns and Kaweah River channels at the individual siphon sites which could include minor vegetation removal. Upon completion of the first phase, the second phase for project construction will be the excavation of the sending and receiving pits, one pit on either side of the Rivers at each siphon site. These pits are utilized for the jack and bore drilling pipe installation method. In the sending pit, a boring machine and auger will drill into the earth beneath each river installing pipe casing along the way to the receiving pit. It is anticipated the sending and receiving pits will be gravel or rock lined to stabilize the operation of the pipelines. This phase will also see the installation of head walls and wing walls on upstream and downstream sides as well as trash racks on the upstream side of the siphon intakes. The third phase of the Project will consist of reconditioning the water flow into the new siphons and into the MIC. The existing box culvert siphons will remain in place once construction of the new siphons is complete. The existing siphons will provide added erosion protection for the new siphons in the Rivers by stabilizing the river bottom sediment in place.

1.2 Report Objectives

Construction activities such as those proposed by the project could potentially change 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 on each site, or with the potential to occur on each site.
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 on each site based on habitat suitability and the proximity of each site to a species' known range.
3. Summarize all state and federal natural resource protection laws that may be relevant to each site.
4. Identify and discuss project impacts and effects to biological resources likely to occur on each site within the context of the CEQA, NEPA, 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) or avoid and minimize effects (as identified by NEPA) and are generally consistent with recommendations of the resource agencies for sensitive biological resources.

1.3 Study Methodology

A reconnaissance-level field survey of the St. Johns River Siphon site and the Kaweah River Siphon site was conducted on May 30, 2023, by Provost & Pritchard biologist, Shaylea Stark. The survey consisted of walking within the project sites while identifying and noting land uses, biological habitats and communities, and plant and animal species encountered, and assessing suitable habitats that could be utilized by various special status plant and animal species. Representative photographs of the St. Johns River site and Kaweah River site were taken and are presented in Appendix A and Appendix B, respectively.

Ms. Stark 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 project sites. Sources of information used in preparation of this analysis included: the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB; see Appendix C for the Species List) and California Wildlife Habitat Relationships (CWHR) database; California Native Plant Society's (CNPS) Online Inventory of Rare and Endangered Vascular Plants of California; CalFlora's online database of California native plants; Jepson Herbarium's online database (i.e., Jepson eFlora); United States Fish and Wildlife Service's (USFWS) Environmental Conservation Online System (ECOS), Information for Planning and Consultation (IPaC; see Appendix D for the Species List) system, and National Wetlands Inventory (NWI); iNaturalist; NatureServe Explorer's online database; United States Department of Agriculture (USDA) Natural Resources Conservation Service's (NRCS) Web Soil Survey (see Appendix E and Appendix F for the Web Soil Survey Reports); California Herps website; and various manuals, reports, and references related to plants and animals of the San Joaquin Valley region.

The field survey did not include focused surveys for special status species. The field survey conducted included the appropriate level of detail to assess the significance of potential impacts to sensitive biological resources resulting from implementation of 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 the State Water Resources Control Board (SWRCB).

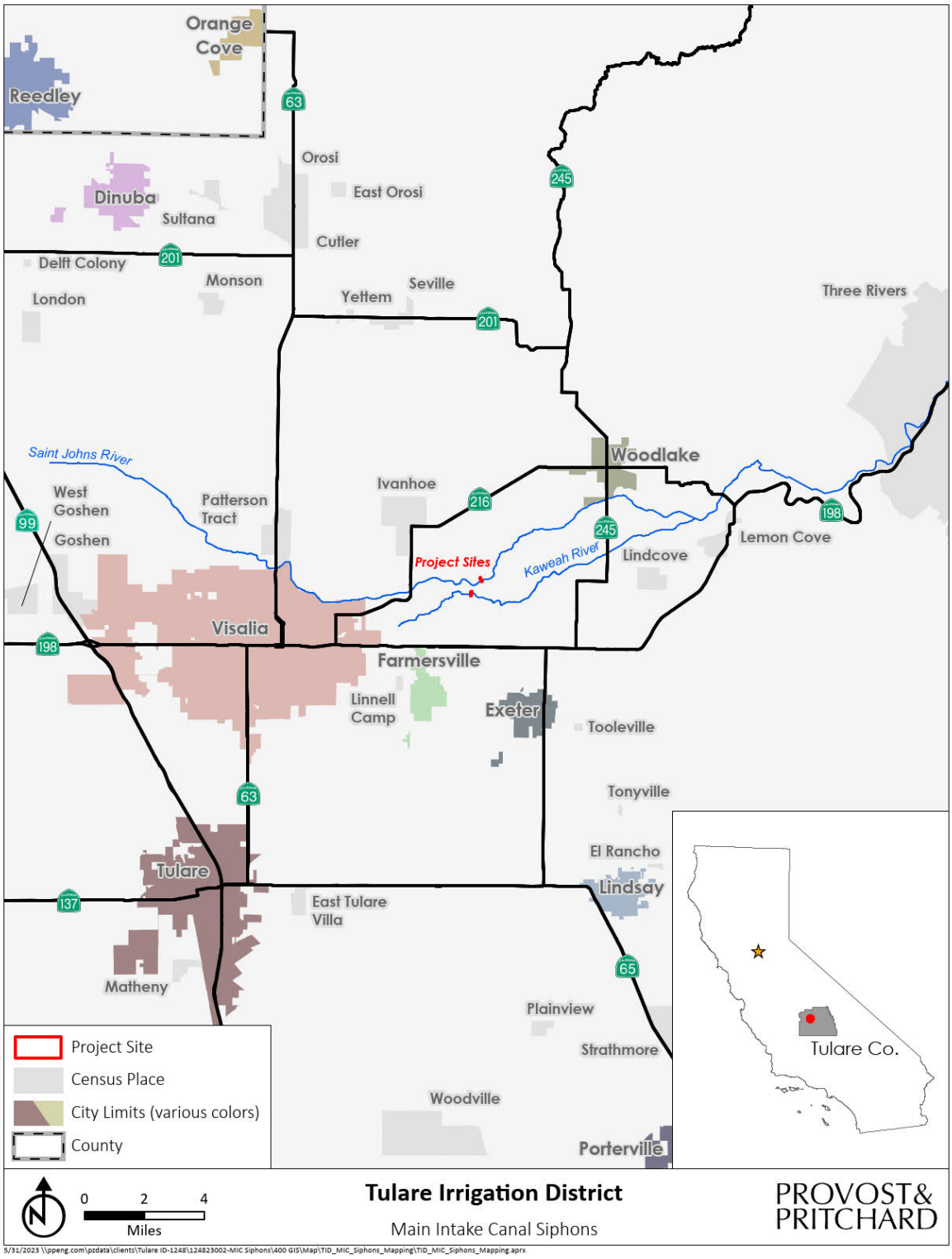


Figure 1. Regional Location Map

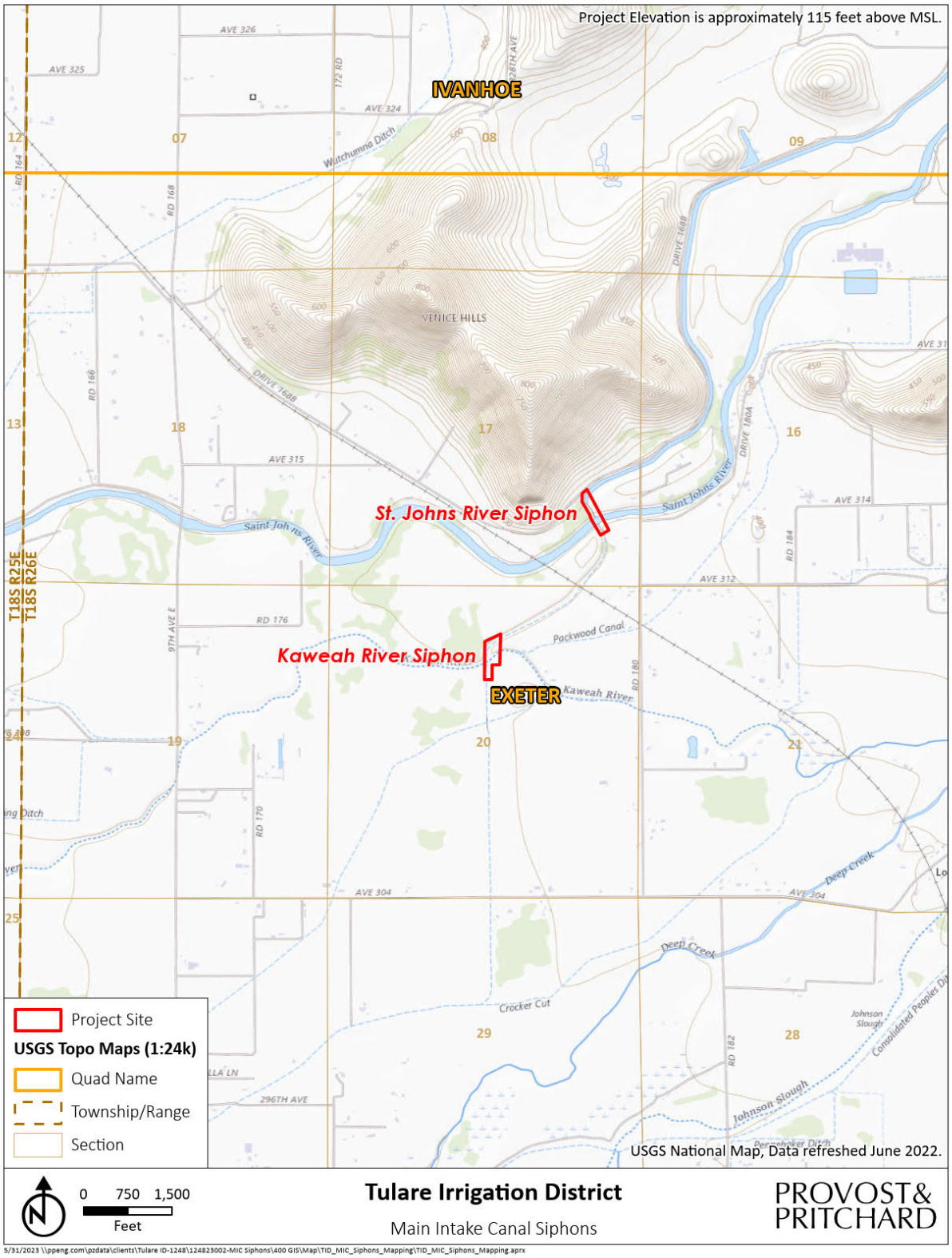


Figure 2. Topographic Quadrangle Map

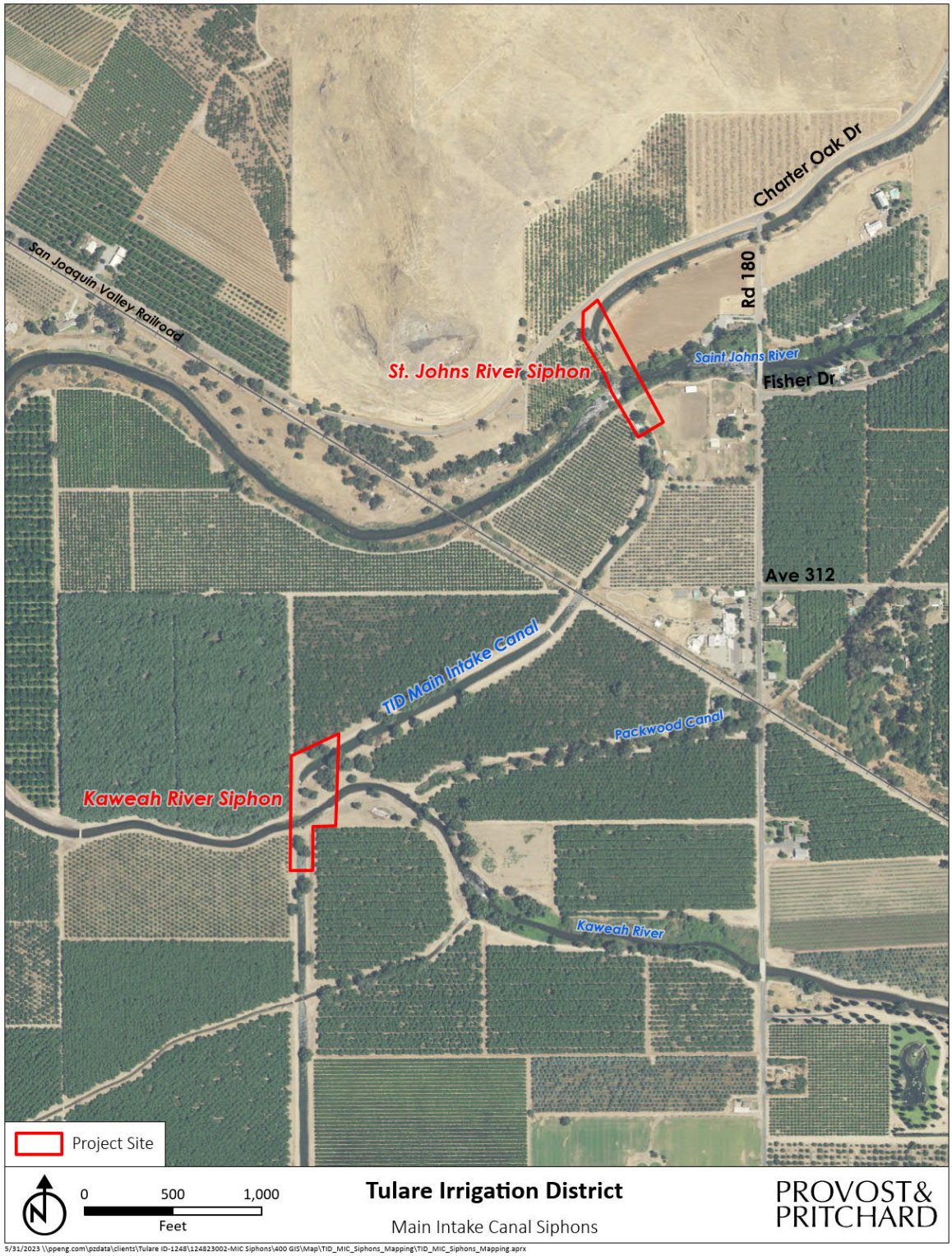


Figure 3. Project Sites Map

2 Existing Conditions

2.1 Regional Setting

2.1.1 Topography

The topography of the St. Johns River site slopes down towards the St. Johns River channel and then slopes back up outside of the channel. The elevations of this site are between 358 and 400 feet above mean sea level. The topography of the Kaweah River site is relatively flat except for the MIC and Kaweah River channel. The elevations of this site are between 370 and 390 feet above mean sea level.

2.1.2 Climate

Like most of California, the project sites experience a Mediterranean climate. Warm, dry summers are followed by cool, moist winters. Summer temperatures often reach above 85 degrees Fahrenheit (°F), and the humidity is generally low. Winter temperatures are often below 60 °F during the day and rarely exceed 70 °F. On average, the City of Visalia receives approximately 13 inches of precipitation in the form of rainfall yearly, most of which occurs between November and April (WeatherSpark 2023) and the project sites would be expected to receive similar amounts of precipitation.

2.1.3 Hydrology

A watershed is the topographic region that drains into a stream, river, or lake. Watersheds are made up of many smaller subwatersheds that drain into a particular stream, river, or lake, and the project sites are located within different watersheds, as follows:

- St. Johns River Site: This site lies within the Upper Cross Creek watershed; Hydrologic Unit Code (HUC): 1803000711, and a single subwatershed; the Saint Johns River subwatershed; HUC: 180300071102. The nearest surface waters to the St. Johns River site are the St. Johns River and the TID MIC, which are both within the project site and included in project activities.
- Kaweah River Site: This site lies within two watersheds; the Horse Creek-Kaweah River watershed; (HUC): 1803000709, and the Middle Branch Cross Creek watershed; HUC: 1803000714, and two subwatersheds; the Lake Kaweah-Kaweah River subwatershed; HUC: 180300070902, and the Packwood Creek subwatershed; HUC: 180300071401. The nearest surface waters to the Kaweah River site are the Kaweah River and the TID MIC, which are both within this project site and included in project activities.

The St. Johns River and Kaweah River are known waters of the United States and state and are subject to the jurisdiction of the USACE and the SWRCB. These rivers and floodplains are also under the jurisdiction of the Central Valley Flood Protection Board (CVFPB) and CDFW.

2.1.4 Soils

Three soil mapping units representing three soil types were identified within the project sites and are listed in Table 1 (see Appendix E and Appendix F for the complete Web Soil Survey Reports). The soils are displayed with their core properties in the table below, according to the Major Land Resource Area of California. Generally, Exeter and Grangeville soils are used for agriculture. Riverwash is found within the channels of the St. Johns River and the Kaweah River.

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

Project Site Name(s)	Map Unit Name	Percent of Project Site	Major Component Hydric Soil Rating	Minor Component Hydric Soil Rating	Drainage	Permeability	Runoff
St. Johns River	Exeter loam, 0 to 2 percent slopes	46.%	No	No	Moderately well drained	Moderately slow permeability	Very slow to medium runoff
St. Johns River Kaweah River	Grangeville sandy loam, drained, 0 to 2 percent slopes	16.9% 68.6%	Yes	Yes	Somewhat poorly drained	Moderate permeability	Negligible runoff
St. Johns River Kaweah River	Riverwash	36.7% 31.4%	-	-	-	-	-

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 soils of each site are considered partially hydric. The Riverwash identified in the sites is within the St. Johns River and the Kaweah River, which are natural waterways.

2.2 Biotic Habitats

Three biotic habitats were identified within the project sites: ruderal/agricultural, riverine, and canal. These biotic habitats and their constituent plant and animal species are described in more detail in the following sections. The biotic habitats within each project site are mapped in Figure 4. Selected photographs of these habitats in the St. Johns River site and the Kaweah River site are presented in Appendix A and Appendix B, respectively.

2.2.1 Ruderal/Agricultural

The project sites included ruderal/agricultural habitat, which consisted of hard-packed dirt roads, agricultural fields and orchards, and livestock pens. Vegetation observed in this habitat included Bermuda grass (*Cynodon dactylon*), puncture vine (*Tribulus terrestris*), mustard (*Brassica* sp.), valley oak trees (*Quercus lobata*), peach trees (*Prunus persica*), olive trees (*Olea europaea*), great brome (*Bromus diandrus*), Johnson grass (*Sorghum halepense*), apple trees (*Malus domestica*), field bindweed (*Convolvulus arvensis*), horseweed (*Erigeron canadensis*), Maltese star thistle (*Centaurea melitensis*), and common spikeweed (*Centromadia pungens*).

Within the ruderal/agricultural habitat, cliff swallow (*Petrochelidon pyrrhonota*), northern mockingbird (*Mimus polyglottos*), American robin (*Turdus migratorius*), house finch (*Haemorhous mexicanus*), black phoebe (*Sayornis nigricans*), European starling (*Sturnus vulgaris*), mourning dove (*Zenaida macroura*), and western fence lizard (*Sceloporus occidentalis*) were observed. Virginia opossum (*Didelphis virginiana*) tracks and cows (*Bos taurus*) were observed within this habitat at the St. Johns River site. A nest box was observed within this habitat at the Kaweah River site.

The ruderal/agricultural habitat within the project sites is disturbed by irrigation activities related to the TID MIC as well as agricultural activities. This habitat provides foraging opportunities for birds, including raptors, during the day, and potentially for bats, coyotes, and other nocturnal animals at night. Ground nesting birds, such as killdeer (*Charadrius vociferus*) and mourning dove, may nest within this habitat.

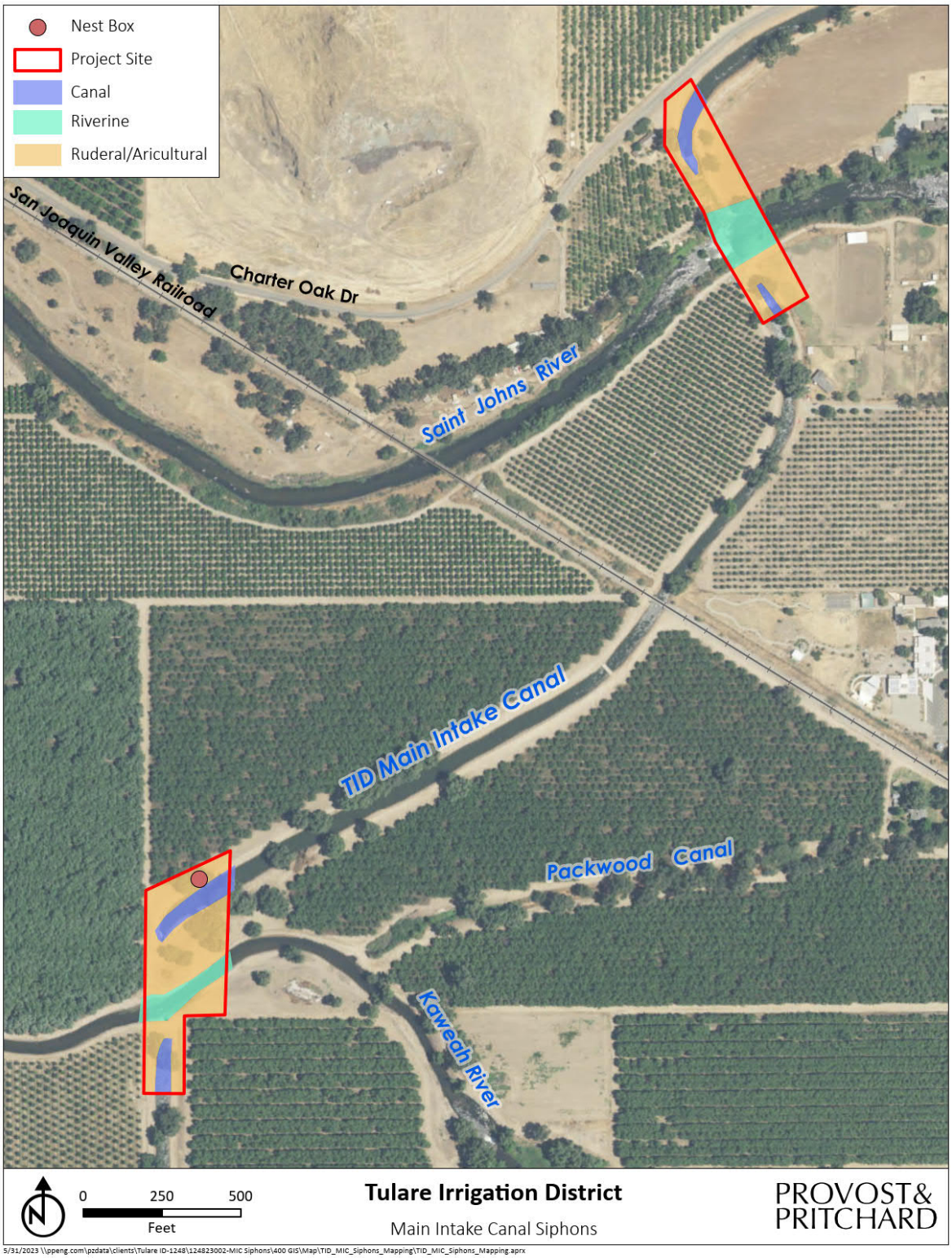


Figure 4. Project Sites Habitat Types Map

2.2.2 Riverine

The project sites contained riverine habitat within the St. Johns River and the Kaweah River. The St. Johns River had abundant riparian vegetation within this habitat while the Kaweah River contained minimal vegetation within this habitat and appeared to experience routine maintenance along this section of the river.

Vegetation within this habitat includes valley oak trees, tree tobacco (*Nicotiana glauca*), pale smartweed (*Persicaria lapathifolia*), California mugwort (*Artemisia douglasiana*), willow (*Salix* sp.), great stinging nettle (*Urtica dioica*), white horehound (*Marrubium vulgare*), milk thistle (*Silybum marianum*), California wild grape (*Vitis californica*), blue elderberry (*Sambucus cerulea*), palm tree (*Arecaceae* sp.), and bulrushes (*schoenoplectus* sp.). While no species were observed in the riverine habitat during the survey, fish are known to occur in these rivers. These species include rainbow trout (*Oncorhynchus mykiss*), brown trout (*Salmo trutta*), and smallmouth bass (*Micropterus dolomieu*). Various species such as racoons (*Procyon lotor*), coyotes, Virginia opossum, and other wildlife species may utilize the rivers as a wildlife movement corridor.

2.2.3 Canal

Each project site contained a section of the MIC, which is a dirt canal that experiences routine maintenance. The MIC was full of water at the time of the survey. Vegetation within this habitat included red-stemmed filaree (Erodium cicutarium), wall barley (Hordeum murinum), rabbitfoot grass (Polypogon monspeliensis), common sowthistle (Sonchus oleraceus), summer cypress (Bassia scoparia), prickly lettuce (Lactuca serriola), sacred datura (Datura wrightii), wine grape (Vitis vinifera), pecan tree (Carya illinoinensis), horseweed, and blue elderberry. Species such as western toad, Pacific tree frog (Pseudacris regilla), and bullfrog (Lithobates catesbeianus) would be expected to occur in this habitat. Various species such as racoons, coyotes, Virginia opossum, and other wildlife species may utilize the canal habitat as a wildlife movement corridor.

2.3 Riparian Habitat and Natural Communities of Special Concern

Riparian habitat is composed of plant communities that occur along the banks, and sometimes over the banks, of most waterways and is an important habitat for numerous plant and wildlife species. CDFW has jurisdiction over most riparian habitats in California. The St. Johns River site contained riparian vegetation within the riverine habitat, while the Kaweah River site had little to no riparian vegetation.

Natural communities of special concern are those that are of limited distribution, distinguished by significant biological diversity, or home to special status species. CDFW has classified and mapped all natural communities in California. Just as the special status plant and animal species, these natural communities of special concern can be found within the CNDDB. According to the CNDDB and field survey, no natural communities of special concern were present within the project sites. The only recorded natural communities of special concern within the vicinity of the project sites are Valley Sacaton Grassland, Great Valley Valley Oak Riparian Forest, Sycamore Alluvial Woodland, Northern Claypan Vernal Pool, and Northern Hardpan Vernal Pool. Valley Sacaton Grassland and Great Valley Valley Oak Riparian Forest is approximately 1.5 miles south of the St. Johns River site, and approximately 1 mile south of the Kaweah River site. Sycamore Alluvial Woodland is approximately 8 miles northeast of the St. Johns River site, and approximately 8.5 miles northeast of the Kaweah River site. Northern Claypan Vernal Pool is approximately 4.5 miles east of the St. Johns River site, and approximately 5 miles east of the Kaweah River site. Northern Hardpan Vernal Pool is approximately 10 miles northwest of the St. Johns River site, and approximately 5 miles northwest of the Kaweah River site.

2.4 Designated Critical Habitat

The USFWS often designates areas of "Critical Habitat" when it lists species as threatened or endangered. Critical habitat is a specific geographic area that contains features essential for the conservation of a threatened

or endangered species, which may require special management and protection. According to the CNDDB and IPaC, critical habitat is absent within the project sites. San Joaquin Valley Orcutt grass and Hoover's spurge critical habitats are approximately 5.5 miles northeast of the project sites.

2.5 Wildlife Movement Corridors and Native Wildlife Nursery Sites

Wildlife movement corridors are routes that animals regularly and predictably follow during seasonal migration, dispersal from native ranges, daily travel within home ranges, and inter-population movements. Movement corridors in California are typically associated with valleys, ridgelines, and rivers and creeks supporting riparian vegetation. The project sites contain features that may function as wildlife movement corridors. The MIC, St. Johns River, and Kaweah River could be used as wildlife movement corridors.

Native wildlife nursery sites are areas where a species or group of similar species raise their young in a concentrated place, such as a maternity bat roost. The project sites contain suitable features (large valley oak trees and rivers) that may function as native wildlife nursery sites.

2.6 Special Status Animals and Plants

California contains several rare animal and plant species. In this context, "rare" is defined as species known to have low populations or limited distributions. As the human population grows, urban expansion encroaches on the already-limited suitable habitat for rare species. 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 animal and plant species native to California. Numerous native animals and plants have been formally designated as "threatened" or "endangered" under state and federal endangered species legislation. Other formal designations include "candidate" for listing or "species of special concern" by CDFW. The CNPS has its list of native plants considered rare, threatened, or endangered. Collectively these animals and plants are referred to as "special status species."

A query of the CNDDB for occurrences of special status animal and plant species was conducted for the *Exeter* 7.5-minute U.S. Geological Survey (USGS) quadrangle that contains the project sites in their entirety, and for the eight surrounding quadrangles *Cairns Corner*, *Ivanhoe*, *Lindsay*, *Monson*, *Rocky Hill*, *Tulare*, *Visalia*, and *Woodlake*. These species, and their potential to occur within the project sites, are listed in Table 2 and Table 3 on the following pages. Other species that have the potential to occur within the project sites that did not show up in the CNDDB and IPaC queries are also included in Table 2. Species lists obtained from CNDDB and IPaC are available in Appendix C and Appendix D, respectively. All relevant sources of information, as discussed in the Study Methodology section of this report, as well as field observations, were used to determine if any special status species may occur within the project sites.

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

Species	Status*	Habitat	Occurrence within the Project Sites*	
			St. Johns River Site	Kaweah River Site
American badger (*Taxidea taxus*)	CSSC	Grasslands, savannas, and mountain meadows near timberline are preferred. Most abundant in drier open spaces of shrub and grassland. Burrows in soil.	Unlikely. The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for this species. An American badger could potentially pass through and forage along the river in this site, but it is unlikely they would den within this site. The only recorded observation of this species within the vicinity was approximately 2 miles south of this site in 1994.	Unlikely. This site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for this species. An American badger could potentially pass through this site, but it is unlikely they would forage or live within this site. The only recorded observation of this species within the vicinity was approximately 1.5 miles south of this site in 1994.
Blunt-nosed leopard lizard (*Gambelia sila*)	FE, CE, CFP	Inhabits semi-arid grasslands, alkali flats, low foothills, canyon floors, large washes, and arroyos, usually on sandy, gravelly, or loamy substrate, sometimes on hardpan. Often found where there are abundant rodent burrows in dense vegetation or tall grass. Cannot survive on lands under cultivation. Known to bask on kangaroo rat mounds and often seeks shelter at the base of shrubs, in small mammal burrows, or in rock piles. Adults may excavate shallow burrows but rely on deeper pre-existing rodent burrows for hibernation and reproduction.	Absent. Suitable habitat for this species was absent within the site and surrounding lands. The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for this species. The CNDDB query resulted in no observations of this species within the regional vicinity of the project.	Absent. Suitable habitat for this species was absent within the site and surrounding lands. The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for this species. The CNDDB query resulted in no observations of this species within the regional vicinity of the project.
Buena Vista Lake ornate shrew (*Sorex ornatus relictus*)	FE, CSSC	Prefers moist soils, in marshes, swamps, and riparian shrublands. Uses stumps, logs, and leaf litter for cover.	Unlikely. Marsh habitat required by this species was absent within the site and surrounding areas. The St. Johns River is controlled for irrigation purposes and does not hold water year-round, making it unsuitable for this species. The CNDDB query resulted in no observations of this species within the regional vicinity of the project.	Unlikely. Marsh habitat required by this species is absent within the site and surrounding areas. The Kaweah River is controlled for irrigation purposes and does not hold water year-round, making it unsuitable for this species. The CNDDB query resulted in no observations of this species within the regional vicinity of the project.
Burrowing owl (*Athene cunicularia*)	CSSC	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.	Unlikely. The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for this species. No sign of this species was observed during the field survey. The nearest recorded observation of this species within	Unlikely. The site and surrounding areas are regularly maintained for irrigation and agricultural purposes and are unsuitable for this species. No sign of this species was observed during the field survey. The nearest recorded observation of this species within

Species	Status*	Habitat	Occurrence within the Project Sites* St. Johns River Site	Kaweah River Site
			the vicinity was approximately 9 miles northwest of the site in 2006.	the vicinity was approximately 9 miles northwest of this site in 2006.
California condor (*Gymnogyps californianus*)	FE, CE, CFP	Typically nests in cavities in canyon or cliff faces but has also been recorded nesting in giant sequoias in Tulare County. Requires vast expanse of open savannah, grassland, and/or foothill chaparral in mountain ranges of moderate altitude. Forages up to 100 miles from roost/nest site for carrion.	Unlikely. There was no suitable habitat for nesting and foraging within the site. The CNDDB query resulted in no observations of this species within the regional vicinity of the project.	Unlikely. There was no suitable habitat for nesting and foraging within the site. The CNDDB query resulted in no observations of this species within the regional vicinity of the project.
California tiger salamander (*Ambystoma californiense*)	FT, CT	Requires vernal pools or seasonal ponds for breeding and small mammal burrows for aestivation. Generally found in grassland and oak savannah plant communities in central California from sea level to 1,500 feet in elevation. Can migrate up to 1.3 miles to breed.	Absent. Required vernal pools and upland habitat with burrows were absent within the site. The nearest recorded observation of this species within the vicinity was approximately 7 miles northeast of the site in 2011.	Absent. Required vernal pools and upland habitat with burrows were absent within the site. The nearest recorded observation of this species within the vicinity was approximately 7.5 miles northeast of this site in 2011.
Crotch bumble bee (*Bombus crotchii*)	CCE	Occurs throughout coastal California, as well as east to the Sierra-Cascade crest, and south into Mexico. Food plant genera include *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia*, and *Eriogonum*.	Unlikely. Most of the site and surrounding areas are regularly maintained for irrigation and agricultural purposes and plants this species forages on were absent. The nearest recorded observation of this species within the vicinity was approximately 5 miles northeast of this site in 1955.	Unlikely. Most of the site and surrounding areas are regularly maintained for irrigation and agricultural purposes and plants this species forages on were absent. The nearest recorded observation of this species within the vicinity was approximately 5.5 miles northeast of this site in 1955.
Foothill yellow-legged frog (*Rana boylii*)	CCT, CSSC	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. This species occurs in the Coast Ranges from the Oregon border south to the Transverse Mountains in Los Angeles County and along the western flank of the Sierra Mountains south to Kern County.	Absent. This site is outside of the current range of this species.	Absent. This site is outside of the current range of this species.
Monarch butterfly (*Danaus plexippus*)	FC	Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby. Larval host plants consist of milkweeds (*Asclepias* sp.). Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico.	Unlikely. Foraging and roosting habitat was absent within the site. The site did not contain milkweeds or groves of trees. The CNDDB query resulted in no observations of this species within the regional vicinity of the project.	Unlikely. Foraging and roosting habitat was absent within the site. The site contained minimal vegetation with no nectar sources, milkweeds, or groves of trees. The CNDDB query resulted in no observations of this species within the regional vicinity of the project.

Species	Status*	Habitat	Occurrence within the Project Sites* St. Johns River Site	Kaweah River Site
Northern California legless lizard (*Anniella pulchra*)	CSSC	Found primarily underground, burrowing in loose, sandy soil. Forages in loose soil and leaf litter during the day. Occasionally observed on the surface at dusk and night.	Possible. Suitable habitat for this species was present within the site and surrounding lands. The St. Johns River contained, moist loose soils with oak trees and leaf litter. The nearest recorded observation of this species within the vicinity was approximately 2 miles south of the site in 2015.	Possible. Suitable habitat for this species was present within the site and surrounding lands. The Kaweah River contained moist, loose soils with surrounding oak trees and leaf litter. The only recorded observation of this species within the vicinity was approximately 1.5 miles south of this site in 2015.
Northern leopard frog (*Lithobates pipiens*)	CSSC	Inhabits grassland, wet meadows, potholes, forests, woodland, brushlands, springs, canals, bogs, marshes, and reservoirs. Generally prefers permanent water with abundant riparian vegetation. The leopard frog is established in Modoc County, possibly eastern Lassen County, the Colorado River, and in irrigated portions of Imperial, Tulare and Kern Counties.	Absent. This site is outside of the current range of this species.	Absent. This site is outside of the current range of this species.
Northwestern pond turtle (*Actinemys marmorata*)	FPT, CSSC	An aquatic turtle of ponds, marshes, slow-moving rivers, streams, and irrigation ditches with riparian vegetation. Requires adequate basking sites and sandy banks or grassy open fields to deposit eggs.	Possible. The St. Johns River and the MIC provide suitable aquatic habitat for this species. The only recorded observation of this species within the vicinity was approximately 6 miles southwest of the site in 1879.	Possible. The Kaweah River and the MIC provide suitable aquatic habitat for this species. The only recorded observation of this species within the vicinity was approximately 5.5 miles southwest of the site in 1879.
Pallid bat (*Antrozous pallidus*)	CSSC	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. The site contained large oak trees that had suitable roosting habitat. Foraging habitat was also present within the site and surrounding areas. The only recorded observation of this species within the vicinity was approximately 2.5 miles west of this site in 2004.	Possible. The site contained large oak trees that had suitable roosting habitat. Foraging habitat was also present within the site and surrounding areas. The only recorded observation of this species within the vicinity was approximately 2 miles west of the site in 2004.
San Joaquin kit fox (*Vulpes macrotis mutica*)	FE, CT	Utilizes underground dens with multiple entrances in alkali sink, valley grassland, and woodland in valleys and adjacent foothills.	Possible. Most of the site and surrounding areas are regularly maintained for irrigation and agricultural purposes but this species is known to den in berms along canals. The nearest recorded observation of this species within the vicinity was within the site in 1975.	Possible. Most of the site and surrounding areas are regularly maintained for irrigation and agricultural purposes but this species is known to den in berms along canals. The nearest recorded observation of this species within the vicinity was approximately 0.5 mile north of the site in 1975.
Swainson's hawk (*Buteo swainsoni*)	CT	Nests in large trees in open areas adjacent to grasslands, grain or alfalfa fields, or livestock	Possible. There were large oak trees within the site that were suitable for this species to nest in. The nearest recorded observation of	Possible. There were large oak trees within the site that were suitable for this species to nest in. The only recorded observation of

Species	Status*	Habitat	Occurrence within the Project Sites* St. Johns River Site	Kaweah River Site
		pastures suitable for supporting rodent populations.	this species within the vicinity was approximately 10.5 miles south of the site in 2017.	this species within the vicinity was approximately 10 miles south of the site in 2017.
Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*)	FE, CE	Prefers saltbush scrub and sink scrub communities in the Tulare Lake Basin of the southern San Joaquin Valley. Needs soft friable soils that are unlikely to flood. Digs burrows in elevated soil mounds at bases of shrubs.	Absent. Suitable habitats required by this species were absent from the site. The only recorded observation of this species within the vicinity was approximately 15.5 miles south of the site in 1943.	Absent. Suitable habitats required by this species were absent from the site. The only recorded observation of this species within the vicinity was approximately 15 miles south of the site in 1943.
Tricolored blackbird (*Agelaius tricolor*)	CT, CSSC	Nests colonially near fresh water in dense cattails or tules, or in thickets of riparian shrubs. Forages in grassland and cropland. Large colonies are often found on dairy farm forage fields.	Possible. Riparian vegetation was observed during the field survey. This species could potentially forage or nest along the St. Johns River in the site. The nearest recorded observation of this species within the vicinity was approximately 7 miles southeast of the site in 2014.	Unlikely. Minimal riparian vegetation or suitable nesting habitat was observed along the Kaweah River. This species could potentially fly through or forage within the site. The nearest recorded observation of this species within the vicinity was approximately 7 miles southeast of the site in 2014.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT	This species occurs throughout California's Central Valley from Shasta County through Madera County. Lives in mature elderberry shrubs of the Central Valley and foothills. Adults are active from March to June.	Absent. While elderberry shrubs were observed this site is outside of the current range of this species.	Absent. While elderberry shrubs were observed this site is outside of the current range of this species.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	Occupies vernal pools with clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools.	Absent. Vernal pool habitat was absent from the site and surrounding lands. The nearest recorded observation of this species within the vicinity was approximately 5 miles east of the site in 1993.	Absent. Vernal pool habitat was absent from the site and surrounding lands. The nearest recorded observation of this species within the vicinity was approximately 5.5 miles east of the site in 1993.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE	Occurs in vernal pools with clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools.	Absent. Vernal pool habitat was absent from the site and surrounding lands. The nearest recorded observation of this species within the vicinity was approximately 7.5 miles northwest of the site in 2002.	Absent. Vernal pool habitat was absent from the site and surrounding lands. The nearest recorded observation of this species within the vicinity was approximately 8 miles northwest of the site in 2002.
Western mastiff bat (*Eumops perotis californicus*)	CSSC	Found in open, arid to semi-arid habitats, including dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas, where it feeds on insects in flight. Roosts most commonly in crevices in cliff faces but may also use high buildings and tunnels.	Unlikely. The site did not contain suitable roosting habitat. Foraging habitat was present along the St. Johns River in the site. The nearest recorded observation of this species within the vicinity was approximately 5 miles northeast of the site in 1990.	Unlikely. The site did not contain suitable roosting habitat. Foraging habitat was present along the Kaweah River in the site. The nearest recorded observation of this species within the vicinity was approximately 5.5 miles northeast of the site in 1990.
Western spadefoot (*Spea hammondii*)	FPT, CSSC	The majority of the time this species is terrestrial and occurs in small mammal	Unlikely. Suitable pond habitat was absent within the site and surrounding areas. The St.	Unlikely. Suitable pond habitat was absent within the site and surrounding areas. The

Species	Status*	Habitat	Occurrence within the Project Sites* St. Johns River Site	Kaweah River Site
		burrows and soil cracks, sometimes in the bottom of dried pools. Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Vernal or seasonal pools, that hold water for a minimum of three weeks, are necessary for breeding.	Johns River flows too quickly and contains fish which are unsuitable for this species. The nearest recorded observation of this species within the vicinity was approximately 5.5 miles southeast of the site in 1991.	Kaweah River flows too quickly and contains fish which are unsuitable for this species. The nearest recorded observation of this species within the vicinity was approximately 6 miles southeast of the site in 1991.
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	FT, CE	Suitable nesting habitat in California includes dense riparian willow-cottonwood and mesquite habitats along a perennial river. Once a common breeding species in riparian habitats of lowland California, this species currently breeds consistently in only two locations in the state: along the Sacramento and South Fork Kern Rivers.	Absent. The site is outside of the known breeding areas.	Absent. The site is outside of the known breeding areas.

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

Species	Status*	Habitat	Occurrence within the Project Sites St. Johns River Site	Kaweah River Site
Alkali-sink goldfields (*Lasthenia chrysantha*)	CNPS 1B	Found in vernal pool and wet saline flat habitats of the Central Valley at elevations below 700 feet. Blooms February - April.	Absent. Vernal pool habitat was absent within the site and surrounding area. The nearest recorded observation of this species within the vicinity was approximately 1.5 miles south of the site in the 1990s.	Absent. Vernal pool habitat was absent within the site and surrounding area. The only recorded observation of this species within the vicinity was approximately 1 mile southwest of the site in the 1990s.
Brittlescale (*Atriplex depressa*)	CNPS 1B	Found in the Central Valley in alkaline or clay soils, typically in meadows or annual grasslands at elevations below 1,050 feet. Sometimes associated with vernal pools. Blooms June–October.	Absent. Vernal pool habitat was absent within the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 6 miles southwest of the site in 1881.	Absent. Vernal pool habitat was absent within the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 5.5 miles southwest of the site in 1881.
Calico monkeyflower (*Diplacus pictus*)	CNPS 1B	Found in the foothills of the Sierra Nevada and the Tehachapi mountains in bare, sunny, shrubby areas, and around granite outcrops within foothill woodland communities at elevations between 450 and 4,100 feet. Blooms March – May.	Absent. The site is outside of the current range of this species.	Absent. The site is outside of the current range of this species.

Species	Status*	Habitat	Occurrence within the Project Sites	
			St. Johns River Site	Kaweah River Site
California alkali grass (*Puccinellia simplex*)	CNPS 1B	Found in the San Joaquin Valley and other parts of California in saline flats and mineral springs within valley grassland and wetland-riparian communities at elevations below 3,000 feet. Blooms March–May.	Absent. Suitable habitat was absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 8.5 miles northwest of the site in 1936.	Absent. Suitable habitat was absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 8.5 miles northwest of the site in 1936.
California jewelflower (*Caulanthus californicus*)	FE, CE, CNPS 1B	Found in the San Joaquin Valley and western Transverse Ranges in sandy soils. Occurs on flats and slopes, generally in non-alkaline grassland at elevations between 230 feet and 6,100 feet. Blooms February–April.	Absent. Suitable habitat was absent from the site and surrounding areas. The only recorded observation of this species within the vicinity was approximately 12.5 miles southwest of the site in 1986.	Absent. Suitable habitat was absent from the site and surrounding areas. The only recorded observation of this species within the vicinity was approximately 12 miles southwest of the site in 1986.
California satintail (*Imperata brevifolia*)	CNPS 2B	Although this facultative species is equally likely to occur in wetlands and non-wetlands, it is often found in wet springs, meadows, streambanks, and floodplains at elevations below 1,600 feet. Blooms September – May.	Possible. Suitable habitat is found within the riverine habitat along the St. Johns River within the site. The only recorded observation of this species within the vicinity was approximately 6 miles southwest of the site in 1895.	Possible. Suitable habitat is found within the riverine habitat along the Kaweah River within the site. The only recorded observation of this species within the vicinity was approximately 5.5 miles southwest of the site in 1895.
Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*)	CNPS 1B	Found on alkaline or saline soils in vernal pools and playas in grasslands at elevations below 4,500 feet. Blooms April–May.	Absent. Suitable habitat and saline soils were absent from the site and surrounding areas. The only recorded observation of this species within the vicinity was approximately 9 miles northwest of the site in 2015.	Absent. Suitable habitat and saline soils were absent from the site and surrounding areas. The only recorded observation of this species within the vicinity was approximately 9.5 miles northwest of the site in 2015.
Earlimart orache (*Atriplex cordulata* var. *erecticaulis*)	CNPS 1B	Found in the San Joaquin Valley in saline or alkaline soils, typically within valley and foothill grassland at elevations below 375 feet. Blooms August–September.	Unlikely. Suitable habitat and alkaline soils were absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 9 miles northwest of this site in 2010.	Unlikely. Suitable habitat and alkaline soils were absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 9.5 miles northwest of this site in 2010.
Greene's tuctoria (*Tuctoria greenei*)	FE, 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 3,500 feet. Blooms May – September.	Absent. Required vernal pool habitat was absent within the site. The nearest recorded observation of this species within the vicinity was approximately 4.5 miles northeast of the site in 2010.	Absent. Required vernal pool habitat was absent within this site. The nearest recorded observation of this species within the vicinity was approximately 5 miles northeast of the site in 2010.
Hoover's spurge (*Euphorbia hooveri*)	FT, CNPS 1B	Found in the Central Valley in vernal pools within valley grassland, freshwater wetland, and riparian communities at elevations below 800 feet. Blooms July – September.	Absent. Required vernal pool habitat was absent within the site. The nearest recorded observation of this species within the vicinity was approximately 7.5 miles northwest of the site in 2022.	Absent. Required vernal pool habitat was absent within the site. The nearest recorded observation of this species within the vicinity was approximately 8 miles northwest of the site in 2022.
Kaweah brodiaea (*Brodiaea insignis*)	CE, CNPS 1B	Found in the foothills of the Sierra Nevada in foothill woodland and valley grassland	Absent. The site is outside of the current range of this species.	Absent. The site is outside of the current range of this species.

Species	Status*	Habitat	Occurrence within the Project Sites St. Johns River Site	 Kaweah River Site
		communities at elevations between 650 and 1,650 feet. Blooms May – June.		
Lesser saltscale (*Atriplex minuscula*)	CNPS 1B	Found in the San Joaquin Valley in sandy, alkaline soils in alkali scrub, valley and foothill grassland, and alkali sink communities at elevations below 750 feet. Blooms April–October.	Absent. Required habitat and alkaline soils were absent from the site and surrounding lands. The nearest recorded observation of this species within the vicinity was approximately 9 miles northwest of the site in 2010.	Absent. Required habitat and alkaline soils were absent from the site and surrounding lands. The nearest recorded observation of this species within the vicinity was approximately 9.5 miles northwest of the site in 2010.
Recurved larkspur (*Delphinium recurvatum*)	CNPS 1B	Occurs in poorly drained, fine, alkaline soils in grassland and alkali scrub communities at elevations between 100 and 2,600 feet. Blooms March–June.	Absent. Suitable habitat and alkaline soils were absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 4.5 miles northeast of the site in 1974.	Absent. Suitable habitat and alkaline soils were absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 5 miles northeast of the site in 1974.
San Joaquin adobe sunburst (*Pseudobahia peirsonii*)	FT, CE, CNPS 1B	Found in the San Joaquin Valley and foothills of the Sierra Nevada in bare, dark, clay soils in valley and foothill grassland and cismontane woodland communities at elevations between 325and 2,950 feet. Blooms March–May.	Absent. Suitable habitat and clay soils were absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 5 miles southeast of this site in 2010.	Absent. Suitable habitat and clay soils were absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 5 miles southeast of the site in 2010.
San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*)	FT, CE, CNPS 1B	Found in eastern San Joaquin Valley and the foothills of the Sierra Nevada in vernal pools within valley grassland, freshwater wetland, and wetland-riparian communities at elevations below 2,600 feet. Blooms April – September.	Absent. Suitable habitat was absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 9.5 miles northwest of the site in 2017.	Absent. Suitable habitat was absent from the site and surrounding areas. The nearest recorded observation of this species within the vicinity was approximately 9.5 miles northwest of the site in 2017.
Sanford's arrowhead (*Sagittaria sanfordii*)	CNPS 1B	Found in the San Joaquin Valley and other parts of California in freshwater-marsh, primarily ponds and ditches, at elevations below 1,000 feet. Blooms May–October.	Possible. Suitable habitat was present within the canal habitat along the MIC and within the riverine habitat along the St. Johns River within the site. The nearest recorded observation of this species within the vicinity was approximately 5.5 miles north of the site in 2018.	Possible. Suitable habitat was present within the canal habitat along the MIC and within the riverine habitat along the Kaweah River within the site. The nearest recorded observation of this species within the vicinity was approximately 6 miles north of the site in 2018.
Spiny-sepaled button-celery (*Eryngium spinosepalum*)	CNPS 1B	Found in the San Joaquin Valley and foothills of the Sierra Nevada in vernal pools, swales, and roadside ditches. Often associated with clay soils in vernal pools within grassland communities. Occurs at elevations between 50 and 4,160 feet. Blooms April–July.	Possible. Suitable habitat was present along the MIC within the site. The nearest recorded observation of this species within the vicinity was approximately 4 miles southeast of the site in 1992.	Possible. Suitable habitat was present along the MIC within the site. The nearest recorded observation of this species within the vicinity was approximately 3.5 miles southeast of the site in 1992.

Species	Status*	Habitat	Occurrence within the Project Sites	
			St. Johns River Site	Kaweah River Site
Striped adobe-lily (*Fritillaria striata*)	CT, CNPS 1B	Found in the foothills of the Sierra Nevada in adobe soil within valley grassland and foothill woodland communities at elevations below 3,300 feet. Blooms February – April.	Absent. Suitable habitat was absent from the site and surrounding areas. The only recorded observation of this species within the vicinity was approximately 9 miles southeast of the site in 1983 but is listed as extirpated.	Absent. Suitable habitat was absent from the site and surrounding areas. The only recorded observation of this species within the vicinity was approximately 9 miles southeast of the site in 1983 but is listed as extirpated.
Subtle orache (*Atriplex subtilis*)	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. Suitable habitat was absent from the site and surrounding areas. The only recorded observation of this species within the vicinity was approximately 14.5 miles south of this site in 1999.	Unlikely. Suitable habitat was absent from the site and surrounding areas. The only recorded observation of this species within the vicinity was approximately 14 miles south of this site in 1999.
Vernal pool smallscale (*Atriplex persistens*)	CNPS 1B	Occurs in the Central Valley in alkaline vernal pools at elevations below 375 feet. Blooms June–September.	Absent. Required vernal pool habitats were absent within the site and surrounding lands. The nearest recorded observation of this species within the vicinity was approximately 9 miles northwest of the site in 2010.	Absent. Required vernal pool habitats were absent within the site and surrounding lands. The nearest recorded observation of this species within the vicinity was approximately 9.5 miles northwest of the site in 2010.
Winter's sunflower (*Helianthus winteri*)	CNPS 1B	Found in the foothills of the Sierra Nevada on steep, south-facing grassy slopes, rock outcrops, and road-cuts at elevations ranging from 600 to 1,500 feet. Blooms year-round.	Absent. The site is outside of the elevational requirements for this species.	Absent. The site is outside of the elevational requirements for this species.

*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
FT Federally Threatened
FC Federal Candidate
CE California Endangered
CCE California Endangered (Candidate)
CT California Threatened
CCT California Threatened (Candidate)
CFP California Fully Protected
CSSC California Species of Special Concern

CNPS LISTING

1B Plants rare, threatened, or endangered in California and elsewhere.
2B Plants rare, threatened, or endangered in California, but more common elsewhere.

3Impacts and Mitigation

3.1 Significance Criteria

3.1.1 CEQA

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

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

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

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

3.1.2 NEPA

Federal projects are subject to the provisions of NEPA. The purpose of NEPA is to assess the effects of a proposed action on the human environment, assess the significance of those effects, and recommend measures that if implemented would mitigate those effects. As used in NEPA, a determination that certain effects on the human environment are "significant" requires considerations of both context and intensity (40 Code of Federal Regulations (CFR) 1508.27).

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

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

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

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

- "No effect" - means there will be no impacts, positive or negative, to listed or proposed resources. Generally, this means no listed resources will be exposed to action and its environmental consequences. Concurrence from the Service is not required.
- "May affect, but not likely to adversely affect" means that all effects are beneficial, insignificant, or discountable. Beneficial effects have contemporaneous positive effects without any adverse effects to the species or habitat. Insignificant effects relate to the size of the impact and include those effects that are undetectable, not measurable, or cannot be evaluated. Discountable effects are those extremely unlikely to occur. These determinations require written concurrence from the Service.
- "May affect, likely to adversely affect" means that listed resources are likely to be exposed to the action or its environmental consequences and will respond in a negative manner to the exposure.

3.2 Relevant Goals, Policies, and Laws

3.2.1 Tulare County General Plan

The Tulare County General Plan Document (Tulare County 2012) contains the following goals and policies, related to the project:

3.2.1.1.1 Biological Resources

Environmental Resources Management (ERM)-1: To preserve and protect sensitive significant habitats, enhance biodiversity, and promote healthy ecosystems throughout the County.

ERM-1.1: Protection of Rare and Endangered Species. The County shall ensure the protection of environmentally sensitive wildlife and plant life, including those species designated as rare, threatened, and/or endangered by state and/or Federal government, through compatible land use development.

ERM-1.2: Development in Environmentally Sensitive Areas. The County shall limit or modify proposed development within areas that contain sensitive habitat for special status species and direct development into less significant habitat areas. Development in natural habitats shall be controlled so as to minimize erosion and maximize beneficial vegetative growth.

ERM-1.4: Protect Riparian Areas. The County shall protect riparian areas through habitat preservation, designation as open space or recreational land uses, bank stabilization, and development controls.

ERM-1.6: Management of Wetlands. The County shall support the preservation and management of wetland and riparian plant communities for passive recreation, groundwater recharge, and wildlife habitats.

ERM-1.12: Management of Oak Woodland Communities. The County shall support the conservation and management of oak woodland communities and their habitats.

ERM-1.16: Cooperate with Wildlife Agencies. The County shall cooperate with state and federal wildlife agencies to address linkages between habitat areas.

ERM-1.17: Conservation Plan Coordination. The County shall coordinate with local, state, and federal habitat conservation planning efforts (including Section 10 Habitat Conservation Plan) to protect critical habitat areas that support endangered species and other special-status species.

3.2.1.1.2 Water Quality

Water Resources (WR)-2: To provide for the current and long-range water needs of the County and for the protection of the quality of surface water and groundwater resources.

WR-2.1: Protect Water Quality. All major land use and development plans shall be evaluated as to their potential to create surface and groundwater contamination hazards from point and non-point sources. The County shall confer with other appropriate agencies, as necessary, to assure adequate water quality review to prevent soil erosion; direct discharge of potentially harmful substances; ground leaching from storage of raw materials, petroleum products, or wastes; floating debris; and runoff from the site.

WR-2.3: Best Management Practices (BMPs). The County shall continue to require the use of feasible BMPs, and other mitigation measures designed to protect surface water and groundwater from the adverse effects of construction activities, agricultural operations requiring a County Permit and urban runoff in coordination with the Water Quality Control Board.

WR-2.4: Construction Site Sediment Control. The County shall continue to enforce provisions to control erosion and sediment from construction sites.

3.2.2 Threatened and Endangered Species

Permits may be required from CDFW and/or USFWS if activities associated with a project have the potential to result in the "take" of a species listed as threatened or endangered under the California Endangered Species Act (CESA) and/or Endangered Species Act (ESA), respectively. Take is defined by CESA as, "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill" (California Fish and Game Code,

Section 86). Take is more broadly defined by the ESA to include "harm" (16 USC, Section 1532(19), 50 CFR, Section 17.3). CDFW and USFWS are responsible agencies under CEQA and NEPA. Both agencies review CEQA and NEPA documents in order to determine the adequacy of the treatment of endangered species issues and to make project-specific recommendations for their conservation.

3.2.3 Designated Critical Habitat

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

3.2.4 Migratory Birds

The Migratory Bird Treaty Act (MBTA: 16 USC 703-712) prohibits killing, possessing, or trading in any bird species covered in one of four international conventions to which the United States is a party, except in accordance with regulations prescribed by the Secretary of the Interior. The name of the act is misleading, as it covers almost all bird's native to the United States, even those that are non-migratory. The MBTA encompasses whole birds, parts of birds, and bird nests and eggs. Additionally, California Fish and Game Code makes it unlawful to take or possess any non-game birds covered by the MBTA (Section 3513), as well as any other native non-game birds (Section 3800).

3.2.5 Birds of Prey

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

3.2.6 Nesting Birds

In California, protection is afforded 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.

3.2.7 Wetlands and other "Jurisdictional Waters"

The definition of "waters of the United States" often changes from one presidential administration to the next. The current definition, established under the new rule that became effective on March 20, 2023, has established measurable distances for qualifying jurisdictional waters that no administration has set before. Traditional navigable waters, territorial seas, and interstate waters remain covered under the new rule. 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 by the federal courts. Jurisdictional waters generally include the following categories:

- Traditional Navigable Waters - 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;
- Territorial Seas - waters that extend three miles out to sea from the coast;
- Interstate Waters - waters including lakes, streams, or wetlands that cross or form part of state boundaries;
- Impoundments - impounded waters created in or from "waters of the United States;"
- Tributaries - waters that ultimately flow into jurisdictional water bodies. Tributaries are jurisdictional if they meet either the relatively permanent standard or significant nexus standard;
- Adjacent Wetlands - wetlands next to, abutting, or near jurisdictional waters, and most often within a few hundred feet of jurisdictional waters. These wetlands are jurisdictional if they meet either the relatively permanent standard or the significant nexus standard;
- of waters identified in paragraphs (a)(1)-(4) (i.e., the bulleted items above).
- 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;

Familiar and longstanding exclusions under the new definition include the following:

- Prior converted cropland;
- Waste treatment systems, including treatment ponds or lagoons;
- Ditches excavated wholly in and draining only dry land and do not carry a relatively permanent flow of water;
- Artificially irrigated areas that would revert to dry land if irrigation ceased;
- Artificial lakes or ponds created by excavating or diking dry land for the use of stock watering, irrigation, settling basins or rice growing;
- Artificial reflecting or swimming pools;
- Waterfilled depressions created in dry land;
- Swales and erosional features (ex. gullies and small washes);

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 CWA. 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.

3.3 Potentially Significant Project-Related Impacts and Mitigation

Species identified as candidate, sensitive, or special status species by California Fish and Game Code, CDFW, USFWS, or CNPS or are protected by state or federal laws that have the potential to be impacted by project activities at the St. Johns River and Kaweah River sites include: northern California legless lizard, pallid bat and maternity roosting bats, San Joaquin kit fox, Swainson's hawk, tricolored blackbird, western pond turtle, California satintail, Sanford's arrowhead, spiny-sepaled button-celery, nesting migratory birds and raptors, jurisdictional waters, wildlife movement corridors, and native wildlife nursery sites. Corresponding mitigation measures can be found below.

3.3.1 General Project-Related Impacts

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

> Mitigation Measure BIO-1a (*WEAP Training*): Prior to initiating construction activities (including staging and mobilization), all personnel associated with project construction will attend a mandatory Worker Environmental Awareness Program (WEAP) training, conducted by a qualified biologist, to aid workers in identifying special status resources that may occur in the project site. The specifics of this program will include identification of the sensitive species and suitable habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the

limits of construction and mitigation measures required to reduce impacts to biological resources within the work area. This training will discuss special status species, describe the laws and regulations in place to provide protection of these species, identify the penalties for violation of applicable environmental laws and regulations, and include a list of required protective measures to avoid "take." A fact sheet summarizing this information, along with photographs or illustrations of sensitive species and sensitive habitats such as wetlands 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 trainees will sign a form documenting that they have attended WEAP training and understand the information presented to them.

Mitigation Measure BIO-1b (*BMPs*): The project proponent will 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, equipment, and materials prior to mobilization. If special status species are detected, the individual will either be allowed to leave of its own volition or will be captured by the qualified biologist (must possess appropriate collecting/handling permits) and relocated out of harm's way to the nearest suitable habitat beyond the influence of the project work area. "Take" of a state or federal special status (rare, California Species of Special Concern, threatened, or endangered) species is prohibited.

3.3.2 Project-Related Mortality and/or Disturbance of Northern California Legless Lizard

The project sites contain suitable ruderal habitat with leaf litter for Northern California legless lizards to use. This species is known to forage in loose soil and leaf litter during the day and is occasionally observed on the surface at dusk and at night. Northern California legless lizards occurring within the project sites during construction have the potential to be injured or killed by project-related activities. Projects that adversely affect the success of Northern California legless lizards or result in the mortality of individuals would be considered a potentially significant impact under CEQA and NEPA.

Implementation of the following measures prior to the start of construction will reduce potential impacts to northern California legless lizard to a less than significant level under CEQA and NEPA.

Mitigation Measure BIO-2a (*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. Lizards that are detected will be allowed to leave the work area of their own volition or will be moved out of harm's way by a qualified biologist to suitable habitat at least 50 feet away from the project work site.

3.3.3 Project-Related Mortality and/or Disturbance of Maternity Roosting Bats and Special Status Bats, Including the Pallid Bat

Pallid bats and maternity roosting bats have the potential to occur within the cavities observed in the large valley oak trees located in the project sites and surrounding areas. These could be used by a variety of maternity roosting bats, including pallid bat, March 1 through August 31, and by overwintering pallid bats approximately December 1 through February 28. Should these trees be disturbed or removed during these time periods, these rare and sensitive roosting bats could be impacted.

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

Mitigation Measure BIO-3a (*Avoidance*): Project activities should not occur during the maternity roosting bat season (March 1 through August 31). Project activities will not occur during the pallid bat overwintering season (December 1 through February 28). Project activities should occur, if feasible, between September 1 and November 30 (outside of the maternity roost and overwintering seasons).

Mitigation Measure BIO-3b (*Pre-Construction Survey*): If project activities must occur within the maternity roosting bat season (March 1 to August 31), a pre-construction survey should be performed within five days of construction. A qualified biologist will inspect the trees for active roosts and if the trees are determined to be clear of bats, construction and tree removal can begin.

Mitigation Measure BIO-3c (*Avoidance Buffers*): On discovery of any active maternity roosts in the project sites, a qualified biologist should determine appropriate construction setback distances (avoidance buffers) based on the biology of the species, conditions of the maternity roost(s), and the level of project disturbance. Buffers will be removed once a qualified biologist has determined the maternity bat roosts are no longer occupied.

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

While no suitable burrows were observed during the field survey, the project sites contain suitable denning and foraging habitat for San Joaquin kit fox (SJKF). SJKF denning within the project sites during construction have the potential to be injured or killed by project-related activities. Projects that result in the mortality of individuals would be considered a violation of state and federal laws and a potentially significant impact under CEQA and NEPA.

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

Mitigation Measure BIO-4a (*Pre-Construction Survey*): Within seven (7) days prior to the start of construction a pre-construction survey for San Joaquin kit fox will be conducted on and within 200 feet of proposed work areas.

Mitigation Measure BIO-4b (*Establish Buffers*): On discovery of any SJKF dens near the project sites a qualified biologist will determine appropriate construction setback distances (buffer zones) based on applicable CDFW and/or USFWS guidelines (see below). If needed, construction buffers will be identified with flagging, fencing, or other easily visible means. They will be maintained until the biologist has determined that the den will no longer be impacted by construction.

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

Mitigation Measure BIO-4c (*Avoidance and Minimization*): The project will observe all avoidance and minimization measures during construction as required by the USFWS's *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance* (2011), including, but not limited to: maintaining buffer zones, construction speed limits, covering of pipes, installation of escape structures, restriction of herbicide and rodenticide use, proper disposal of food

items and trash, prohibition of pets and firearms, and completion of an employee education program (see BIO-1a).

3.3.5 Project-Related Mortality and/or Nest Abandonment of Migratory Birds, Raptors, and Special Status Birds, including Swainson's Hawks and Tricolored Blackbird

The project site contains suitable nesting and/or foraging habitat for a variety of protected bird species, such as migratory birds, raptors, Swainson's hawk, and tricolored blackbird. Swainson's hawks could nest in the large valley oak trees within the project sites and trees along the rivers. Suitable nesting habitat for tricolored blackbirds is present within the riparian vegetation in the riparian habitat of the St. Johns River site, and this species would be expected to forage throughout the site. Protected birds located within or adjacent to the project sites during construction have the potential to be injured or killed by project-related activities. In addition to the direct "take" of protected birds within the project site or adjacent areas, these birds nesting in these areas could be disturbed by project-related activities resulting in nest abandonment. Projects that adversely affect the nesting success of protected birds or result in the mortality of these birds would be a violation of state and federal laws and considered a potentially significant impact under CEQA and NEPA.

While foraging habitat for migratory birds and raptors, including Swainson's hawk and tricolored blackbird, is present on the project sites, suitable foraging habitat is located adjacent to the sites and within the vicinity of the sites and loss of foraging habitat from implementation of the project is not considered a significant impact.

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

Mitigation Measure BIO-5a (*Avoidance*): The project's construction activities will occur, if feasible, between September 16 and January 31 (outside of the nesting bird season) to avoid impacts to nesting birds.

Mitigation Measure BIO-5b (*Pre-construction Surveys*): If activities must occur within the nesting bird season (February 1 to September 15), a qualified biologist will conduct a pre-construction survey for active nests within five (5) calendar days prior to the start of construction. The qualified biologist will survey for Swainson's hawk nests onsite and within a 0.5-mile radius for both sites. This one-time take avoidance survey will be conducted in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000), or current guidance. The qualified biologist will survey for tricolored blackbird nests onsite and within a 300-foot radius at the St. Johns River site. This one-time take avoidance survey will be conducted in accordance with the *Staff Guidance Regarding Avoidance of Impacts to Tricolored Blackbird Breeding Colonies on Agricultural Fields* (California Department of Fish and Wildlife 2015), or current guidance. The pre-construction survey would also provide a presence/ absence survey for all other nesting birds within both project sites, and up to 100 feet outside of the project sites for nesting migratory birds and up to 500 feet outside of the project sites for nesting raptors. All raptor nests would be considered "active" upon the nest-building stage. If no active nests are observed, no further mitigation is required.

Mitigation Measure BIO-5c (*Avoidance Buffers*): On discovery of any active nests or breeding colonies near work areas, a qualified biologist will determine appropriate avoidance buffer distances based on applicable CDFW and/or USFWS guidelines, the biology of the species, conditions of the nest(s), and the level of project disturbance. If necessary, avoidance buffers will be identified with

flagging, fencing, or other easily visible means, and will be maintained until the biologist has determined that the nestlings have fledged.

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

The project sites contained habitat within the rivers that could be used for northwestern pond turtle dispersal or basking and foraging. These features were located within the riverine and ruderal habitats onsite. Noise, vegetation removal, movement of workers, construction, and ground disturbance as a result of project activities have the potential to significantly impact northwestern pond turtle. Without appropriate avoidance and minimization measures for western pond turtle, potentially significant impacts associated with project activities could include inadvertent entrapment and direct mortality. Project activities that impact western pond turtle would be considered a potentially significant impact under CEQA and NEPA.

The following measures will be implemented prior to the start of construction and will reduce impacts to western pond turtle to a less than significant level under CEQA and NEPA:

Mitigation Measure BIO-6a (*Pre-construction Survey and Avoidance Buffers*): Within seven (7) days prior to the start of construction, a qualified biologist will conduct a pre-construction survey for northwestern pond turtle within the project sites and surrounding areas up to 330 feet from each project site. Pre-construction surveys will be conducted in accordance with the draft *Western Pond Turtle (Emys marmorata) Visual Survey Protocol for the Southcoast Ecoregion* (United States Geological Survey 2006). If no northwestern pond turtles are observed during the pre-construction survey, then construction activities may begin. If construction is delayed or halted for more than seven (7) days, another pre-construction survey for northwestern pond turtle will be conducted. If the surveys result in the identification of a northwestern pond turtle or an individual is found on the site during construction activities, it will be allowed to leave the site on its own and the qualified biologist will determine appropriate buffers to be implemented to avoid impacts to the individual(s).

Mitigation Measure BIO-6b (*Monitor*): If northwestern pond turtles are observed on a project site, a qualified biologist will conduct a pre-activity clearance survey each day and remain onsite to oversee all vegetation clearing and ground disturbing activities. If they are detected, the individual will either be allowed to leave of its own volition or will be captured by the qualified biologist (must possess appropriate collecting/handling permits) and relocated out of harm's way to the nearest suitable habitat beyond the influence of the project work area.

3.3.7 Project-Related Impacts to Special Status Plant Species, Including California Satintail, Sanford's Arrowhead, and Spiny-sepaled Button-celery

The following special status plant species were identified to potentially occur within or adjacent to the riverine and canal habitat on the project sites: California satintail, Sanford's arrowhead, and spiny-sepaled button-celery. The field survey of the project site was conducted outside of the blooming season for most of these plants. Projects that adversely affect special status plants or result in the mortality of special status plants would be considered a violation of state and federal laws for listed species and considered a potentially significant impact under CEQA and NEPA.

Implementation of the following measures will reduce potential impacts to special status plants to a less than significant level under CEQA and NEPA and will ensure compliance with state and federal laws protecting the listed plant species.

Mitigation Measure BIO-7a (*Focused Botanical Surveys*): A qualified botanist/biologist will conduct focused botanical surveys during the appropriate blooming seasons for California satintail, Sanford's arrowhead, and spiny-sepaled button-celery, 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 project activities. If possible, reference sites for these plants will be visited prior to completing surveys within the project site.

Mitigation Measure BIO-7b (*Avoidance*): If California satintail, Sanford's arrowhead, or spiny-sepaled button-celery are identified during the focused botanical surveys, an avoidance buffer and, if necessary, use of exclusion fencing, will be placed around the area as to not disturb the plants or its root system.

Mitigation Measure BIO-7c (*Consultation*): If California satintail, Sanford's arrowhead, or spiny-sepaled button-celery are detected within the project work sites during the focused botanical surveys, and the plants cannot be avoided, the project proponent will consult with CNPS, CDFW, and/or USFWS to determine next steps for relocation.

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

The project involves the replacement of the TID St. Johns River siphon and the Kaweah River siphon. The USFWS National Wetlands Inventory Map was consulted for known waters in the area and riverine and freshwater forested/shrub wetland was delineated on the St. Johns River site and riverine was delineated on the Kaweah River site. During the field survey the St. Johns River and the Kaweah River contained water. These rivers and the MIC will be dry during project activities. The St. Johns River and the Kaweah River are waters of the United States and state. Project-related impacts to some or all of these waters would be considered a potentially significant impact under CEQA and NEPA. Impacts to waters of the U.S. are also subject to the permit requirements of Section 404 and 401 of the Clean Water Act. The placement of fill within any jurisdictional features will require a 404 permit from the USACE, a 401 Water Quality Certification from the RWQCB, a permit from the CVFPB, and a Lake or Streambed Alteration Agreement from CDFW.

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

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

Mitigation Measure BIO-8a (*Aquatic Resources Delineation*): If USACE determines that waters of the United States will be impacted as a result of project activities, then an Aquatic Resource Delineation (ARD) will be performed to determine the extent of the rivers and riparian habitats on the project sites. The ARD will be conducted in accordance with the USACE's *Wetland Delineation Manual* (1987) and *Arid West Regional Supplement* (1987), and the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (State Water Resources Control Board 2021).

Mitigation Measure BIO-8b (*Permits*): Permits with USACE, RWQCB, CVFPB, and CDFW will be obtained if required. These permits, certifications, and agreements would ensure there are no indirect downstream effects to jurisdictional waters.

Mitigation Measure BIO-8c (*Storm Water Pollution Prevention Plan*): 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 to ensure construction activities do not adversely affect water quality. This plan will be prepared in support of the Construction General Permit application.

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

The project sites contain features that would be likely to function as wildlife movement corridors. The riverine and canal habitat could be used as wildlife movement corridors, but impacts would be temporary and minimal, and wildlife may be able to continue using it during construction and would be able to continue utilizing it after construction activities are completed.

The project site has suitable features such as the St. Johns River, Kaweah River, and large oak trees, which could be used as native wildlife nursery sites by aquatic and avian species. Project-related impacts to any native wildlife nursery sites would be considered a significant impact under CEQA.

The potential impacts to species that could use the oak trees and riverine habitat as a wildlife nursery site have mostly been addressed in Mitigation Measures BIO-3, BIO-5, and BIO-8. Implementation of these, and the following measure, will reduce potential impacts to wildlife movement corridors and native wildlife nursery sites to less than significant level under CEQA.

> Mitigation Measure BIO-9a (*Operational Hours*): Construction activities would be limited to a half hour after sunrise through a half hour before sunset to reduce potential impacts to wildlife movement corridors.
>
> Mitigation Measure BIO-9b (*Wildlife Access*): Access will not be blocked outside of construction hours or during overnight hours or weekends. If construction must block both sides of a wildlife access route, an alternative route through the construction area should be identified by a qualified biologist and maintained throughout the construction schedule timeframe.
>
> Mitigation Measure BIO-9c (*Cover Excavations*): Pipeline/culvert/siphon excavations and vertical pipes will be covered each night to prevent wildlife from falling in and becoming trapped or injured during migratory or dispersal movements.

3.4 Section 7 Determinations

In addition to the effects analysis performed in Table 2 and Table 3 of this document, Table 4 summarizes project effect determinations for federally-listed species found on the CNDDB list generated on February 9, 2024, and the USFWS IPaC list generated on February 9, 2024 (see Appendix C and Appendix D, respectively), in accordance with Section 7 of the Endangered Species Act.

Table 4. Both Project Sites Section 7 Determinations

Species	Determination	Rationale for Determination
Blunt-nosed leopard lizard (*Gambelia sila*)	No effect	Habitat absent. Suitable habitat for this species was absent within each site and surrounding lands.
Buena Vista Lake ornate shrew (*Sorex ornatus relictus*)	No effect	Habitat absent. Marsh habitat required by this species is absent within each site and surrounding areas.
California condor (*Gymnogyps californianus*)	No effect	Habitat absent. Suitable habitat for this species was absent within each site and surrounding lands.
California tiger salamander (Ambystoma californiense)	No effect	Habitat absent. Vernal pool and upland habitat with burrows were absent within each site and surrounding lands.

Species	Determination	Rationale for Determination
Monarch butterfly (*Danaus plexippus*)	No effect	Habitat absent. Foraging and roosting habitat was absent within each site and surrounding areas. The sites either had little to no vegetation or vegetation that is not suitable for this species.
Northwestern pond turtle (*Actinemys marmorata*)	May affect, not likely to adversely affect	Habitat present. This species could potentially occur within the rivers onsite. Northwestern pond turtle could use the rivers for dispersal, basking, or foraging but mitigation measures BIO-6a and BIO-6b would reduce impacts to this species.
San Joaquin kit fox (*Vulpes macrotis mutica*)	May affect, not likely to adversely affect	Habitat present. This species could potentially den, forage within, or pass through, the sites or use the rivers as a movement corridor but mitigation measures BIO-1 and BIO-4 would reduce impacts to this species.
Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*)	No effect	Habitat absent. Suitable habitat for this species was absent within the sites and surrounding lands.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	No effect	Habitat absent. Vernal pool habitat was absent within each site and surrounding lands.
Western spadefoot (*Spea hammondii*)	No effect	Habitat absent. Suitable aquatic habitat for this species was absent within the sites and surrounding lands.

3.5 Less Than Significant Project-Related Impacts

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

Of the 23 regionally occurring special status animal species, 17 are considered absent from or unlikely to occur within the sites due to past or ongoing disturbance and/or the absence of suitable habitat. These species include: American badger, blunt-nosed leopard lizard, Buena Vista Lake ornate shrew, burrowing owl, California condor, California tiger salamander, Crotch bumble bee, foothill yellow-legged frog, monarch butterfly, northern leopard frog, Tipton kangaroo rat, valley elderberry longhorn beetle, vernal pool fairy shrimp, vernal pool tadpole shrimp, western mastiff bat, western spadefoot, and western yellow-billed cuckoo.

Since it is unlikely these species would occur onsite, implementation of the project should have no impact on these 17 special status species through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted.

Project activities will only occur while the St. Johns River, Kaweah River, and MIC are dry, therefore, special status fish would not be impacted. Mitigation measures are not warranted.

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

Of the 21 regionally occurring special status plant species, 18 are considered absent from or unlikely to occur within the sites due to past or ongoing disturbance and/or the absence of suitable habitat. These species include: alkali-sink goldfields, brittlescale, calico monkeyflower, California alkali grass, California jewelflower, Coulter's goldfields, Earlimart orache, Greene's tuctoria, Hoover's spurge, Kaweah brodiaea, lesser saltscale, recurved

larkspur, San Joaquin adobe sunburst, San Joaquin Valley Orcutt grass, striped adobe-lily, subtle orache, vernal pool smallscale, winter's sunflower.

Since it is unlikely 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.

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

Riparian habitat is present along the St. Johns River and the Kaweah River. Permits with USACE and CDFW (see BIO-8) would include mitigation to protect or fully mitigate any impacts to riparian habitat.
There are no CNDDB-designated "natural communities of special concern" recorded within the project sites (California Natural Diversity Database 2023). According to the CNDDB and the field survey, no natural communities of special concern were present within the project sites. Additional mitigation measures are not warranted.

3.5.4 Project-Related Impacts to Critical Habitat

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

3.5.5 Local Policies or Habitat Conservation Plans

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

3.5.6 Coastal Zone and Coastal Barriers Resources Act

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

3.5.7 Project-Related Impact to Essential Fish Habitat

Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (HAPC) are absent from the project sites and surrounding lands, and consultation with the NMFS would not be required. Query results of the NMFS EHF Mapper can be found in Appendix G and Appendix H. Mitigation measures are not warranted.

4References

Association of Environmental Professionals. 2023. *2023 California Environmnetal Quality Act Statute & Guidelines.* Accessed June 2023.

Baldwin, B.G., D. H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.G. Wilken. 2012. *The Jepson Manual; Vascular Plants of California, second edition.* Berkeley: University of California Press. Accessed June 2023.

Calflora. 2023. Accessed 2023 June. http://www.calflora.org/.

California Department of Fish and Wildlife. 2018. "Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensative Natural Communities." March. Accessed June 2023. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline.

California Department of Fish and Wildlife. 2015. *Staff Guidance Regarding Avoidance of Impacts to Tricolored Blackbird Breeding Colonies on Agricultural Fields.* March. Accessed June 2023.

California Native Plant Society. 2023. Accessed June 2023. http://www.rareplants.cnps.org/.

California Natural Diversity Database. 2023. *California Department of Fish and Wildlife. California Natural Diversity Database.* Accessed May 2023.

Department of Water Resources (DWR). 2016. "Bulletin 118: California's Groundwater, Interim Update." Accessed June 2023.

Department of Water Resources. n.d. Accessed June 2023. http://gis.water.ca.gov/app/bbat/.

eBird, Cornell Lab of Ornithology. 2023. Accessed June 2023. https://ebird.org/.

Jepson Flora Project (eds.). 2023. Accessed June 2023. http://ucjeps.berkeley.edu/eflora/.

Nafis, G. 2023. Accessed June 2023. http://www.californiaherps.com/.

Natural Resource Conservation Service (NRCS). 2023. *websoilsurvey.* Accessed June 2023. http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

NatureServe Explorer. 2023. *An Online Encyclopedia of Life.* Accessed June 2023. http://explorer.natureserve.org/.

Shuford, W., and T. Gardali. 2008. *California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1.* Camarillo and Sacramento, CA: Western Field Ornithologists and California Department of Fish and Game. Accessed June 2023.

State Water Resources Control Board. 2021. "State Wetland Definition and Procedures for Discharge of Dredged or Fill Material to Waters of the State." April 6. Accessed June 2023.

Swainson's Hawk Technical Advisory Committee. 2000. "Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley." CA: CDFW, May. Accessed June 2023.

The National Oceanic and Atmospheric Administration Habitat Conservation. 2023. "Essential Fish Habitat Mapper." June. Accessed June 2023. https://www.habitat.noaa.gov/apps/efhmapper/?page=page_5.

Tulare County. 2012. "Tulare County General Plan 2030 Update." Accessed June 2023. http://generalplan.co.tulare.ca.us/documents/GP/001Adopted%20Tulare%20County%20General%20Plan%20Materials/000General%20Plan%202030%20Part%20I%20and%20Part%20II/GENERAL%20PLAN%202012.pdf.

United States Army Corps of Engineers. 1987. *Corps of Engineers Wetlands Delineation Manual.* Department of the Army. Accessed June 2023.

United States Department of Agriculture, Natural Recources Conservation Service. n.d. *The Plants Database.* Accessed June 2023. http://plants.sc.egov.usda.gov/java/.

United States Environmental Protection Agency. 2023. *Waters GeoViewer.* Accessed June 2023. https://www.epa.gov/waterdata/waters-geoviewer.

United States Fish and Wildlife Service. 1998. *Recovery Plan for Upland Species of the San Joaquin Valley, California.* Accessed June 2023.

United States Fish and Wildlife Service. 2011. "Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance." Accessed June 2023.

United States Fish and Wildlife Service. 2023. *Environmental Conservation Online System (ECOS).* Accessed June 2023. https://ecos.fws.gov/ecp/.

United States Fish and Wildlife Service. National Wetlands Inventory. 2023. "National Wetlands Inventory." Accessed June 2023. https://www.fws.gov/wetlands/data/mapper.html.

United States Fish and Wildlife Service. 2007. "Vernal Pool Fairy Shrimp- 5 Year Review: Summary and Evaluation." Accessed June 2023.

United States Fish and Wildlife Service.. 2023. *Information on Planning and Consultation (IPaC).* Accessed June 2023. https://ecos.fws.gov/ipac/.

United States Geological Survey. 2006. *United States Geological Survey Western Pond Turtle (Emys marmorata) Visual Survey Protocol for the Southcoast Ecoregion.* Accessed May 2023. https://sdmmp.com/upload/SDMMP_Repository/0/4fnpv18xm0sqtw29j7d3rz56bkychg.pdf.

WeatherSpark. 2023. "Climate and Average Weather Year Round in Visalia California, Unites States." Accessed June 2023. https://weatherspark.com/y/1510/Average-Weather-in-Visalia-California-United-States-Year-Round.

Wilkerson, R.L., and R.B. Siegel. 2010. "Assessing changes in the distribution and abundance of burrowing owls in California, 1993-2007." *Bird Populations* 10:1-36. Accessed June 2023.

Appendix A: Representative Photos of the St. Johns River Siphon Project Site

TULARE IRRIGATION DISTRICT

MAIN INTAKE CANAL SIPHONS PROJECT

Photograph 1

Overview of the north side of the project site and the Main Intake Canal. Canal and ruderal/agricultural habitat occurs in this area.

Photograph 2

Overview of the ruderal/ agricultural habitat on the northeast side of the project site.

Photograph 3

Overview of the ruderal/ agricultural habitat on the northwest side of the project site.

Photograph 4

Overview of the ruderal/ agricultural habitat where an agricultural field is located on the northeast side of the project site.

Photograph 5

Overview of the canal habitat showing the Saint Johns Siphon on the north side of the project site.

Photograph 6

Another overview of the canal habitat showing the Saint Johns Siphon on the north side of the project site.

Photograph 7

Overview of the riverine habitat along the Saint Johns River from the north side of the river looking south.

Photograph 8

Overview of the riverine habitat along the Saint Johns River from the south side of the river looking north.

Photograph 9

Overview of the ruderal/ agricultural habitat on the south side of the project site.

Photograph 10

Another overview of the ruderal/agricultural habitat on the northeast side of the project site.

Photograph 11

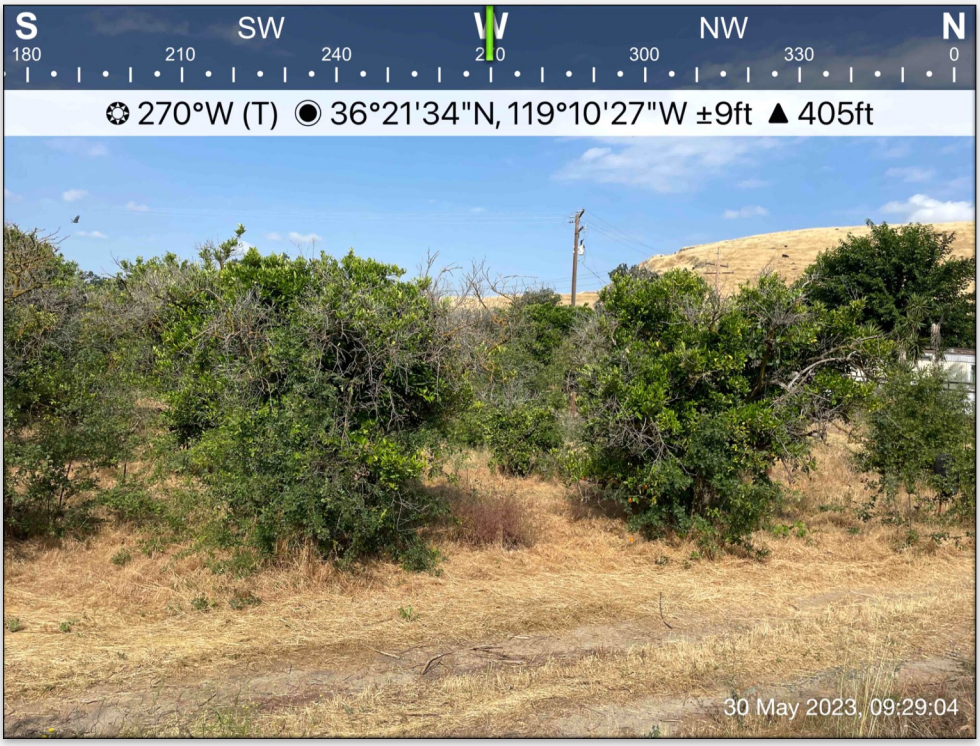
Overview of the ruderal/ agricultural habitat on the southeast side of the project site.

Photograph 12

Overview of the canal habitat showing the Saint Johns Siphon on the south side of the project site.

Photograph 13

Surrounding land on the north side of the project site consisted of paved roads and a residential house.

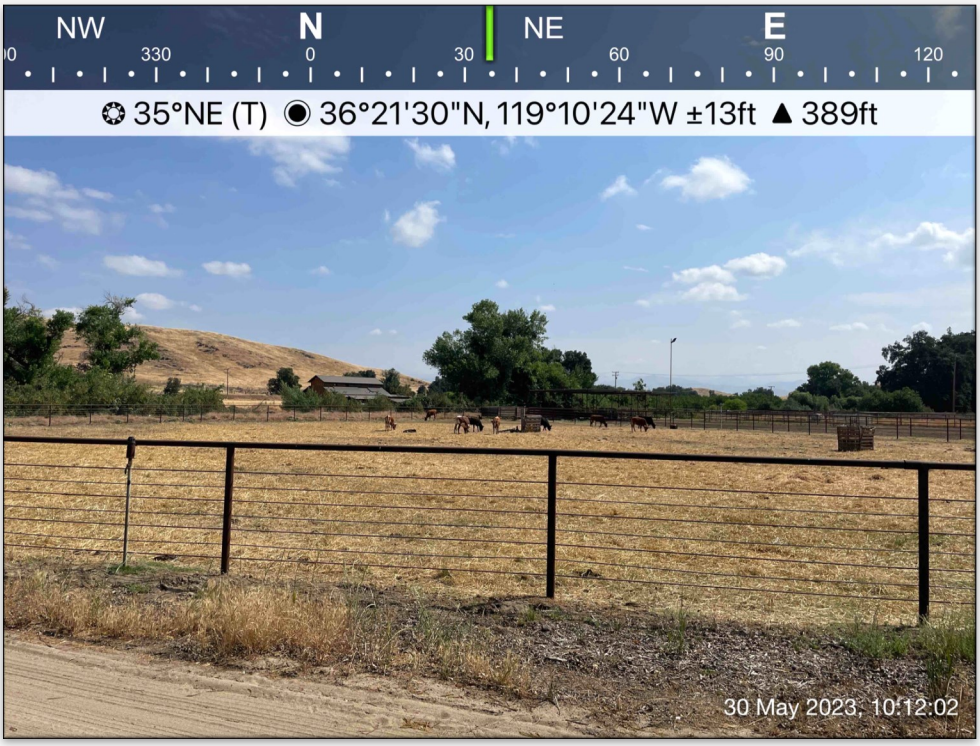


Photograph 14

Surrounding land on the north side of the project site to the west consisted of an agricultural orchard.

Photograph 15

Surrounding land on the south side of the project site to the west consisted of an agricultural orchard.



Photograph 16

Surrounding land on the south side of the project site to the east consisted of live-stock pens that contained cows at the time of the sur-vey.

Appendix B: Representative Photos of the Kaweah River Siphon Project Site

TULARE IRRIGATION DISTRICT

MAIN INTAKE CANAL SIPHONS PROJECT

Photograph 1

Overview of the north side of the project site and the Main Intake Canal. Canal and ruderal/agricultural habitat occurs in this area.

Photograph 2

A nest box is located on the northeast corner of the project site within the ruderal/ agricultural habitat.

Photograph 3

Overview of the ruderal/ agricultural habitat on the north side of the project site.

Photograph 4

Another overview of the ruderal/agricultural habitat on the north side of the project site.

Photograph 5

Overview of the ruderal/ agricultural habitat on the north side of the project site.

Photograph 6

Another overview of the ruderal/agricultural habitat on the north side of the project site.

Photograph 7

Overview of the canal habitat showing the Kaweah River Siphon on the north side of the project site.

Photograph 8

Overview of the riverine habitat along the Kaweah River from the north side of the river looking south.

Photograph 9

Overview of the riverine habitat along the Kaweah River from the south side of the river looking north.

Photograph 10

Overview of the ruderal/ agricultural habitat on the south side of the project site.

Photograph 11

Overview of the ruderal/ agricultural habitat on the south side of the project site.

Photograph 12

Overview of the ruderal/ agricultural habitat on the south side of the project site.

Photograph 13

Overview of the ruderal/ agricultural habitat on the south side of the project site and the Main Intake Canal.

Photograph 14

Overview of the canal habitat showing the Kaweah River Siphon on the south side of the project site.

Photograph 15

Surrounding land on the north side of the project site consisted of agricultural orchards.

Photograph 16

Surrounding land on the south side of the project site consisted of agricultural orchards.

Appendix C: Both Project Sites CNDDB 9-Quad Species List

TULARE IRRIGATION DISTRICT

MAIN INTAKE CANAL SIPHONS PROJECT

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Exeter (3611932) OR Monson (3611943) OR Ivanhoe (3611942) OR Woodlake (3611941) OR Rocky Hill (3611931) OR Visalia (3611933) OR Tulare (3611923) OR Cairns Corner (3611922) OR Lindsay (3611921))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
alkali-sink goldfields *Lasthenia chrysantha*	PDAST5L030	None	None	G2	S2	1B.1
American badger *Taxidea taxus*	AMAJF04010	None	None	G5	S3	SSC
American bumble bee *Bombus pensylvanicus*	IIHYM24260	None	None	G3G4	S2	
An andrenid bee *Andrena macswaini*	IIHYM35130	None	None	G2	S2	
brittlescale *Atriplex depressa*	PDCHE042L0	None	None	G2	S2	1B.2
burrowing owl *Athene cunicularia*	ABNSB10010	None	None	G4	S2	SSC
calico monkeyflower *Diplacus pictus*	PDSCR1B240	None	None	G2	S2	1B.2
California alkali grass *Puccinellia simplex*	PMPOA53110	None	None	G2	S2	1B.2
California jewelflower *Caulanthus californicus*	PDBRA31010	Endangered	Endangered	G1	S1	1B.1
California linderiella *Linderiella occidentalis*	ICBRA06010	None	None	G2G3	S2S3	
California satintail *Imperata brevifolia*	PMPOA3D020	None	None	G3	S3	2B.1
California tiger salamander - central California DPS *Ambystoma californiense pop. 1*	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
Coulter's goldfields *Lasthenia glabrata ssp. coulteri*	PDAST5L0A1	None	None	G4T2	S2	1B.1
Crotch bumble bee *Bombus crotchii*	IIHYM24480	None	Candidate Endangered	G2	S2	
Earlimart orache *Atriplex cordulata var. erecticaulis*	PDCHE042V0	None	None	G3T1	S1	1B.2
foothill yellow-legged frog - south Sierra DPS *Rana boylii pop. 5*	AAABH01055	Endangered	Endangered	G3T2	S2	
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
Great Valley Valley Oak Riparian Forest *Great Valley Valley Oak Riparian Forest*	CTT61430CA	None	None	G1	S1.1	
Greene's tuctoria *Tuctoria greenei*	PMPOA6N010	Endangered	Rare	G1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Hoover's spurge *Euphorbia hooveri*	PDEUP0D150	Threatened	None	G1	S1	1B.2
Hopping's blister beetle *Lytta hoppingi*	IICOL4C010	None	None	G1G2	S2	
Kaweah brodiaea *Brodiaea insignis*	PMLIL0C060	None	Endangered	G1	S1	1B.2
lesser saltscale *Atriplex minuscula*	PDCHE042M0	None	None	G2	S2	1B.1
molestan blister beetle *Lytta molesta*	IICOL4C030	None	None	G2	S2	
Moody's gnaphosid spider *Talanites moodyae*	ILARA98020	None	None	G2G3	S2S3	
Northern California legless lizard *Anniella pulchra*	ARACC01020	None	None	G3	S2S3	SSC
Northern Claypan Vernal Pool *Northern Claypan Vernal Pool*	CTT44120CA	None	None	G1	S1.1	
Northern Hardpan Vernal Pool *Northern Hardpan Vernal Pool*	CTT44110CA	None	None	G3	S3.1	
northern leopard frog *Lithobates pipiens*	AAABH01170	None	None	G5	S2	SSC
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G4	S3	SSC
recurved larkspur *Delphinium recurvatum*	PDRAN0B1J0	None	None	G2?	S2?	1B.2
San Joaquin adobe sunburst *Pseudobahia peirsonii*	PDAST7P030	Threatened	Endangered	G1	S1	1B.1
San Joaquin kit fox *Vulpes macrotis mutica*	AMAJA03041	Endangered	Threatened	G4T2	S3	
San Joaquin Valley giant flower-loving fly *Rhaphiomidas trochilus*	IIDIP05010	None	None	G1	S1	
San Joaquin Valley Orcutt grass *Orcuttia inaequalis*	PMPOA4G060	Threatened	Endangered	G1	S1	1B.1
Sanford's arrowhead *Sagittaria sanfordii*	PMALI040Q0	None	None	G3	S3	1B.2
spiny-sepaled button-celery *Eryngium spinosepalum*	PDAPI0Z0Y0	None	None	G2	S2	1B.2
striped adobe-lily *Fritillaria striata*	PMLIL0V0K0	None	Threatened	G1	S1	1B.1
subtle orache *Atriplex subtilis*	PDCHE042T0	None	None	G1	S1	1B.2
Swainson's hawk *Buteo swainsoni*	ABNKC19070	None	Threatened	G5	S4	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Sycamore Alluvial Woodland *Sycamore Alluvial Woodland*	CTT62100CA	None	None	G1	S1.1	
Tipton kangaroo rat *Dipodomys nitratoides nitratoides*	AMAFD03152	Endangered	Endangered	G3T1T2	S2	
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	Threatened	G1G2	S2	SSC
Tulare cuckoo wasp *Chrysis tularensis*	IIHYM72010	None	None	G1G2	S2	
valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	IICOL48011	Threatened	None	G3T3	S3	
Valley Sacaton Grassland *Valley Sacaton Grassland*	CTT42120CA	None	None	G1	S1.1	
vernal pool fairy shrimp *Branchinecta lynchi*	ICBRA03030	Threatened	None	G3	S3	
vernal pool smallscale *Atriplex persistens*	PDCHE042P0	None	None	G2	S2	1B.2
vernal pool tadpole shrimp *Lepidurus packardi*	ICBRA10010	Endangered	None	G3	S3	
western mastiff bat *Eumops perotis californicus*	AMACD02011	None	None	G4G5T4	S3S4	SSC
western pond turtle *Emys marmorata*	ARAAD02030	Proposed Threatened	None	G3G4	S3	SSC
western spadefoot *Spea hammondii*	AAABF02020	Proposed Threatened	None	G2G3	S3S4	SSC
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Winter's sunflower *Helianthus winteri*	PDAST4N260	None	None	G2?	S2?	1B.2

Record Count: 54

Appendix D: Both Project Sites IPaC Species List

TULARE IRRIGATION DISTRICT

MAIN INTAKE CANAL SIPHONS PROJECT

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: February 09, 2024
Project Code: 2023-0096557
Project Name: Tulare Irrigation District Main Intake Canal Siphons Project

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

To Whom It May Concern:

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

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

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

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

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

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

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

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

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

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

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

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

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

This species list is provided by:

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

PROJECT SUMMARY

Project Code: 2023-0096557
Project Name: Tulare Irrigation District Main Intake Canal Siphons Project
Project Type: Water Supply Facility - Maintenance / Modification
Project Description: The project includes two separate sites located half a mile apart and approximately 4 miles northeast of the City of Visalia and approximately 5 miles southwest of the City of Woodlake in the center of Tulare County, within the eastern San Joaquin Valley.

The project sites are approximately three acres for the St. Johns River Siphon and approximately four acres for the Kaweah River Siphon which in total is approximately seven acres. These siphons are located along the Tulare Irrigation District Main Intake Canal.

The project includes replacement of the two reinforced concrete box siphons. These existing structures are 50-plus years old and are exposed in the river bottom, creating concern for their structural stability. The project proposes two new siphons being installed adjacent to the existing siphons at each river site and the existing siphons being removed once construction is complete. The project will be completed in multiple phases. The initial phase will involve clearing and grubbing of the individual siphon sites: this will include tree and vegetation removal. It is expected that one valley oak tree will be removed from each siphon site. Upon completion of the first phase, the second phase for project construction will see the excavation of boring and receiving pits at each siphon site, the bores will be approximately 96” in diameter. Casing and piping will be installed during this phase. This phase will also see the installation of head walls and wing walls on upstream and downstream sides as well as trash racks on the upstream side of the intakes. The third phase of the project will include channel realignment to direct water into the siphons once construction is completed. Once the new siphons are operational, the final phase will include final site grading as well as the demolition and removal of the existing siphons.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@36.35248155,-119.17978992552639,14z

Counties: Tulare County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 10 threatened, endangered, or candidate species on this species list.

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

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

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

---

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

MAMMALS

NAME	STATUS
Buena Vista Lake Ornate Shrew *Sorex ornatus relictus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1610	Endangered
San Joaquin Kit Fox *Vulpes macrotis mutica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered
Tipton Kangaroo Rat *Dipodomys nitratoides nitratoides* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7247	Endangered

BIRDS

NAME	STATUS
California Condor *Gymnogyps californianus* Population: U.S.A. only, except where listed as an experimental population There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8193	Endangered

REPTILES

NAME	STATUS
Blunt-nosed Leopard Lizard *Gambelia silus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/625	Endangered
Northwestern Pond Turtle *Actinemys marmorata* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

AMPHIBIANS

NAME	STATUS
California Tiger Salamander *Ambystoma californiense* 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
Western Spadefoot *Spea hammondii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5425	Proposed Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRUSTACEANS

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* 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

CRITICAL HABITATS

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

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

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Shaylea Stark
Address: 455 W Fir Ave
City: Clovis
State: CA
Zip: 93612
Email sstark@ppeng.com
Phone: 5594492700

Appendix E: St. Johns River Siphon NRCS Web Soil Survey Report

TULARE IRRIGATION DISTRICT

MAIN INTAKE CANAL SIPHONS PROJECT

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 Tulare County, Western Part, California

Saint Johns Siphon

May 26, 2023

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.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

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

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

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.

Map Scale: 1:1,380 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Tulare County, Western Part, California
Survey Area Data: Version 16, Sep 1, 2022

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

Date(s) aerial images were photographed: Mar 16, 2022—May 30, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
114	Exeter loam, 0 to 2 percent slopes	1.4	46.4%
122	Grangeville sandy loam, drained, 0 to 2 percent slopes	0.5	16.9%
134	Riverwash	1.1	36.7%
Totals for Area of Interest		**2.9**	**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 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.

Tulare County, Western Part, California

114—Exeter loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hp4j
Elevation: 250 to 570 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 63 to 64 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Exeter, 0-2% slopes, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Exeter, 0-2% Slopes

Setting

Landform: Fan remnants
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granitic rock sources

Typical profile

Ap - 0 to 9 inches: loam
Bt1 - 9 to 26 inches: sandy clay loam
Bt2 - 26 to 28 inches: clay loam
Btqm - 28 to 46 inches: indurated
2Bt - 46 to 72 inches: stratified very gravelly loamy coarse sand to gravelly loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to duripan
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.01 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Very rare
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C
Ecological site: R017XY902CA - Duripan Vernal Pools
Hydric soil rating: No

Minor Components

Hanford
Percent of map unit: 4 percent
Landform: Alluvial fans, flood plains
Hydric soil rating: No

Colpien
Percent of map unit: 3 percent
Landform: Fan remnants
Hydric soil rating: No

San joaquin
Percent of map unit: 3 percent
Landform: Fan remnants
Hydric soil rating: No

Quonal
Percent of map unit: 2 percent
Landform: Fan remnants
Hydric soil rating: No

Calgro
Percent of map unit: 2 percent
Landform: Fan remnants
Hydric soil rating: No

Unnamed, ponded
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

122—Grangeville sandy loam, drained, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: hp4s
Elevation: 190 to 400 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 63 to 64 degrees F
Frost-free period: 250 to 275 days
Farmland classification: Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

Map Unit Composition
Grangeville and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Grangeville

Setting

Landform: Alluvial fans, flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Convex, linear
Parent material: Alluvium derived from granitic rock sources

Typical profile

Ap - 0 to 16 inches: sandy loam
Bg - 16 to 27 inches: sandy loam
2C - 27 to 67 inches: stratified loamy sand to silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: A
Ecological site: R017XY906CA - Non-Alkali San Joaquin Valley Desert
Hydric soil rating: Yes

Minor Components

Tujunga

Percent of map unit: 3 percent
Landform: Flood plains
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Yettem

Percent of map unit: 3 percent
Landform: Flood plains, alluvial fans
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Grangeville, saline-sodic

Percent of map unit: 2 percent
Landform: Alluvial fans, flood plains
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: Yes

Nord

Percent of map unit: 1 percent
Landform: Alluvial fans, flood plains
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Hanford

Percent of map unit: 1 percent
Landform: Alluvial fans, flood plains
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

134—Riverwash

Map Unit Composition

Riverwash: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Riverwash

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities

Slope: 0 to 2 percent
Frequency of flooding: Frequent

Interpretive groups

Land capability classification (irrigated): 8
Land capability classification (nonirrigated): 8
Ecological site: R017XY903CA - Stream Channels and Floodplains
Hydric soil rating: Yes

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Appendix F: Kaweah River Siphon NRCS Web Soil Survey Report

TULARE IRRIGATION DISTRICT

MAIN INTAKE CANAL SIPHONS PROJECT

United States Department of Agriculture

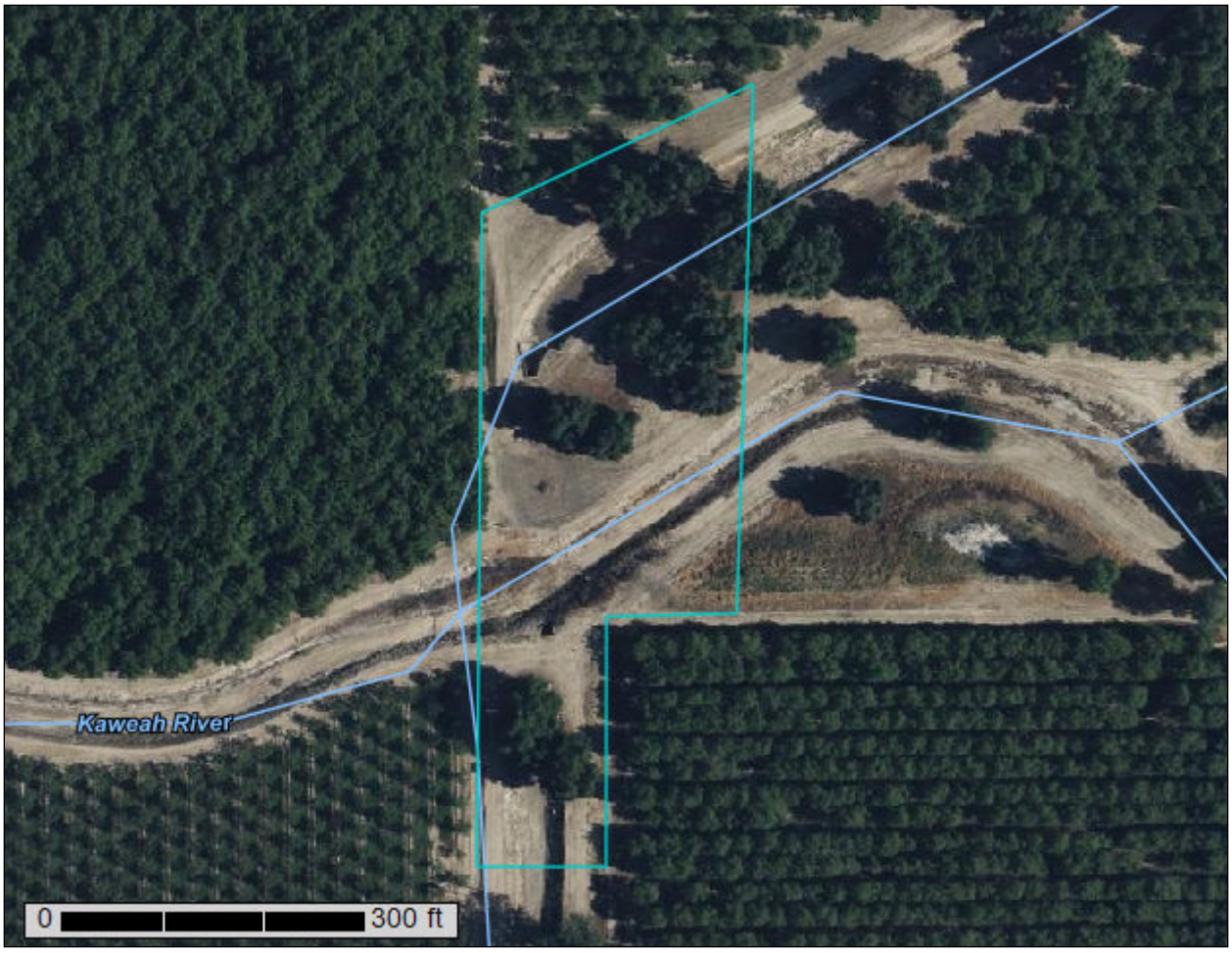
NRCS

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 Tulare County, Western Part, California

Kaweah River Siphon



May 26, 2023

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.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

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

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.

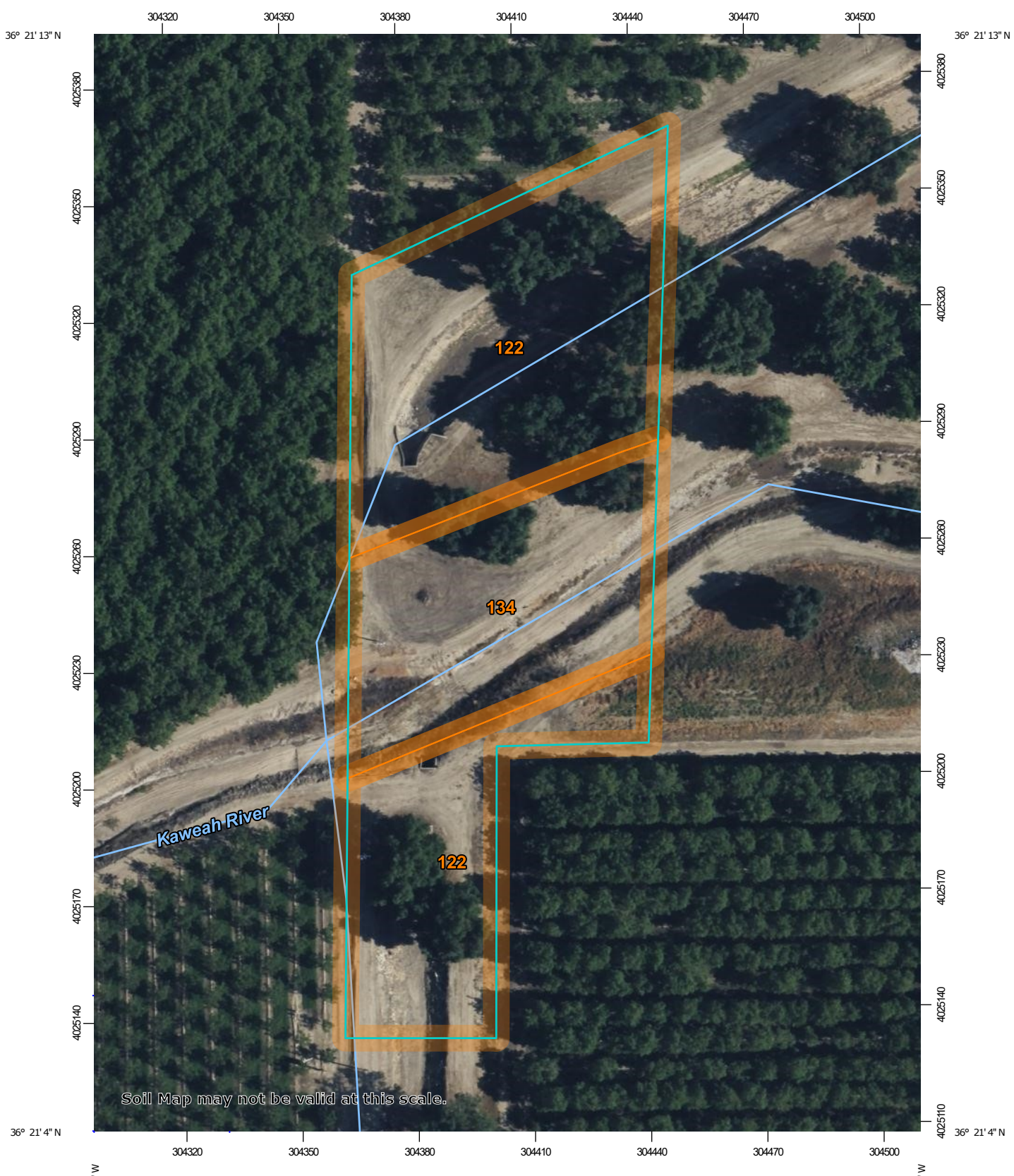
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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: 1:1,380 if printed on A portrait (8.5" x 11") sheet.

N

0 20 40 80 120 Meters

0 50 100 200 300 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Tulare County, Western Part, California
Survey Area Data: Version 16, Sep 1, 2022

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

Date(s) aerial images were photographed: Mar 16, 2022—May 30, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
122	Grangeville sandy loam, drained, 0 to 2 percent slopes	2.4	68.6%
134	Riverwash	1.1	31.4%
Totals for Area of Interest		**3.5**	**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 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.

Tulare County, Western Part, California

122—Grangeville sandy loam, drained, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hp4s
Elevation: 190 to 400 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 63 to 64 degrees F
Frost-free period: 250 to 275 days
Farmland classification: Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

Map Unit Composition

Grangeville and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Grangeville

Setting

Landform: Alluvial fans, flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Convex, linear
Parent material: Alluvium derived from granitic rock sources

Typical profile

Ap - 0 to 16 inches: sandy loam
Bg - 16 to 27 inches: sandy loam
2C - 27 to 67 inches: stratified loamy sand to silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: A
Ecological site: R017XY906CA - Non-Alkali San Joaquin Valley Desert
Hydric soil rating: Yes

Minor Components

Tujunga
Percent of map unit: 3 percent
Landform: Flood plains
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Yettem
Percent of map unit: 3 percent
Landform: Flood plains, alluvial fans
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Grangeville, saline-sodic
Percent of map unit: 2 percent
Landform: Alluvial fans, flood plains
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: Yes

Nord
Percent of map unit: 1 percent
Landform: Alluvial fans, flood plains
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Hanford
Percent of map unit: 1 percent
Landform: Alluvial fans, flood plains
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

134—Riverwash

Map Unit Composition
Riverwash: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Riverwash

Setting
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Properties and qualities
Slope: 0 to 2 percent
Frequency of flooding: Frequent

Interpretive groups
Land capability classification (irrigated): 8

Land capability classification (nonirrigated): 8
Ecological site: R017XY903CA - Stream Channels and Floodplains
Hydric soil rating: Yes

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Appendix G: St. Johns River Siphon NMFS EFH Mapper

TULARE IRRIGATION DISTRICT

MAIN INTAKE CANAL SIPHONS PROJECT

EFH Mapper Report

EFH Data Notice

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

West Coast Regional Office
Alaska Regional Office

Query Results

Degrees, Minutes, Seconds: Latitude = 36º 21' 31" N, Longitude = 120º 49' 33" W
Decimal Degrees: Latitude = 36.359, Longitude = -119.174

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

EFH

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

Salmon EFH

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

HAPCs

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

EFH Areas Protected from Fishing

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

Spatial data does not currently exist for all the managed species in this area. The following is a list of species or management units for which there is no spatial data. ****For links to all EFH text descriptions see the complete data inventory: open data inventory -->**
Pacific Coastal Pelagic Species, Jack Mackerel, Pacific (Chub) Mackerel, Pacific Sardine, Northern Anchovy - Central Subpopulation, Northern Anchovy - Northern Subpopulation, **Pacific Highly Migratory Species**, Bigeye Thresher Shark - North Pacific, Bluefin Tuna - Pacific, Dolphinfish (Dorado or Mahimahi) - Pacific, Pelagic Thresher Shark - North Pacific, Swordfish - North Pacific

Appendix H: Kaweah River Siphon NMFS EFH Mapper

TULARE IRRIGATION DISTRICT

MAIN INTAKE CANAL SIPHONS PROJECT

EFH Mapper Report

EFH Data Notice

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

West Coast Regional Office
Alaska Regional Office

Query Results

Degrees, Minutes, Seconds: Latitude = 36º 21' 8" N, Longitude = 120º 49' 12" W
Decimal Degrees: Latitude = 36.352, Longitude = -119.180

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

EFH

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

Salmon EFH

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

HAPCs

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

EFH Areas Protected from Fishing

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

Spatial data does not currently exist for all the managed species in this area. The following is a list of species or management units for which there is no spatial data. ****For links to all EFH text descriptions see the complete data inventory: open data inventory -->**
Pacific Coastal Pelagic Species, Jack Mackerel, Pacific (Chub) Mackerel, Pacific Sardine, Northern Anchovy - Central Subpopulation, Northern Anchovy - Northern Subpopulation, **Pacific Highly Migratory Species**, Bigeye Thresher Shark - North Pacific, Bluefin Tuna - Pacific, Dolphinfish (Dorado or Mahimahi) - Pacific, Pelagic Thresher Shark - North Pacific, Swordfish - North Pacific

Appendix C: Class III Inventory/Phase I Survey

CLASS III INVENTORY/PHASE I SURVEY, TULARE IRRIGATION DISTRICT, MAIN INTAKE CANAL SIPHONS PROJECT, TULARE COUNTY, CALIFORNIA

Prepared for:

Briza Sholars
Provost & Pritchard Consulting Group
206 West Cromwell Avenue
Fresno, California 93711-2715

Prepared by:

Peter A. Carey, M.A., RPA,

Dustin Merrick, M.A., RPA,

Madeline Gonzalez, M.A.,

and

Sarah Stringer-Bowsher, M.A., RPH

ASM Affiliates
4800 Stockdale Hwy, Ste 405
Bakersfield, CA 93309

July 2024
PN 36510.41

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

MANAGEMENT SUMMARY

An intensive Class III cultural resources inventory/Phase I survey was conducted for the Tulare Irrigation District (TID) Main Intake Canal Siphons Project (Project), Tulare County, California. The Project is located within Tulare County, approximately 14.1 miles (mi.) northeast of the incorporated city of Tulare. This places the Project on the open flats of the San Joaquin Valley. Specifically, the Project is located within Sections 17 and 20, Township 18 South, Range 26 East (T18S/R26E), Mount Diablo Base and Meridian (MDBM). The proposed Project site consists of water conveyance features and agricultural fields adjacent to unpaved and paved roads. The Area of Potential Effect (APE) for the St. John's River siphon site is approximately 2.9 acres (ac.) and the Kaweah River siphon site is approximately 3.4 ac., which equals a total horizontal APE of approximately 6.3 ac. This includes all construction staging and access areas needed for construction equipment. The vertical APE, defined as the maximum depth of excavation for the Project, is 10 feet (ft.)

ASM Affiliates (ASM) conducted this study, with Director Peter A. Carey, M.A., RPA, serving as Principal Investigator. Senior Archaeologist Dustin Merrick, M.A., RPA was a contributing author of this report. Madeline Gonzalez, M.A., prepared the site-specific history, and with Sarah Stringer-Bowsher, M.A., RPH, completed the evaluation and assessment of impacts for the built resources. The study was undertaken to assist with compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and the California Environmental Quality Act (CEQA).

In order to determine whether the Project APE had been previously surveyed for cultural resources, and/or whether any such resources were known to exist within or near to it, an archival records search was conducted by the staff of the Southern San Joaquin Valley Information Center (SSJVIC) on July 24, 2023. The records search included the Project APE and a 0.5 mi. buffer. According to the SSJVIC, a single previous study (TU-00134) has been conducted within the Project APE, and a single previous study (TU-01395) was identified within the 0.5 mi. buffer. The SSJVIC results identified a single built environment resource within the APE, consisting of the Tulare Irrigation District Canal (P-54-005296). An additional built environment resource (P-54-004626) and California Historical Landmark 410 were identified within the 0.5 mi. buffer, with the nearest located approximately 0.2 mi. from the Project APE.

On July 24, 2023, the Native American Heritage Commission (NAHC) was contacted to request a list of Tribes traditionally and culturally affiliated with the Project APE, as well as a Sacred Lands File (SLF). On August 14, 2023, the NAHC responded with negative SLF results and 11 Tribal contacts from five Tribes. Outreach letters were mailed to all listed Tribes on August 14, 2023, and follow-up emails were sent on August 15, 2023. No other responses were received.

The Class III inventory/Phase I survey fieldwork was conducted on August 8, 2023, with parallel transects spaced at a maximum 15-meter (m.) intervals walked throughout the Project APE. Due to the previous disturbances, ground surface visibility within the APE was excellent (greater than 95 percent) in the access road and poor (approximately 15 percent) outside the access road for the Class III inventory/Phase I survey. Soils consisted of tan to brown sandy loam throughout the

Project APE. Leaf litter and non-native vegetation inhibited visibility. Modern refuse including plastic buckets, Styrofoam coolers, large concrete pipe, and a car bumper were observed. No archaeological resources of any kind were identified within the Project APE.

Although the entire Tulare Irrigation District has not been recorded or evaluated, which includes the Main Intake Canal of the Tulare Irrigation District Main Canal, ASM recommends that the segments of P-54-005296 (Main Intake Canal of the Tulare Irrigation District Main Canal) within the APEs are eligible for listing in the NRHP/CRHR under Criteria A/1 for association with important historical events, namely the development of agriculture in the San Joaquin Valley.

As a result of the physical effects and impacts to the segments of the Main Intake Canal of the Tulare Irrigation District Canal from the Project, ASM recommends a finding of ***no adverse effect*** under Section 106 of the NHPA and ***less-than-significant impact*** under CEQA. It is further recommended that, in the unlikely event that cultural resources are identified during Project construction, work be halted within a 100 ft. radius of the find and a qualified archaeologist be contacted to evaluate the newly discovered resource. Appropriate project conditions and mitigation measures should be adopted by the lead agency to reduce those impacts to less-than-significant.

1. INTRODUCTION AND REGULATORY CONTEXT

ASM Affiliates (ASM) was retained by the Provost and Pritchard Consulting Group to conduct an intensive Class III inventory/Phase I survey for the Tulare Irrigation District (TID) Main Intake Canal (MIC) Siphons Project (Project), located roughly 14.1 miles (mi.) northeast of the City of Tulare, Tulare County, California (Figure 1). The study was undertaken to assist with compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and the California Environmental Quality Act (CEQA). The investigation was conducted, specifically, to ensure that significant impacts or adverse effects to historic properties or historical resources do not occur as a result of Project construction.

This current study included:

- A background records search and literature review to determine if any known cultural resources were present in the Project zone and/or whether the area had been previously and systematically studied by archaeologists;
- An on-foot, intensive inventory of the Project site to identify and record previously undiscovered cultural resources and to examine known sites; and
- A preliminary assessment of any such resources found within the subject property.

Peter A. Carey, M.A., RPA, served as Principal Investigator, and ASM Assistant Archaeologist Daniel Ware, B.A., conducted the fieldwork. Dustin Merrick, M.A., RPA, was a contributing author of this report. Madeline Gonzalez, M.A., prepared the site-specific history, and with Sarah Stringer-Bowsher, M.A., RPH, completed the evaluation and assessment of impacts for the built resources.

This document constitutes a report on the Class III inventory/Phase I survey. Subsequent chapters provide background to the investigation, including historic context studies; the findings of the archival records search; a summary of the field surveying techniques employed; and the results of the fieldwork. We conclude with management recommendations for the Project.

1.1 PROJECT LOCATION

The Project is within Tulare County, approximately 14.1 mi. northeast of the incorporated city of The Project is on two sites in the eastern portion of Tulare County, along the St. John's River and the Kaweah River within the TID (Figure 1). The Project sites are on Assessor's Parcel Numbers 158-040-019 and 158-040-004. This places the Project on the open flats of the San Joaquin Valley. Specifically, the Project is within Sections 17 and 20, Township 18 South, Range 26 East (T18S/R26E), Mount Diablo Base and Meridian (MDBM). The proposed Project site consists of water conveyance features and agricultural fields adjacent to unpaved and paved roads. Elevations within the Project area, which is mostly flat, range from 360 feet (ft.) above mean sea level (amsl) to 390 ft. amsl.

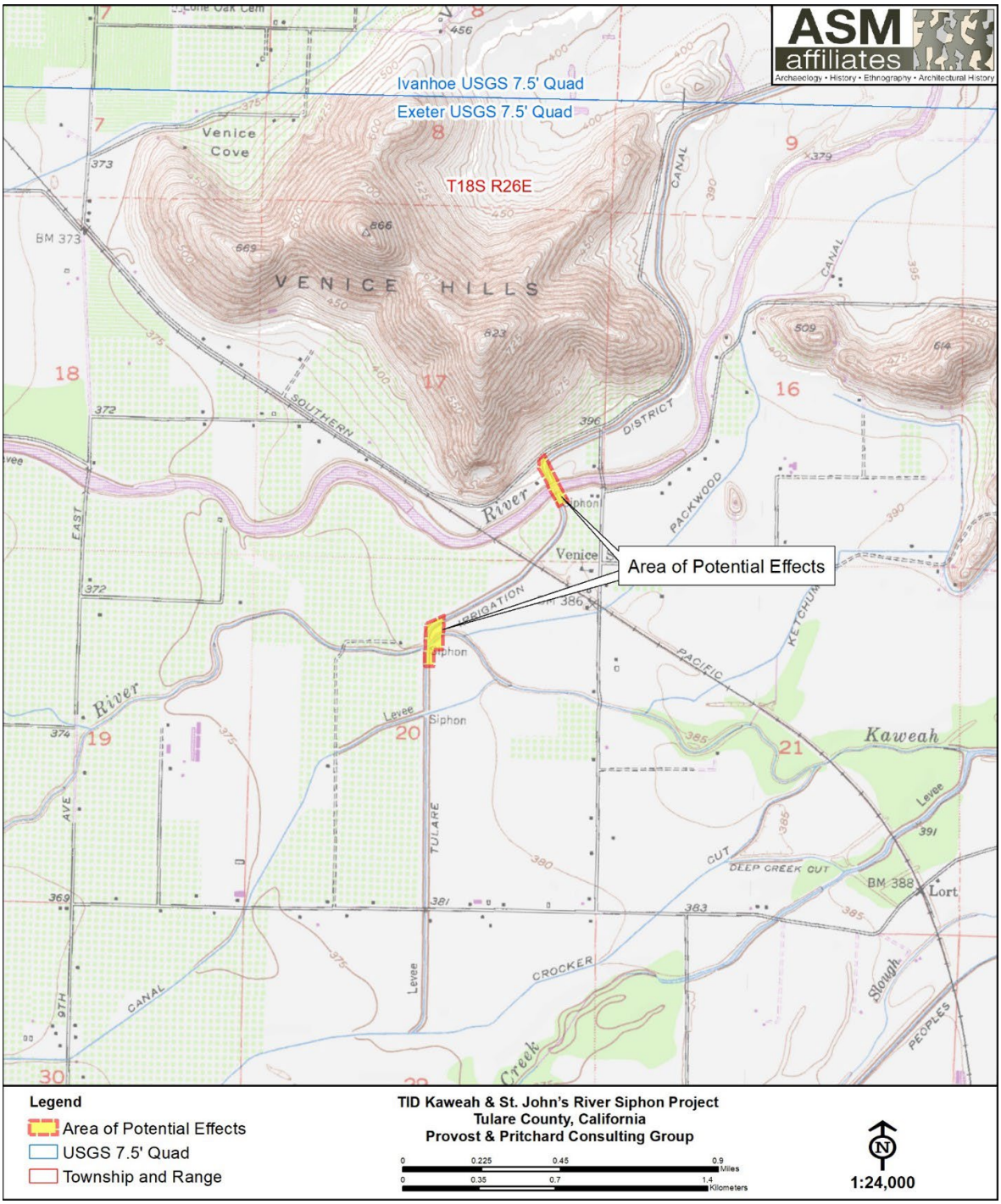


Figure 1. Location of the TID Main Intake Canal Siphons Project, Tulare County, California.

1.2 PROJECT DESCRIPTION AND AREA OF POTENTIAL EFFECTS

Project Background and Purpose

The MIC is the primary conveyance facility that the TID uses to move water into TID boundaries. The MIC delivers approximately 44 percent of the annual deliveries at just less than 61,300 acre-feet (AF) per year. The existing canal is approximately 14 mi. long and diverts water from the Friant-Kern Canal at Rocky Ford and takes water into the northeast corner of the TID. Both the St. Johns River Siphon and Kaweah River Siphon are key pieces of infrastructure that the TID uses to distribute water. These existing structures were built in the early 1950s and are exposed in the river bottom, creating concerns for their structural stability. The current siphons appear to be sized too small for the flows that frequently pass through in the MIC and are experiencing erosion from both the velocity passing through it and the St. John's and Kaweah Rivers flow above. The existing reinforced concrete siphons have been badly cracked due to erosive forces and internal head pressures and air entrainment. They are visible (from the riverbeds during low flows) and are believed to have significant leakage from the siphons that should be eliminated, if at all possible. Failure of the siphons would be catastrophic as it would reduce delivery capacity to 200 cubic feet per second (cfs) for the entire TID. At this time, the TID knows there has been some patch work done in the last 50 years but does not know if any major rehabilitation has been completed.

Due to the age and condition of the existing siphons, the TID is proposing construction of two new siphons under the St. Johns and Kaweah Rivers along the MIC. Given that these siphons are critical infrastructure for delivering water into the TID, the desire is to be proactive and construct new siphons before a major problem occurs.

Project Description

The TID proposes the construction of two reinforced concrete box siphons, each connecting to the MIC. The Project includes one reinforced concrete box siphon at each site. The Project proposes to install two new siphons adjacent and upstream of the existing siphons at each site. The new siphons will address the structural concerns of the existing siphons and will enhance the maximum capacity to approximately 1,100 cfs. The Project will be completed in multiple construction phases. The initial phase will involve clearing and grubbing outside of the St. John's and Kaweah River channels at the individual siphon sites which could include minor vegetation removal. Upon completion of the first phase, the second phase for Project construction will be the excavation of the sending and receiving pits, one pit on either side of the rivers at each siphon site. These pits are utilized for the jack and bore drilling pipe installation method. In the sending pit, a boring machine and auger will drill into the earth beneath each river installing pipe casing along the way to the receiving pit. It is anticipated the sending and receiving pits will be gravel or rock lined to stabilize the operation of the pipelines. This phase will also see the installation of head walls and wing walls on upstream and downstream sides as well as trash racks on the upstream side of the siphon intakes. The third phase of the Project will consist of reconditioning the water flow into the new siphons and into the MIC. The existing box culvert siphons will remain in place once construction of the new siphons is complete. The existing siphons will provide added erosion protection for the new siphons in the rivers by stabilizing the river bottom sediment in place.

The Area of Potential Effect (APE) for the St. John's River siphon site is approximately 2.9 acres (ac.) and the Kaweah River siphon site is approximately 3.4 ac., which equals a total Project size of approximately 6.3 ac. This includes all construction staging and access areas needed for construction equipment. The vertical APE, defined as the maximum depth of excavation for the pipelines, is 10 ft. Construction drawings for both locations are available in Appendix A

1.3 REGULATORY CONTEXT

1.3.1 National Historic Preservation Act Section 106

NHPA Section 106 is applicable to federal undertakings, including Projects financed or permitted by federal agencies regardless of whether the activities occur on federally managed or privately-owned land. Its purpose is to determine whether adverse effects will occur to significant cultural resources, defined as "historical properties" that are listed in or determined eligible for listing in the National Register of Historic Places (NRHP). The criteria for NRHP eligibility are defined at 36 CFR § 60.4 as follows:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that:
>
> (A) are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (B) are associated with the lives of persons significant in our past; or
>
> (C) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (D) have yielded or may be likely to yield, information important in prehistory or history.

There are, however, restrictions on the kinds of historical properties that can be NRHP listed. These have been identified by the Advisory Council on Historic Preservation (ACHP), as follows:

> Ordinarily cemeteries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:
>
> (a) A religious property deriving primary significance from architectural or artistic distinction or historical importance; or

(b) A building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or

(c) A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life.

(d) A cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or

(e) A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or

(f) A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or

(g) A property achieving significance within the past 50 years if it is of exceptional importance. (ACHP n.d.)

1.3.2 National Register Criteria for Evaluation

The criteria for evaluation of NRHP eligibility are outlined at 36 CFR Part 60.4. A district, site, building, structure, or object must generally be at least 50 years old to be eligible for consideration as a historic property. That district, site, building, structure, or object must retain integrity of location, design, setting, materials, workmanship, feelings, and association as well as meet one of the following criteria to demonstrate its significance in American history, architecture, archeology, engineering, and culture. A district, site, building, structure, or object must:

> (A) be associated with events that have made a significant contribution to the broad patterns of history; or,
>
> (B) be associated with the lives of people significant in our past; or,
>
> (C) embody the distinct characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; or,
>
> (D) have yielded, or may be likely to yield, information important in prehistory or history.

A site must have integrity and meet one of the four criteria of eligibility to demonstrate its historic associations in order to convey its significance. A property must be associated with one or more events important in history or prehistory in order to be considered for listing under Criterion A. Additionally, the specific association of the property itself must also be considered significant. Criterion B applies to properties associated with individuals whose specific contributions to the history can be identified and documented. Properties significant for their physical design or construction under Criterion C must have features with characteristics that exemplify such

elements as architecture, landscape architecture, engineering, and artwork. Criterion D most commonly applies to properties that have the potential to answer, in whole or in part, important research questions about human history that can only be answered by the actual physical materials of cultural resources. A property eligible under Criterion D must demonstrate the potential to contain information relevant to the prehistory and history (*National Register Bulletin* 15).

A district, site, building, structure, or object may also be eligible for consideration as a historic property if that property meets the criteria considerations for properties generally less than 50 years old, in addition to possessing integrity and meeting the criteria for evaluation.

1.3.3 California Environmental Quality Act

CEQA is applicable to discretionary actions by state or local lead agencies. Under CEQA, lead agencies must analyze impacts to cultural resources. Significant impacts under CEQA occur when "historically significant" or "unique" cultural resources are adversely affected, which occurs when such resources could be altered or destroyed through Project implementation. Historically significant cultural resources are defined by eligibility for or by listing in the California Register of Historical Resources (CRHR). In practice, the federal NRHP criteria (below) for significance applied under Section 106 are generally (although not entirely) consistent with CRHR criteria (see PRC § 5024.1, Title 14 CCR, Section 4852 and § 15064.5(a)(3)).

CEQA Guidelines Section 15064.5 defines historical resources as:

1. A resource listed in,or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR (Pub. Res. Code § 5024.1, Title 14 CCR, Section 14 CCR, Section 4850 et seq.).

2. A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

3. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing in the CRHR (Pub. Res. Code, § 5024.1, Title 14 CCR, Section 14 CCR, Section 4852)

4. The fact that a resource is not listed in, or determined to be eligible for listing in the CRHR, not included in a local register of historical resources (pursuant to section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in section 5024.1(g) of the Public Resources Code) does not

> preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code sections 5020.1(j) or 5024.1.

Unique resources under CEQA are those that represent:

> An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
>
> (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
>
> (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
>
> (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC § 21083.2(g)).

Preservation in place is the preferred approach under CEQA to mitigating adverse impacts to significant or unique cultural resources.

1.3.2 California Register of Historical Resources Significance Criteria

The CRHR program encourages public recognition and protection of resources of architectural, historical, archeological, and cultural significance, identifies historical resources for state and local planning purposes, determines eligibility for state historic preservation grant funding and affords certain protections under CEQA. The criteria established for eligibility for the CRHR are directly comparable to the NRHP criteria.

To be eligible for listing in the CRHR, a resource must satisfy at least one of the following four criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States.
2. It is associated with the lives of persons important to local, California, or national history.
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values.
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Historical resources eligible for listing in the CRHR must meet at least one of the criteria of significance described above and retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. For the purposes of eligibility for CRHR, integrity is defined as "the authenticity of an historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance" (California Office of Historic Preservation 2001). This general definition is strengthened by the more specific definition offered by the NRHP—the criteria and guidelines

on which the CRHR criteria and guidelines are based upon. In 2012, the California Office of Historic Preservation clarified that the intent of the CRHR regulations is to be the same as the NRHP (California Department of Transportation 2012).

1.3.3 Integrity

To be eligible for listing in the CRHR a property must retain sufficient integrity to convey its significance. The NRHP publication *How to Apply the National Register Criteria for Evaluation*, establishes how to evaluate the integrity of a property: "Integrity is the ability of a property to convey its significance" (National Park Service, National Register of Historic Places 1998). The evaluation of integrity must be grounded in an understanding of a property's physical features and how they relate to the concept of integrity. Determining which of these aspects are most important to a property requires knowing why, where, and when a property is significant. To retain historic integrity, a property must possess several, and usually most, aspects of integrity:

1. **Location** is the place where the historic property was constructed or the place where the historic event occurred.
2. **Design** is the combination of elements that create the form, plan, space, structure, and style of a property.
3. **Setting** is the physical environment of a historic property and refers to the character of the site and the relationship to surrounding features and open space. Setting often refers to the basic physical conditions under which a property was built and the functions it was intended to serve. These features can be either natural or manmade, including vegetation, paths, fences, and relationships between other features or open space.
4. **Materials** are the physical elements that were combined or deposited during a particular period or time, and in a particular pattern or configuration to form a historic property.
5. **Workmanship** is the physical evidence of crafts of a particular culture or people during any given period of history or prehistory and can be applied to the property as a whole, or to individual components.
6. **Feeling** is a property's expression of the aesthetic or historic sense of a particular period of time. It results from the presence of physical features that, when taken together, convey the property's historic character.
7. **Association** is the direct link between the important historic event or person and a historic property.

2. ENVIRONMENTAL AND CULTURAL BACKGROUND

2.1 ENVIRONMENTAL BACKGROUND AND GEOARCHAEOLOGICAL SENSITIVITY

As noted above, the Project is at an average elevation of approximately 375 ft. amsl, approximately 14.1 mi. northeast of the City of Tulare on the open flats of the San Joaquin Valley. According to Menafee and Dodge (1913:81), Euro-American settlement of the City of Tulare and immediate environs occurred slightly later than other parts of Tulare County because of the lack of significant surface water, and hence its relatively limited agricultural potential prior to the development of irrigation systems. Before the appearance of agriculture, this location would have been prairie grasslands, grading into tree savannas in the foothills to the east (Preston 1981). The APE and immediate surroundings have been farmed and grazed for many years and no native vegetation is present, with the APE now consisting largely of access roads and undeveloped lands. Perennial bunchgrasses such as purple needlegrass and nodding needlegrass most likely would have been the dominant plant cover in the region prior to cultivation.

Geologically, the Project APE is on recent fan deposits (USGS 2023). United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil surveys identify the Project APE within “Grangeville sandy loam, drained, 0 to 2 percent slopes”. Grangeville loams are somewhat poor drained and usually lay on alluvial fans.

The Project APE is within the northern extent of the Kaweah Delta. A Caltrans geoarchaeological study (Meyer et al. 2010) that included the APE was consulted in order to identify the potential for buried archaeological sites in the vicinity of the Project area. This study involved first determining the location and ages of late Pleistocene (>25,000 years old) landforms in the southern San Joaquin Valley. These were identified by combining a synthesis of 2,400 published paleontological, soils and archaeological chronometric dates with geoarchaeological field testing. The ages of surface landforms were then mapped to provide an assessment for the potential for buried archaeological deposits. These ages were derived primarily from the Soil Survey Geographic Database (SSURGO) and the State Soils Geographic (STATSGO) database. A series of maps were created from this information that ranked locations in seven ordinal classes for sensitivity for buried soils, from Very Low to Very High.

According to the geoarchaeological model developed by Meyer et al. (2010), the general vicinity of the Project APE has a very low potential for buried archaeological deposits. Additionally, the Project APE is within existing roads and has been heavily disturbed from agricultural use as far back as 1927 (NETR Online 2023). Buried sites and cultural resources are therefore considered unlikely within the Project APE.

2.2 ETHNOGRAPHIC BACKGROUND

Penutian-speaking Yokuts tribal groups occupied the southern San Joaquin Valley region and much of the nearby Sierra Nevada. Ethnographic information about the Yokuts was collected primarily by Powers (1971, 1976 [originally 1877]), Kroeber (1925), Gayton (1930, 1948), Driver (1937), and Harrington (n.d.). For a variety of historical reasons, existing research information emphasizes the central Yokuts tribes who occupied both the valley and particularly the foothills of the Sierra Nevada. The northernmost tribes suffered from the influx of Euro Americans during the Gold Rush and their populations were in substantial decline by the time ethnographic studies began in the early twentieth century. In contrast, the southernmost tribes were partially removed by the Spanish to missions and eventually absorbed into multi-tribal communities on the Sebastian Indian Reservation (on Tejon Ranch), and later the Tule River Reservation and Santa Rosa Rancheria to the north. The result is a scarcity of ethnographic detail on southern Valley tribes, especially in relation to the rich information collected from the central foothills tribes where native speakers of the Yokuts dialects are still found. Regardless, the general details of indigenous lifeways were similar across the broad expanse of Yokuts territory, particularly in terms of environmentally influenced subsistence and adaptation and with regard to religion and belief, which were similar everywhere.

Following Kroeber (1925: Plate 47), the City of Tulare region lies in a contact zone between a series of Yokuts tribal groups. Kroeber places the Chunut to the south of the Project APE, along Tulare Lake, the Choinok to the southeast, Wolasi to the northeast along Cameron Creek, and the Telamni further north, near Visalia. No historic villages are recorded in the immediate Project area by Kroeber (1925).

The Yokuts settlement pattern was largely consistent, regardless of specific tribe involved. Winter villages were typically located along lakeshores and major stream courses (as these existed circa AD 1800), with dispersal phase family camps at elevated spots on the valley floor and near gathering areas in the foothills.

Most Yokuts groups, again regardless of specific tribal affiliation, were organized as a recognized and distinct tribelet; a circumstance that almost certainly pertained to the tribal groups noted above. Tribelets were land-owning groups organized around a central village and linked by shared territory and descent from a common ancestor. The population of most tribelets ranged from about 150 to 500 people (Kroeber 1925).

Each tribelet was headed by a chief who was aided by a variety of assistants, the most important of whom was the *winatum*, a herald or messenger and assistant chief. A shaman also served as religious officer. While shamans did not have any direct political authority, as Gayton (1930) has illustrated, they maintained substantial influence within their tribelet.

Shamanism is a religious system common to most Native American tribes. It involves a direct and personal relationship between the individual and the supernatural world enacted by entering a trance or hallucinatory state (usually through the ingestion of psychotropic plants, such as jimsonweed or more typically native tobacco). Shamans were considered individuals with an unusual degree of supernatural power, serving as healers or curers, diviners, and controllers of

natural phenomena (such as rain or thunder). Shamans also produced the rock art of this region, depicting the visions they experienced in vision quests believed to represent their spirit helpers and events in the supernatural realm (Whitley 1992, 2000).

The centrality of shamanism to the religious and spiritual life of the Yokuts was demonstrated by the role of shamans in the yearly ceremonial round. The ritual round, performed the same way each year, started in the spring with the jimsonweed ceremony, followed by rattlesnake dance and (where appropriate) first salmon ceremony. After returning from seed camps, fall rituals began in the late summer with the mourning ceremony, followed by first seed and acorn rites, and then bear dance (Gayton 1930:379). In each case, shamans served as ceremonial officials responsible for specific dances involving a display of their supernatural powers (Kroeber 1925).

Subsistence practices varied from tribelet to tribelet based on the environment of residence. Throughout Native California, and Yokuts territory in general, the acorn was a primary dietary component, along with a variety of gathered seeds. Valley tribes augmented this resource with lacustrine and riverine foods, especially fish and wildfowl. As with many Native California tribes, the settlement and subsistence rounds included the winter aggregation into a few large villages, where stored resources (like acorns) served as staples, followed by dispersal into smaller camps, often occupied by extended families, where seasonally available resources would be gathered and consumed.

Although population estimates vary and population size was greatly affected by the introduction of Euro-American diseases and social disruption, the Yokuts were one of the largest, most successful groups in Native California. Cook (1978) estimates that the Yokuts region contained 27 percent of the aboriginal population in the state at the time of contact; other estimates are even higher. Many Yokuts people continue to reside in the southern San Joaquin Valley today.

2.3 PRE-CONTACT ARCHAEOLOGICAL BACKGROUND

The southern San Joaquin Valley region has received minimal archaeological attention compared to other areas of the state. In part, this is because the majority of California archaeological work has been concentrated in the Sacramento Delta, Santa Barbara Channel, and central Mojave Desert areas (see Moratto 1984). Although knowledge of the region's prehistory is limited, enough is known to determine that the archaeological record is broadly similar to south-central California as a whole (see Gifford and Schenk 1926; Hewes 1941; Wedel 1941; Fenenga 1952; Elsasser 1962; Fredrickson and Grossman 1977; Schiffman and Garfinkel 1981). Based on these sources, the general prehistory of the region can be outlined as follows.

Initial occupation of the region occurred at least as early as the *Paleoindian Period*, or prior to about 10,000 years before present (YBP). Evidence of early use of the region is indicated by characteristic fluted and stemmed points found around the margin of Tulare Lake, in the foothills of the Sierra, and in the Mojave Desert proper.

Both fluted and stemmed points are particularly common around lake margins, suggesting a terminal Pleistocene/early Holocene lakeshore adaptation similar to that found throughout the far west at the same time; little else is known about these earliest peoples. More than 250 fluted points

have been recovered from the Witt Site (CA-KIN-32), located along the western shoreline of ancient Tulare Lake, west of the Project APE, demonstrating the importance of this early occupation in the San Joaquin Valley (see Fenenga 1993). Additional finds consist of a Clovis-like Projectile point discovered in a flashflood cut-bank near White Oak Lodge in 1953 on Tejon Ranch (Glennan 1987a, 1987b). More recently, a similar fluted point was found near Bakersfield (Zimmerman et al. 1989), and a number are known from the Edwards Air Force Base and Boron area of the western Mojave Desert. Although human occupation of the state is well-established during the Late Pleistocene, relatively little can be inferred about the nature and distribution of this occupation with a few exceptions. First, little evidence exists to support the idea that people at that time were big-game hunters, similar to those found on the Great Plains. Second, the western Mojave Desert evidence suggests small, very mobile populations that left a minimal archaeological signature. The evidence from the ancient Tulare Lake shore, in contrast, suggests much more substantial population and settlements which, instead of relying on big game hunting, were tied to the lacustrine lake edge. Variability in subsistence and settlement patterns is thus apparent in California, in contrast to the Great Plains.

Substantial evidence for human occupation across California, however, first occurs during the middle Holocene, roughly 7500 to 4000 YBP. This period is known as the *Early Horizon*, or alternatively as the Early Millingstone, along the Santa Barbara Channel. In the south, populations concentrated along the coast with minimal visible use of inland areas. Adaptation emphasized hard seeds and nuts with toolkits dominated by mullers and grindstones (manos and metates). Additionally, little evidence for Early Horizon occupation exists in most inland portions of the state, partly due to a severe cold and dry paleoclimatic period occurring at this time, although a site deposit dating to this age has been identified along the ancient Buena Vista shoreline in Kern County to the south (Rosenthal et al. 2007). Regardless of specifics, Early Horizon population density was low with a subsistence adaptation more likely tied to plant food gathering than hunting.

Environmental conditions improved dramatically after about 4000 YBP during the *Middle Horizon* (or Intermediate Period). This period is known climatically as the Holocene Maximum (circa 3800 YBP) and was characterized by significantly warmer and wetter conditions than previously experienced. It was marked archaeologically by large population increase and radiation into new environments along coastal and interior south-central California and the Mojave Desert (Whitley 2000). In the Delta region to the north, this same period of favorable environmental conditions was characterized by the appearance of the Windmiller culture which exhibited a high degree of ritual elaboration (especially in burial practices) and perhaps even a rudimentary mound-building tradition (Meighan, personal communication, 1985). Along with ritual elaboration, Middle Horizon times experienced increasing subsistence specialization, perhaps correlating with the appearance of acorn processing technology. Penutian speaking peoples (including the Yokuts) are also posited to have entered the state roughly at the beginning of this period and, perhaps to have brought this technology with them (cf. Moratto 1984). Likewise, it appears the so-called "Shoshonean Wedge" in southern California, the Takic speaking groups that include the Gabrielino/Fernandeño, Tataviam, and Kitanemuk, may have moved into the region at that time (Sutton 2009), rather than at about 1500 YBP as first suggested by Kroeber (1925).

Evidence for Middle Horizon occupation of interior south-central California is substantial. For example, in northern Los Angeles County along the upper Santa Clara River, to the south of the

San Joaquin Valley, the Agua Dulce village complex indicates occupation extending back to the Intermediate Period, when the population of the village may have been 50 or more people (King et al. n.d.). Similarly, inhabitation of the Hathaway Ranch region, near Lake Piru, and the Newhall Ranch, near Valencia, appears to date to the Intermediate Period (W&S Consultants 1994). To the west, little or no evidence exists for pre-Middle Horizon occupation in the upper Sisquoc and Cuyama River drainages; populations first appear there at roughly 3500 YBP (Horne 1981). The Carrizo Plain, the valley immediately west of the San Joaquin, experienced a major population expansion during the Middle Horizon (W&S Consultants 2004; Whitley et al. 2007), and recently collected data indicates the Tehachapi Mountains region was first significantly occupied during the Middle Horizon (W&S Consultants 2006). A parallel can be drawn to the inland Ventura County region where a similar pattern has been identified (Whitley and Beaudry 1991), as well as the western Mojave Desert (Sutton 1988a, 1988b), the southern Sierra Nevada (W&S Consultants 1999), and the Coso Range region (Whitley et al. 1988). In all of these areas a major expansion in settlement, the establishment of large site complexes and an increase in the range of environments exploited appear to have occurred sometime roughly around 4,000 YBP. Although most efforts to explain this expansion have focused on local circumstances and events, it is increasingly apparent this was a major southern California-wide occurrence, and any explanation must be sought at a larger level of analysis (Whitley 2000). Additionally, evidence from the Carrizo Plain suggests the origins of the tribelet level of political organization developed during this period (W&S Consultants 2004; Whitley et al. 2007). Whether this same demographic process holds for the southern San Joaquin Valley, including the current Project APE, is yet to be determined.

The beginning of the *Late Horizon* is set variously at 1500 and 800 YBP, with a growing archaeological consensus for the shorter chronology. Increasing evidence suggests the importance of the Middle-Late Horizons transition (AD 800 to 1200) in the understanding of south-central California prehistory. This corresponds to the so-called Medieval Climatic Anomaly, followed by the Little Ice Age, and this general period of climatic instability extended to about AD 1860. It included major droughts matched by intermittent "mega-floods," and resulted in demographic disturbances across much of the west (Jones et al. 1999). It is believed to have resulted in major population decline and abandonments across south-central California, involving as much as 90 percent of the interior populations in some regions, including the Carrizo Plain (Whitley et al. 2007). It is not clear whether site abandonment was accompanied by a true reduction in population or an agglomeration of the same numbers of peoples into fewer but larger villages in more favorable locations. Population along the Santa Barbara coast appears to have spiked at about the same time that it collapsed on the Carrizo Plain (Whitley et al. 2007). Along Buena Vista Lake, in Kern County, population appears to have been increasingly concentrated toward the later end of the Medieval Climatic Anomaly (Culleton 2006), and population intensification also appears to have occurred in the well-watered Tehachapi Mountains during this same period (W&S Consultants 2006).

What is clear is that Middle Period villages and settlements were widely dispersed across the south-central California landscape, including in the Sierra Nevada and the Mojave Desert. Many of these sites are found at locations that lack existing or historically known fresh water sources. Late Horizon sites, in contrast, are typically concentrated in areas where fresh water was available during the historical period, if not currently.

One extensively studied site that shows evidence of intensive occupation during the Middle-Late Horizons transition (~1500-500 YBP) is the Redtfeldt Mound (CA-KIN-66/H), located west of the current Project APE, near the north shore of ancient Tulare Lake. There, Siefkin (1999) reported on human burials and a host of artifacts and ecofacts excavated from a modest-sized mound. He found that both Middle Horizon and Middle-Late Horizons transition occupations were more intensive than Late Horizon occupations, which were sporadic and less intensive (Siefkin 1999:110-111).

The Late Horizon can then be understood as a period of recovery from a major demographic collapse. One result is the development of regional archaeological cultures as the precursors to ethnographic Native California; suggesting that ethnographic lifeways recorded by anthropologists extend roughly 800 years into the past.

The position of southern San Joaquin Valley prehistory relative to patterns seen in surrounding areas is still somewhat unknown. The presence of large lake systems in the valley bottoms appears to have mediated some of the desiccation seen elsewhere. But, as the reconstruction of Soda Lake in the nearby Carrizo Plain demonstrates (see Whitley et al. 2007) environmental perturbations had serious impacts on lake systems too. Identifying certain of the prehistoric demographic trends for the southern San Joaquin Valley and determining how these trends (if present) correlate with those seen elsewhere, is a current important research objective.

2.4 HISTORICAL BACKGROUND

Spanish explorers first visited the San Joaquin Valley in 1772, but its lengthy distance from the missions and presidios along the Pacific Coast delayed permanent settlement for many years, including during the Mexican period of control over the Californian region. In the 1840s, Mexican rancho owners along the Pacific Coast allowed their cattle to wander and graze in the San Joaquin Valley (JRP Historical Consulting 2009). The Mexican government granted the first ranchos in the southern part of the San Joaquin Valley in the early 1840s, but these did not result in permanent settlement. It was not until the annexation of California in 1848 that the exploitation of the southern San Joaquin Valley began (Pacific Legacy 2006).

The discovery of gold in northern California in 1848 resulted in a dramatic increase of population, consisting in good part of fortune seekers and gold miners, who began to scour other parts of the state. After 1851, when gold was discovered in the Sierra Nevada Mountains in eastern Kern County, the population of the area grew rapidly. Some new immigrants began ranching in the San Joaquin Valley to supply the miners and mining towns. Ranchers grazed cattle and sheep, and farmers dry-farmed or used limited irrigation to grow grain crops, leading to the creation of small agricultural communities throughout the valley (JRP Historical Consulting 2009).

After the American annexation of California, the southern San Joaquin Valley became significant as a center of food production for this new influx of people in California. The expansive unfenced and principally public foothill spaces were well suited for grazing both sheep and cattle (Boyd 1997). As the Sierra Nevada gold rush presented extensive financial opportunities, ranchers introduced new breeds of livestock, consisting of cattle, sheep and pig (Boyd 1997).

With the increase of ranching in the southern San Joaquin Valley came the dramatic change in the landscape, as non-native grasses more beneficial for grazing and pasture replaced native flora (Preston 1981). After the passing of the Arkansas Act in 1850, efforts were made to reclaim small tracts of land in order to create more usable spaces for ranching. Eventually, as farming supplanted ranching as a more profitable enterprise, large tracts of land began to be reclaimed for agricultural use, aided in part by the extension of the railroad in the 1870s (Pacific Legacy 2006).

The Santa Fe and Southern Pacific Railroads extended into Tulare County in the 1870s. Deliberations among the major owners of the rail companies resulted in a decision that one large town would be developed in the approximate middle of each San Joaquin Valley county, to serve as county seat and railroad hub. The location of the City of Tulare was one such selected spot, placed at the intersection of the Santa Fe and Southern Pacific railroads (Preston 1981). Prior to that time, this area had relatively few settlers due to the lack of surface water, with most Euro Americans settling either farther north and east, closer to the main branches of the Kaweah and Kings Rivers, or to the south and east, along the Tule River (Menafee and Dodge 1913).

The City of Tulare was then established by the Southern Pacific Railroad in 1872, with plats aligned parallel to the tracks. As a rail diversion point, a series of rail company workshops, including a roundhouse, were constructed. The work force for these facilities attracted additional development and settlement. In addition to the rail yards, by 1876 the town had a general store, drugstore, hardware shop, two blacksmiths, two carpentry shops, a wheelwright, lumberyard and a flour mill (Preston 1981).

Following the passage of statewide “No-Fence” laws in 1874, ranching practices began to decline, while farming expanded in the San Joaquin Valley in both large land holdings and smaller, subdivided properties. As the farming population grew, so did the demand for irrigation. During the period of reclaiming unproductive land in the southern San Joaquin Valley, grants were given to individuals who had both the resources and the finances to undertake the operation alone.

Three competing partnerships developed during this period which had a great impact on control of water, land reclamation and ultimately agricultural development in the San Joaquin Valley: Livermore and Chester, Haggin and Carr, and Miller and Lux, perhaps the most famous of the enterprises. Livermore and Chester were responsible, among other things, for developing the large Hollister plow (3 ft. wide by 2 ft. deep), pulled by a 40-mule team, which was used for ditch digging. Haggin and Carr were largely responsible for reclaiming the beds of the Buena Vista and Kern lakes, and for creating the Calloway Canal, which drained through the Rosedale area in Bakersfield to Goose Lake (Morgan 1914). Miller and Lux ultimately became one of the biggest private property holders in the country, controlling the rights to over 22,000 square mi. Miller and Lux’s impact extended far beyond Kern County, however. They recognized early on that control of water would have important economic implications, and they played a major role in the water development of the state. They controlled, for example, more than 100 mi. of the San Joaquin River with the San Joaquin and Kings River Canal and Irrigation System. They were also embroiled for many years in litigation against Haggin and Carr over control of the water rights to the Kern River. Descendants of Henry Miller continue to play a major role in California water rights, with his great-grandson, George Nickel, Jr., the first to develop the concept of water banking, thus creating a system to buy and sell water (Levine 2011).

The controversies associated with these endeavors culminated in the Wright Irrigation Act of 1887, which provided for the ownership of land and water as a unit rather than as separate rights. It further allowed the creation of irrigation districts comprised of local landowners.

2.4.1 Tulare Irrigation District

The first two districts created in Tulare County were the Alta Irrigation District, on the Kings River, and the Tulare Irrigation District (TID), which includes the Project APE (Preston 1981). The TID was organized on September 21, 1889 (Figure 2). The original proposal for the formation of an irrigation district covered 219,000 ac. It extended from the Sierra Nevada foothills to Tulare Lake. This was eventually reduced to 32,500 ac. In January 1948, the so-called “Kaweah Lands" (approximately 11,000 ac.) were annexed. In October 1948, approximately 31,000 ac. previously served by the Packwood Canal Company were annexed to the TID (TID n.d.).

Initially, $500,000 in bonds were issued. About half was expended for the construction of diversion works on the St. Johns River, the main canal heading at the river (including a large flume over the river), together with the purchase of water rights of the Kaweah Canal and Irrigation Company, Rocky Ford Canal and Irrigation Company, and Settlers Ditch Company. The remainder was used for canal construction within the original TID boundaries. Financial difficulties in the early 1890s caused a setback, which was exacerbated by questions about the legality of the formation of the TID and its bonds. By 1895, most of the landowners had begun to default on payment of their TID assessments. For a number of years, the TID practically ceased operating, although water was kept running in the canals. During this period, the litigation over the bonds continued, and economic conditions in both Tulare and the surrounding country reached a low (TID n.d.).

After negotiations with the bondholder, the bond was retired at approximately $0.50 on the dollar, and an assessment of 36 percent of the valuation was made for this purpose. The debt was finally cleared by payment of $273,075 and the bonds were publicly burned on October 17, 1903 (TID n.d.). The TID subsequently become a viable entity supporting local agriculture (Menafee and Dodge 1913). For many years after the retirement of the bonds, the TID operated on a system of water tolls, but the annual levying of assessments was resumed in 1918 (TID n.d.). Today, the TID has no bonded indebtedness.

In 1950, a contract was signed with the U.S. Bureau of Reclamation, providing an annual supply of 30,000 ac. ft. of Class 1 water, and up to 141,000 ac. ft. of Class 2 water from the Friant-Kern Canal. Subsequently, the TID proceeded with extensive improvements to the existing canal system, and the extension of the canal system to serve annexed areas. This work consisted of enlarging and/or relocating canals, construction of diversion structures, road crossings, check-gates, siphons, installing pipelines, etc. The majority of this work occurred between 1951-1964 (TID n.d.).

The growth of the town of Tulare received an initial impetus from the railroads, but a series of events slowed this process. Fires swept through the business district in 1883 and 1886, in the first case destroying about 25 businesses and, in the second, 75—virtually all of the town’s commercial infrastructure. Although rebuilding occurred in each instance, circumstances worsened significantly when the railroad moved its stops from Tulare to Bakersfield in 1891. This resulted

in an exodus of much of the population, and the town's commerce, to the south (Menafee and Dodge 1913).

Since the turn of the century, the development of the City of Tulare and environs has been tied to agriculture. The TID has played an important role in this development. The TID currently covers approximately 74,000 ac. surrounding, but not including the city itself (Figure 3). With the start of the Central Valley Project, the TID initiated a major program of improving and extending the existing canal system, with this work primarily occurring between 1951 and 1964. The TID and the Kaweah Delta Water Conservation District formed the Kaweah River Power Authority (KRPA) in 1982. A 17MW hydroelectric power plant was constructed and went online in 1992, delivering power to the Southern California Edison Company (TID n.d.).

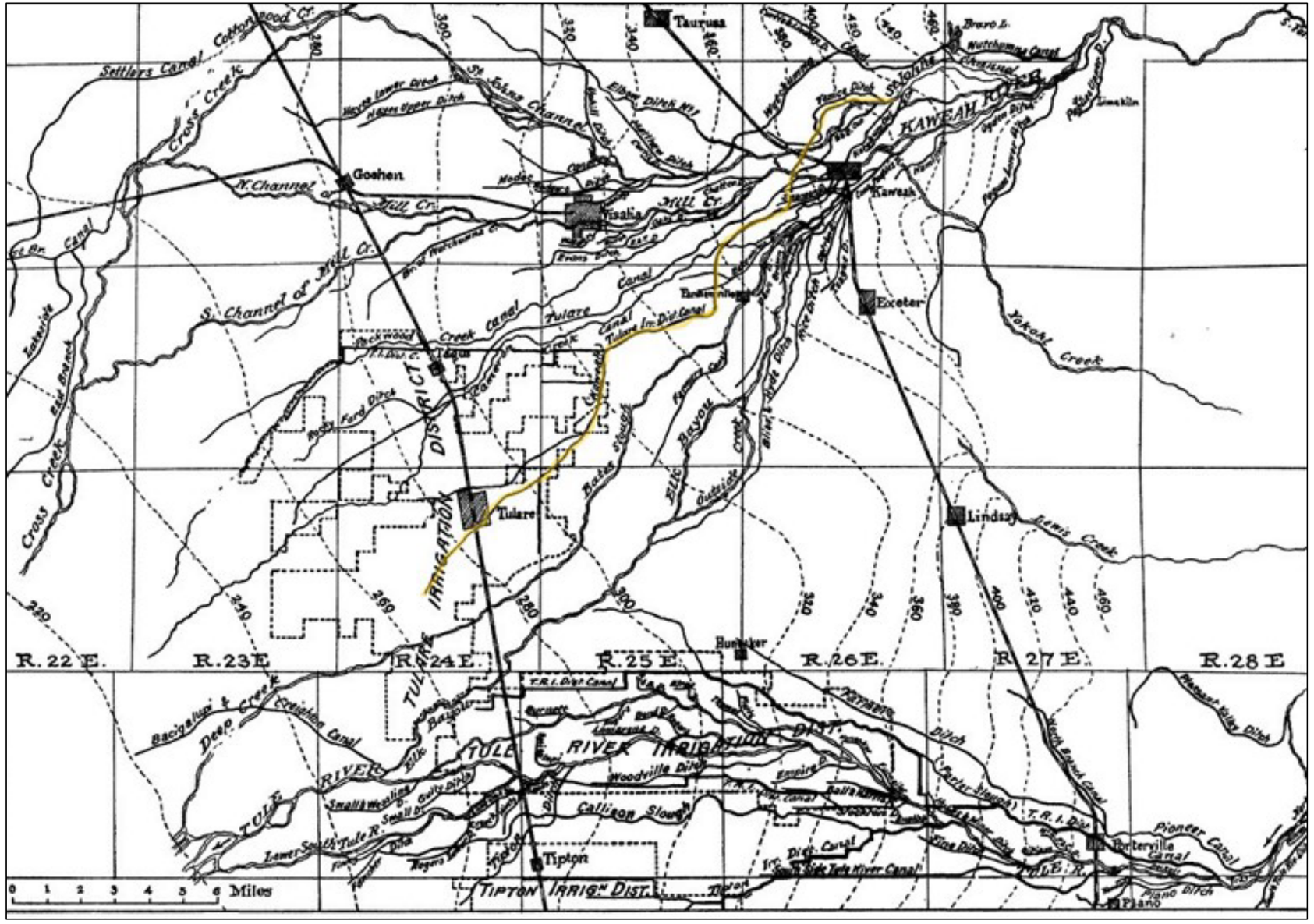


Figure 2. Tulare Irrigation District map, 1898. Source: Grunsky 1898.

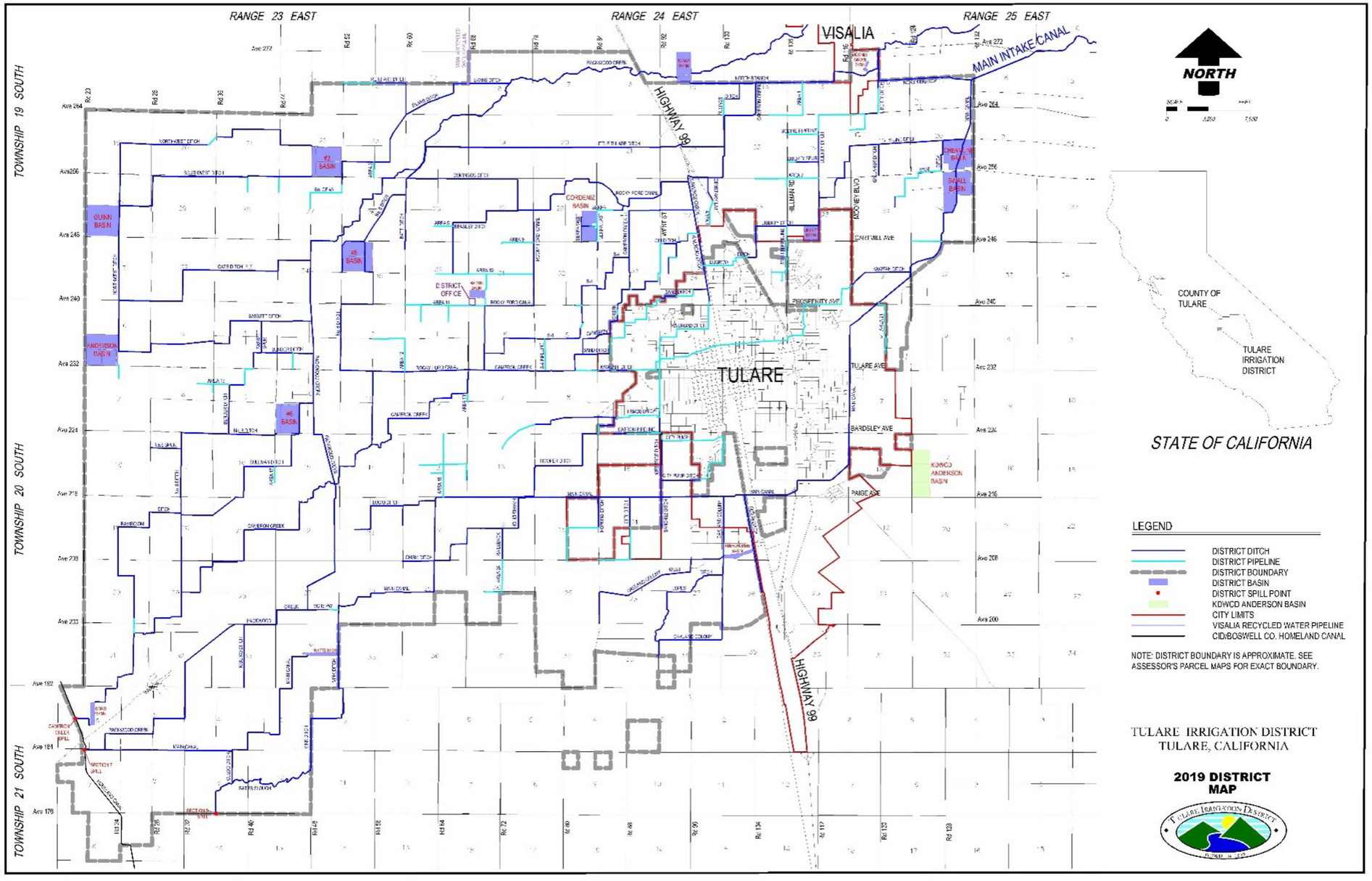


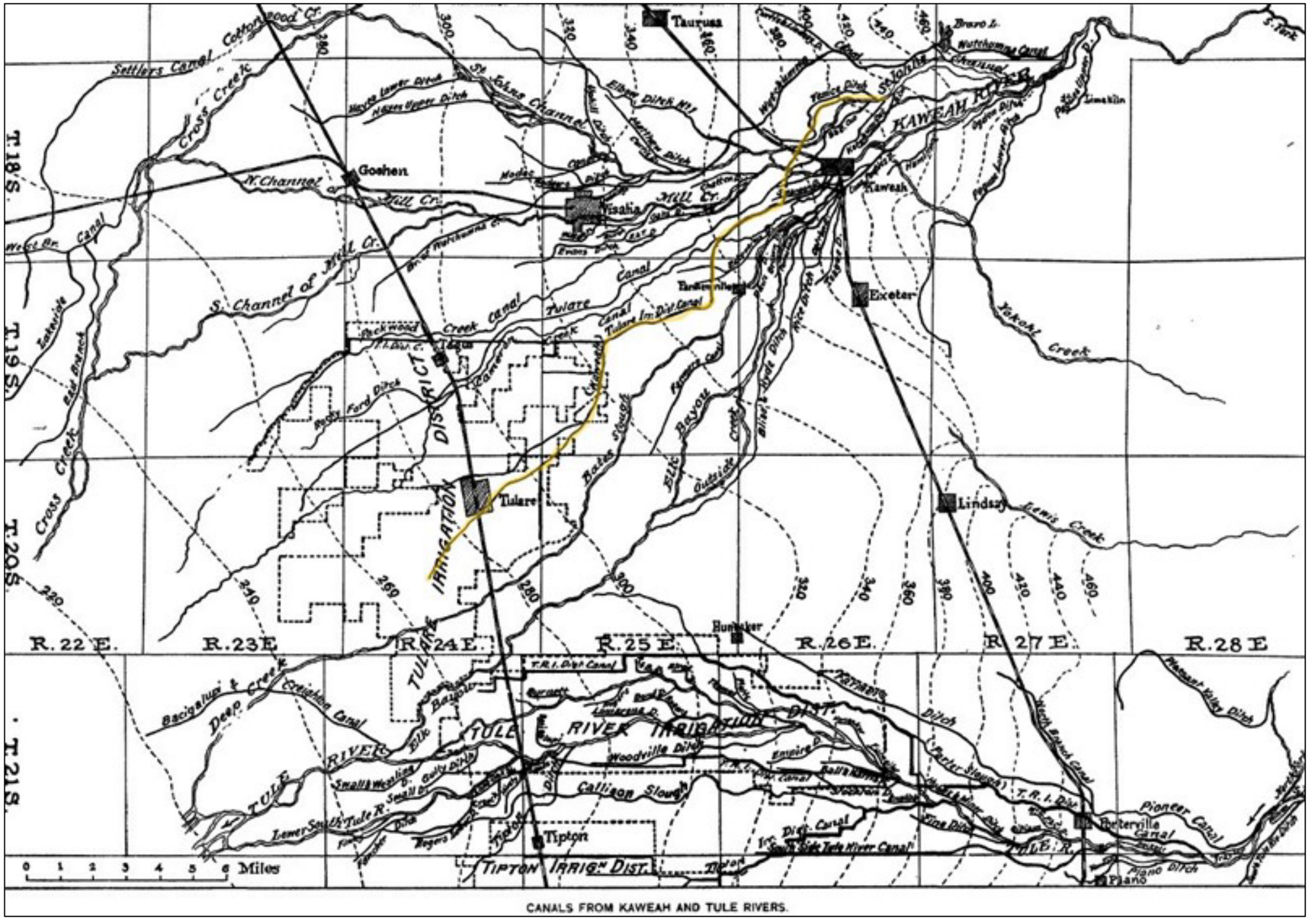
Figure 3. Tulare Irrigation District map, 2022.

2.4.2 Tulare Irrigation District Main Canal

The segments of the TID Main Canal within the Project APE were originally part of the Tulare Irrigation District Canal, originally referred to as the Kaweah Canal. The Kaweah Canal was constructed in 1877 by the Kaweah Canal and Irrigation Company, organized the same year by farmers who needed water in the Tulare vicinity, with water sourced from the Peoples Ditch Company after an agreement was made that would allow the use of the upper sections of the Peoples Ditch for several mi. (Grunsky 1898). With water supplied from the Peoples Ditch, which was supplied with water from the Kaweah River, the Kaweah Canal at this time split into two main branches approximately six mi. northeast of the city of Tulare. The northern branch carried water to lands near Tagus, and the southern branch carried water to the vicinity of Tulare. In 1898, two decades after the initial construction of the Kaweah Canal, the total length of the main Kaweah Canal from its beginning to its north/south split was 10 mi. In 1892, TID purchased the Kaweah Canal for $150,0000. After this purchase, the Kaweah Canal was renamed the TID Canal, and the segment above the north/south split and the southern branch became the segments of what is now the Main Intake Canal (MIC) segment of the TID Canal (Grunsky 1898). The TID Main Canal carries water via gravity from the Kaweah River to its terminus at the Homeland Canal. (Figure 4)

In 1950, a deal was made between the TID and Reclamation to begin receiving water from the Friant-Kern Canal (FKC), thus altering the head of the TID Main Canal from the St. Johns River to the FKC location, found just to the west of Blair Road between the intersections of 10th Avenue North and Avenue 332 to the southeast of Woodlake (TID n.d.). As part of the addition of water from the FKC, the TID began a construction program in 1951 to improve and redevelop the existing canal systems and newly annexed areas. The TID relocated canals and constructed diversion structures, road crossings, and siphons. TID completed most of these improvements by 1964, although there have been some modifications over time. (TID n.d.).

ASM contacted the TID for drawings and confirmation of the construction dates for the segments of the MIC within the APE and the siphons within the APE but did not receive that information.



CANALS FROM KAWEAH AND TULE RIVERS.

Figure 4. Tulare Irrigation District Map with the TID Canal highlighted. Source: Grunsky 1898.

2.4.3 St. Johns River Siphon and Kaweah River Siphon

The St. Johns River siphon and the Kaweah River siphon were likely constructed at the same time as part of the FKC improvements to TID system. The two siphons were first identified on USGS topographic maps in 1950. However, because the MIC has not changed alignment and the canal has traditionally crossed both the St. Johns and the Kaweah Rivers, it is likely that a siphon has existed at these locations since the construction of the MIC in 1877. An 1892 atlas of the area, the 1898 "Canals from Kaweah and Tule Rivers" map, and the 1926 USGS map confirm that the MIC extended through the St. Johns and Kaweah Rivers in the same alignment as the present-day with no change to the alignment or width of the rivers (Thompson 1892; Grunsky 1898; USGS 1926). However, it is likely that the siphon at St. Johns River and the siphon at Kaweah River were replaced during the improvements that were made by the TID during the 1950s. Below is a more detailed description of the individual siphons.

St. Johns River Siphon

While the TID Canal appears to have been realigned in the areas north of the St. Johns Siphon APE, the intersection of the MIC and the St. Johns River in both the 1892 and 1898 maps appear to be in the same location as the present day. By 1926, the intersection of the St. Johns River and the MIC is in its present-day location, and the northern section of the MIC within the APE is generally aligned as it is now. Few changes have occurred within the APE over time. The 1926 topographic map, which was surveyed between 1924 and 1925, identified a building or a structure on the southern bank of the St. Johns River within the APE (USGS 1926). It is not clear whether this building or structure was related to the water conveyance systems or to the nearby agricultural lands. However, this building or structure disappeared by 1950 (USGS 1950). The 1950 topographic map is also the first time that a siphon is noted to be in the area. After 1950, historic aerials confirm that the alignment has remained the same within the APE. The only notable difference between 1956 and now occurred outside of the APE, most notably in the development of the parcel to the east of the APE where buildings, structures, and roads were constructed over time.

Kaweah River Siphon

As stated above, maps from 1892 and 1898 confirm that the point at which the MIC intersects the Kaweah River in the nineteenth century appears to be in relatively the same location as the present day (Thompson 1892; Grunsky 1898). By 1924 or 1925, the section of the MIC north of the Kaweah River within the APE appears to have a slightly different alignment with a northeast/southwest diagonal trajectory (USGS 1926). By the 1950s, the MIC is situated in its present alignment and a siphon was identified (USGS 1950). Available topographic maps and historic aerials show that from 1956 until 2020, little to no visible changes occurred within the APE and the wider surrounding areas.

2.5 ELIGIBILITY CRITERIA FOR WATER CONVEYANCE SYSTEMS

The period of significance for historic water conveyance systems begins with the initial date of construction and considers any alignment changes that have been made over time. The period of significance must also consider the construction history of the linear systems, which may have

been constructed and/or reconstructed or realigned by individuals, collectives, and/or irrigation districts and water companies over time.

Main Canals, Laterals, and Ditches

Main canals, laterals, or ditches can be individually eligible for the NRHP (Criteria A-D) and CRHR (Criteria 1-4). While the following criteria was developed for the Friant-Kern Canal, it is still applicable to smaller irrigation systems:[1]

Criterion A/1: They have had a significant impact on the settlement, agricultural economy, or development patterns of the Project area; they have been defining elements in the evolution of the cultural landscape; they are directly associated with important events.

Criterion B/2: They are the result of the direct efforts of a prominent individual associated with the development of the local area or region and are the most prominent feature associated with that individual.

Criterion C/3: They represent the distinctive characteristics of canal design and/or methods of construction used during the period of construction, which may include solving engineering design problems due to topography, grade, length, natural obstacles, and resulted in complex or innovative solutions; they are among the best or a rare surviving example of a distinctive type of water conveyance structure; they represent the evolving technology in the engineering, design, and construction of water conveyance structures; they were identified during the construction period as an individually significant feature; or they embody the work of a significant engineer or builder.

Criterion D/4: They have the ability to yield information important to understanding the history of the local area or region that cannot be found in historical documentation.

Integrity

The need for continual maintenance and repairs to canals requires special consideration of integrity. Irrigation systems are constantly evolving as features are upgraded, repaired, or replaced. Alterations made to canals during the period of significance, and even subsequent thereto, may not nullify eligibility if a canal retains certain key qualities. Most important are integrity of location, association, and overall design configuration of the conveyance prism (i.e. depth and width) and water control features. A canal which has retained its original form and associated appurtenant features has a high degree of integrity. It is not uncommon for canal lining to be replaced, or for previously unlined segments to be lined. Such changes may not preclude a canal's eligibility if replacement features are in-kind, or they do not significantly damage the canal's historic association or its overall design. If in addition to integrity of association, location, and overall design, the historical setting and feeling of a canal are maintained, then the likelihood is even higher that an altered canal could remain eligible. On the other hand, if an entire canal is piped, it would no longer convey any of its original design, workmanship, materials, or historical

[1] The section has been excerpted and adapted from Heather K. Norby and Stephen R. Wee, Historic Property Survey Report: Friant Kern Canal, JRP Historical Consulting, 2019:52-53.

association and would not be contributing. Conversely, partial piping of a significant canal may not preclude eligibility if a majority of a canal is still open and intact.

Appurtenant Canal Features[2]

Although appurtenant canal features are all operationally and thematically related to canals/laterals/ditches, each feature type serves a specific purpose. These features can be divided into five categories of structures: conveyance, regulating, protective, water measurement, and bridges. The first four of these types were built to function as part of the canal, while the bridges were built to function independently of the canal.

1. Conveyance Structures

Conveyance structures are features such as inverted siphons, drops, chutes, flumes, tunnels, and pipelines that are used to safely transport water from one location to another traversing various existing natural and manmade topographic features along the way. There are two types of pipelines, those that carry water below ground and those that transport water above ground.

2. Regulating Structures

Regulating structures are used to raise, lower, or control the release and volume of the water flow. Regulating structures that are located at the source of the water supply include headworks and turnouts. Headworks control the release of water into the canal, and they are often located downstream from a major diversion or storage facility. Regulating structures located along the course of a canal include turnouts, checks, check-drops, radial gates, reservoirs, and diversion structures. The smaller regulating structures like checks and turnouts are basic components of an irrigation system.

3. Protective Structures

Protective structures protect the canal system and adjacent property from damage which would result from uncontrolled storm runoff or drainage water, or an uncontrolled excess of flow within the canal. Several different types of structures perform this function, including overchutes, drainage inlets, siphon spillways, and wasteways.

4. Water Measurement Structures and Objects

Water measurement structures are used to gauge water flow and ensure its equitable distribution. Many different types of water measurement structures are used in irrigation systems.

5. Bridges

Bridges crossing canals range from single lane bridges, multi-lane highway bridges, farm bridges, pedestrian bridges, and maintenance bridges.

[2] Ibid., 53-54.

Significance

Secondary to the canals in distributing water are the thousands of appurtenant features. With the exception of bridges, these appurtenant features are important to the overall operation of the main canals, yet are too small in size and repetitive in design to merit individual eligibility. Even though bridges cross canals and can be physically tied to the canal prism, bridges have no connection to the operation of the TID and therefore merit separate evaluation from other appurtenant features. Bridges would rarely be individually eligible for the NRHP in association with this historic context.

Registration Requirements

Appurtenant canal features can be eligible for listing in the NRHP and the CRHR for the following reasons:

Criterion A/1: They are directly associated with important events that occurred along canals;

Criterion B/2: not applicable;

Criterion C/3: They are among the best or a rare surviving example of a distinctive type of appurtenant canal feature; they represent the evolving technology in the design of appurtenant canal features; they represent a unique design solution developed in response to a difficult engineering challenge; they were identified during the construction period as an individually significant feature;

Criterion D/4: They have the ability to yield information important to understanding the history of the system.

Integrity

As with canals, many appurtenant features are upgraded, altered, or even replaced over time due to ongoing maintenance needs. Integrity of a structure's historic materials, workmanship and design is essential for NRHP eligibility under any criterion. Location is of primary importance under Criterion A and C – a structure will rarely qualify under this criterion if it does not remain on its historic site along its associated canal.

Historical structures are typically evaluated for NRHP eligibility under Criteria A and/or B, for their associative values with major historical trends or individuals, and C for potential design or engineering importance. Conveyance systems are typically eligible for listing in the NRHP under Criteria A and/or C.

The CRHR Criteria and registration requirements for conveyance systems mirror the NRHP Criteria and registration requirements. Conveyance systems are typically eligible for listing in the CRHR under Criteria 1 and/or 3.

3. ARCHIVAL RECORDS AND SACRED LANDS FILE SEARCHES

3.1 ARCHIVAL RECORDS SEARCH

In order to determine whether the Project APE had been previously surveyed for cultural resources, and/or whether any such resources were known to exist within or near to it, an archival records search was conducted by the staff of the Southern San Joaquin Valley Information Center (SSJVIC) on July 24, 2023. The records search was completed to determine: (i) if pre-contact or historic-era cultural resources had previously been recorded within the Project APE; (ii) if the Project APE had been systematically surveyed by archaeologists prior to the initiation of this fieldwork; and/or (iii) whether the area surrounding the proposed Project was known to contain archaeological sites or built environment resources and to thereby be culturally sensitive. Records examined included archaeological site files and maps, the NRHP, Historic Property Data File, California Inventory of Historic Resources, and the California Points of Historic Interest. The records search included the Project APE and a 0.5 mi. buffer.

According to the SSJVIC, a single previous study (TU-00134) has been conducted within the Project APE, and a single previous study (TU-01395) was identified within the 0.5 mi. buffer (Table 1). The SSJVIC results identified a single built environment resource within the APE, consisting of the Tulare Irrigation District Canal (P-54-005296). An additional built environment resource (P-54-004626) and California Historical Landmark 410 were identified within the 0.5 mi. buffer, with the nearest located approximately 0.2 mi. from the Project APE (Table 2). The results of the SSJVIC records search are available in Confidential Appendix B.

Table 1. Previous Recorded Reports

Report #	Year	Author	Title	APE Relationship
TU-00134	1998	Parr, Robert E. and Sutton, Mark Q.	Archaeological Assessment of the Tulare Irrigation District Main Canal Lining Project, Tulare County, California	**Within**
TU-01395	2009	Schmidt, James J.	Deteriorated Pole Replacement Project Twin Butte, Seville, Tarusa, St. Johns, Wells, Shinkle, Gopher, Caratan, Higby, Chinowith, Oval, Lowry, and Harrell 12 kV Distribution Lines, Tulare County, California	Outside

Table 2. Previously Recorded Resources

Primary #	Type	Description	Eligibility Status	APE Relationship
CHL-410	California Historical Landmark	California Historical Landmark 410	Listed as a California Historical Landmark	Outside
P-54-004626	Historic-era structure	Southern Pacific Railroad	Recommended ineligible	Outside
P-54-005296	Historic-era structure	Tulare Irrigation District Canal	Recommended eligible	**Within**

3.2 PREVIOUS EVALUATIONS

Tulare Irrigation District Canal (P-54-005296)

Segments of the TID Canal have been previously recorded and evaluated. In March 2022, a 0.29 mi. segment of the TID Canal at the southwest corner of West Cherry Avenue and South Lovers Lane in Visalia, on a 32-ac. parcel (APN 127-030-018), was evaluated by Karana Hattersley-Drayton. This segment was determined to be potentially eligible under CRHR Criteria 1 and 3 as a contributor to the TID Canal. However, it was noted in the evaluation that "further research is needed…to evaluate the entire system" (Hattersley-Drayton 2022). This evaluation has not been concurred by SHPO. A segment of the TID Canal was recorded and evaluated by AECOM in August of 2016. The segment is described as "located under the transmission powerline located approximately 0.25 mi. northeast of the intersection of Avenue 272 and Road 148 southwest of Farmersville" (AECOM 2016). This segment was found to be potentially eligible under CRHR Criterion 1 and was found in the report to meet integrity thresholds. This evaluation has not been concurred by SHPO.

Other segments of the TID have been recorded but not evaluated. In 2017, the entire 3,000 ft. of the Old 99 Ditch, part of the TID, was recorded by Applied Earthworks. In 2009, a 1.25 mi. segment of the Tulare Irrigation District Main Canal, located south of Oakdale Avenue and west of Road 132 in Tulare, was recorded by RSO Consulting. In 2007, two segments of the MIC Canal were recorded by Pacific Legacy Inc. The first segment is an approximately 1,350 ft. segment located approximately 1.25 mi. northeast of the corner of Lovers Lane and Walnut Avenue in Visalia. The second segment is of an unknown length and is 0.3 mi. south of the intersection of Highway 198 and Road 156. In 1997, three segments of the TID Canal were recorded by KEA Environmental. The first segment is south of the intersection of Pratt Street and Bardsley Avenue in Tulare. The second segment is at the intersection of Pratt Street and Page Avenue. The third segment is on Oakmore Street, about 0.5 mi. north of the intersection of Liberty Road and Oakmore Street.

3.3 HISTORIC AERIAL AND TOPOGRAPHIC MAP REVIEW

In order to determine the extent of changes that were made to the alignment of the MIC segment of the TID Canal, ASM consulted an 1892 atlas for the APE, an 1898 sketch map of the canals from the Kaweah and Tule River, a contemporary map of the canal systems, historic and contemporary topographic maps, and historic and contemporary aerials. Some notable changes to the general alignments of the MIC are visible in the comparisons between the 1892 atlas and the 1926 USGS topographic map. The most notable and visible change occurred in the segment of the MIC above the intersection of the MIC and the St. Johns River. While the origin of the MIC appears to be in the same location in both maps (located on the northern side of the St. Johns River), the contemporary MIC appears to be aligned more closely to the alignment of the Venice Ditch in the 1892 map and the 1898 sketch map than the depicted alignment of the MIC in the area (Thompson 1892; Grunsky 1898). It is likely that sometime between 1898 and 1926 the MIC took over the Venice Ditch and utilized it for the MIC from the origin at St. Johns River to its intersection with the MIC as depicted in the1892 atlas page and the 1898 map alignment of the MIC. From this area forward, the MIC follows the general alignment that was laid out in the 1892 atlas map and the 1898 sketch map, with some changes occurring around the curves and bends depicted, particularly

in the segment of the MIC between Mitchell Corner and Farmersville, where the 1892 atlas map and the 1898 sketch map depicts an arched and curved winding areas, and the present-day alignment is much more linear and angled.

More specific changes of alignment of the MIC can be determined through the twentieth century availability of topographic maps and historic aerials between 1926 and the present day. As stated above, the head of the MIC in 1926 was along the northern side of a segment of the St. Johns River. This segment was extended north over time, first visible in the 1950 topographic map, and then continued in the 1990s topographic maps to its present alignment. In the area just north of the St. Johns Siphon, a slight change in the alignment is visible between the 1926 topographic map and the 1950 topographic map. The alignment depicted in the 1926 topographic map appears to be more angular, with sharp turns, while the alignment depicted in the 1952 topographic map appears to be more curved. Another change in alignment of the MIC is seen at the segment just north of the intersection of Road 168 and Avenue 296. Only a slight change, the 1926 topographic map depicts a more linear path while the 1950 topographic map and onward depicts a more curved path. A much more prominent change in alignment is visible northwest of the intersection of Road 148 and Avenue 272. In the 1926 topographic map, in this area the MIC flows as a single broad arch. However, by the 1950 topographic map, it depicts the present alignment of three separate arches and curves.

In all areas of the MIC after the year 1956, no visible change to the alignment of the MIC has occurred.

3.4 SACRED LANDS FILE

On July 24, 2023, the Native American Heritage Commission (NAHC) was contacted to request a list of Tribes traditionally and culturally affiliated with the Project APE, as well as a Sacred Lands File (SLF). On August 14, 2023, the NAHC responded with negative SLF results and 11 Tribal contacts from five Tribes. Outreach letters were mailed to all listed Tribes on August 14, 2023, and follow-up emails were sent on August 15, 2023. No responses were received. NAHC request, NAHC results, Tribal outreach letters, and Tribal responses can be found in Confidential Appendix C.

4. METHODS AND RESULTS

4.1 FIELD METHODS

An intensive Class III inventory/Phase I survey of the Project APE was conducted by ASM Assistant Archaeologist Daniel Ware, B.A., on August 8, 2023. The Class III inventory/Phase I survey included a review of the Project APE for the presence of built environment features. The field methods employed also included intensive pedestrian examination of the ground surface for evidence of archaeological sites in the form of artifacts, surface features (such as bedrock mortars, historical mining equipment), and archaeological indicators (e.g., organically enriched midden soil, burnt animal bone); the identification and location of any discovered sites, should they be present; tabulation and recording of surface diagnostic artifacts; site sketch mapping; preliminary evaluation of site integrity; and site recording, following the California Office of Historic Preservation (OHP) Instructions for Recording Historic Resources using California Department of Parks and Recreation (DPR) series 523 forms. Parallel survey transects spaced at maximum intervals of 15 meters (m.) apart were employed for pedestrian survey of the 6.3 ac. Project APE.

4.2 SURVEY RESULTS

4.2.1 Built Environment Results

Background research, field survey, and contemporary aerial photographic surveys revealed several built environment resources associated with the previously identified built environment resource, the TID Canal (P-54-005296). Within the St. Johns River siphon APE, there is an MIC segment of the TID Canal and the St. Johns River siphon itself as well as an access road on either side of the canal and a concrete walkway over the canal. Within the Kaweah River siphon APE, there is an MIC segment of the TID Canal and the Kaweah River siphon as well as two power line poles, a water measurement structure, and an access road.

P-54-005296/ CA-TUL-3103H (TID Canal)

The segments of the TID Canal present in both the Kaweah River siphon APE and the St. Johns River siphon APE are part of what is referred to as the MIC segment of the TID Canal. The recorded segments for this study are updates to the previously recorded segments. The earthen canal has a trapezoidal shaped profile. Various concrete piping and other concrete control structures were found to be present within the recorded segments. The canal segments have a bottom width of approximately 18 ft., a 7 ft. depth, 2:1 side slopes, and a top width of 46 ft. Dirt roads measuring roughly 15 ft. wide are found on either side of the canal. The 2009 and 2022 studies showed water levels significantly lower than the current study (Figure 5).

Figure 5. The Main Intake Canal within the St. Johns Siphon APE. Note the headwalls on either side and the trash rack at the center. View toward southeast.

St. Johns River Siphon

An 1892 map and 1926 topographic map show the MIC intersects the St. Johns River in the same location as the present. As such, a siphon or a similar type of water conveyance structure has likely been at this location since the construction of the canal in the 1800s. However, it is likely that the siphon was replaced during the improvements that were made by the TID during the mid twentieth century. The first time that a siphon was noted to be at the location was 1950, and historic aerials reveal no change from 1956 to the present day. The materials that presently surround the canal were likely placed around the mid-twentieth century, amid a broad effort to make improvements and redevelopments of existing canal features. The St. Johns Siphon area was covered in tall, dry grass and oak trees along the banks of the river. Concrete control structures associated with the siphon and the canal were located in the northern area of the APE. In the northern area of the APE, concrete walls on either side are present, beginning where the concrete pedestrian walkway is located. In this area, on the eastern side, are two concrete standpipe structures. The southern area of the APE was not accessible due to private property fencing (Figure 6).

In the northern section of the APE, a concrete walkway was constructed that connects the eastern side of the siphon area to the western side of the siphon area. This base of the pedestrian walkway on either side was placed where the concrete walls related to the St. Johns siphon are located, which is also the shortest distance between the two sides of the canal. The pedestrian walkway arches slightly and has chain link fencing on the southern side facing the St. Johns River. This concrete walkway is visible in the 1956 historic aerial and was likely constructed when the siphon was placed in the mid twentieth century to allow worker access over the water to either side. The concrete walkway is in good condition and is still in use (Figure 7).

A trash rack removes large debris at the siphon intake, which is underneath the concrete pedestrian walkway. The age of this railing cannot be confirmed through aerial imagery, however, as the survey revealed the presence of felled trees within the APE, it was likely put in place to prevent large debris or refuse, such as tree trunks or large pieces of felled trees, to enter the underground siphoned area. As such, it appears to be a contemporary addition to the area.

Figure 6. St. Johns River siphon APE, pictured in rear. Note the headwalls and trash rack. View toward southeast.

Figure 7. Concrete walkway and trash rack with access road visible. View toward southeast.

Access Roads (Within St. Johns River Siphon APE)

Access roads are present in the northern section of the APE as well as the southern section of the APE. In the northern section, an access road is accessible from Drive 168B on the north just above the APE, going south about 0.5 mi. to the area where the concrete walkway and the concrete debris catching structure are located. In the southern section of the APE, access roads are present on either side of the canal. These access roads begin from Road 180 on the east and travel about 0.13 mi. before reaching the APE area. From here, the access road splits on either side providing access to both the eastern side and the western side of the canal. The access roads in the northern section and the southern section are unpaved dirt roads. The access road within the northern section appears to be in place by the 1994 historic aerial. The access road within the southern section was cleared sometime between 1984 and 1994. The access roads are in good condition and are still in use (Figure 8).

Figure 8. End of the access road within the St. Johns River siphon APE area. View toward southeast.

Kaweah River Siphon

An 1892 map and 1926 topographic map show the MIC intersects the St. Johns River in the same location as the present. As such, a siphon or a similar type of water conveyance structure has likely been at this location since the construction of the canal in the 1800s. However, it is likely that the siphon was replaced during the improvements that were made by the TID during the mid twentieth century. The first time that a siphon was noted to be at the location was 1950, and historic aerials reveal no change from 1956 to the present day. The surrounding exterior area was mostly clear dirt with orchards to the south and oak trees and castor bean plants along the river and canal. A large, chopped tree stump was noted. Dead leaves hampered visibility under the oak trees. Soft sandy soil and shells were seen along the river. The concrete U-shaped headwalls of the siphon intake exist on the north side of the Kaweah River (Figure 9).

Situated along the southern bank of the Kaweah River within the APE is a measurement structure constructed between 1956 and 1969. A square was cut into the southern bank of the Kaweah River and filled with concrete, where there are three concrete walls with an opening facing the Kaweah River. On the eastern side of the concrete bank is a small equipment area for the measurement equipment, including a circular concrete base, a pipe, a metal box likely containing measuring equipment, and a small metal wire connecting the box to the river. The concrete walls feature some remnants of what may have been a metal gate on the side, where there are metal hinges or other items attached to the concrete that are no longer serving a function. This measurement structure is in good condition and appears to still be in use (Figure 10).

Figure 9. View of the Kaweah River siphon intake head walls and wing walls. View toward south.

Figure 10. Kaweah River measurement structure. View toward north.

Power Line Poles (Within Kaweah River Siphon APE)

Two single wood power line poles were erected within the APE, one on the north side of the Kaweah River and one on the south side of the Kaweah River, equidistant from the center of the river. The two power lines are part of the same large network of powerlines. They were constructed around the same time that the service road was constructed, as the powerlines and the service roads appear simultaneously in aerial photography. As such, the powerlines were constructed between 1984 and 1994. These power line poles are in good condition and are still in use (Figure 11).

Access Roads (Within Kaweah River Siphon APE)

Access roads are present within the northern section of the APE and within the southern section of the APE. The access roads within the Southern APE are accessed from Avenue 304 to the south of the APE and follow the construction of the power line poles along the MIC through the surrounding private farmlands. This road was put in place around the same time as the construction of the power line poles, which was sometime between 1984 and 1994 according to available historic aerials. Another access point on the southeast side of the APE follows access roads from Road 180 to the east. This road appears to have been implemented around the same time as the other access road, sometime between 1984 and 1994. The access roads at the northern section of the APE are accessed from Road 180 to the east, and generally follow the path of the Packwood Canal. These access roads are not visible on historic aerials until 1994, placing the time of construction as with the other access roads between 1984 and 1994. All the access roads within the APE are unpaved dirt roads (Figure 12).

Figure 11. The Kaweah River siphon APE with a powerline visible in the center background. View toward south.

Figure 12. Access road within the Kaweah River siphon APE. View toward northeast.

4.2.2 Archaeological Results

The proposed Project APE consists of unpaved roads and undeveloped land (Figures 13 and 14). The APE is bounded by agricultural fields, orchards, and residential and agricultural structures. Much of the Project APE appears to have been disturbed to create an access road for the TID (see Figure 9). Due to the previous disturbances, ground surface visibility within the APE was excellent (greater than 95 percent) in the access road and poor (approximately 15 percent) outside the access road for the Class III inventory/Phase I survey. Soils consisted of tan to brown sandy loam throughout the Project APE. Leaf litter and non-native vegetation inhibited visibility. Modern refuse including plastic buckets, Styrofoam coolers, large concrete pipe, and a car bumper were observed.

No archaeological resources of any kind were identified within the Project APE.

Figure 13. Northeast corner of the Kaweah River siphon APE. View toward south.

Figure 14. Example of an agricultural road within the St. Johns siphon APE. View toward northeast.

5. SUMMARY, EVALUATION, ASSESSMENT OF EFFECTS, AND RECOMMENDATIONS

An intensive Class III inventory/Phase I survey was conducted for the Project, Tulare County, California. A records search was conducted at the Southern San Joaquin Valley Information Center, California State University, Bakersfield. This search indicated that the Project APE had not been previously surveyed, and that one built environment resource was within the Project APE. An NAHC SLF search was conducted for the Project APE and the NAHC responded with negative SLF results.

A Class III inventory/Phase I survey fieldwork of the Project APE was conducted in July 2023 with parallel transects at 15 m. intervals. Two segments of P-54-005296 (TID Main Canal) were identified and recorded. Additional built environment resources were identified and recorded within the APE including the St. Johns River siphon and the Kaweah River siphon, service roads in both APEs, a concrete walkway and additional debris-catching structure at the St. Johns Siphon APE, a water measuring structure along the Kaweah River, and power line poles within the Kaweah River APE. An evaluation of the TID Main Canal, the St. Johns River siphon and the Kaweah River siphon, the concrete walkway along the St. Johns Siphon APE area, and a water measuring structure along the Kaweah River is provided below. The service roads within both APEs appear from historic aerials to be constructed between 1984 and 1994. The power line poles within the Kaweah River section of the APE appear from historic aerials to be constructed between 1984 and 1994. As such, these resources have not reached the appropriate age threshold for evaluation. Additionally, research has not revealed that these resources have achieved significance or exceptional importance within the last 50 years. Therefore, they have not been formally evaluated.

No additional built environment resources and no archaeological resources were identified within the APE.

5.1 EVALUATION

Evaluation of TID Canal MIC segments (P-54-005296)

Sections of the TID MIC have been previously evaluated by Karana Hattersley-Drayton in 2022 and AECOM in 2016. Hattersley-Drayon recommended that the evaluated segment of the canal was potentially eligible to the CRHP under Criteria 1 and 3 "as a contributor to the Tulare Irrigation Canal" (but "further research is needed…to evaluate the entire system" (Hattersley-Drayton 2022). AECOM recommended that the evaluated segment of the TID Canal was potentially eligible for listing in the CRHP under Criterion 1. These evaluations have not yet been reviewed by SHPO.

ASM considered the potential eligibility of the segments of the MIC within the Project APEs for listing to the NRHP/CRHR under Criteria A/1, B/2, C/3, and D/4. The segments of the TID MIC recorded within the APE are potentially eligible under NRHP/CRHR Criterion A/1. The TID MIC was part of the original alignment of the canal as it was constructed in 1877, under the name of the Kaweah Canal. Because it was constructed in the late 1800s, it is one of the earliest constructed canals in the greater Tulare area and served an important purpose in the development of agriculture

in the regions northeast of Tulare conveying water and facilitating local agricultural development. Throughout its existence it has remained in use and has remained a primary canal of the TID, as the MIC is the branch that brings water to the northeast areas of the TID. As such, the MIC historically retained a significant impact on the agricultural economy of the area, which in turn had a significant impact on the settlement and development patterns of the broader areas of Tulare and Visalia, California. The MIC canal provides a constant source of water in the area and transformed the type of agricultural crops that could be farmed within the boundaries of the TID. As such, the recorded segments of the MIC of the TID meet NRHP/CRHR under Criteria A/1. As such, an assessment of integrity is warranted.

The entire TID system has not been recorded and evaluated, which includes the entire TID and MIC segments, and has not been evaluated as a potential historic district. ASM was not able to procure records that confirmed the construction dates of the MIC segments and associated siphons within the APEs. While the period of significance for the entire MIC may be 1877 (the year of construction of the canal) through 1964 (the end of the mid-twentieth century era of redevelopment), it is outside the purview of this Project to record and evaluate the entire MIC. For the purposes of this Project, ASM assumes that the two segments within the APEs were altered in 1950 during the modification and redevelopment period and therefore, ASM recommends a period of significance for the MIC segments and associated canals within the APEs begins in 1950, when the area was modified, through 1964 (the end of the mid-twentieth century era of redevelopment).

ASM assessed the integrity (location, design, setting, materials, workmanship, feeling, and association) of the two segments of the MIC within the Project APEs to the period of significance of 1950 to 1964. Large segments of the entire MIC appear to retain the same alignment from the late 1800s. The recorded segments of the MIC within the APEs appear to retain the same alignment. Additionally, the areas of land around the recorded segments remain largely agricultural and have not experienced any broad notable changes of use. As such, the recorded segments of the MIC within the APE retain high integrity of *location* and *setting*. Additionally, the recorded segments of the canal are unlined, and appear to retain the same form and plan as the original historic design of the canal. As such, the recorded segments of the MIC retain high integrity of *design*. The materials used in the construction of the canal and the materials that are found within the canal represent the common materials found in nineteenth-century canal construction. As such, the recorded segments of the canal retain high integrity of *materials.* The recorded segments of the MIC properly convey its history and are still visibly a canal from the nineteenth century. As such, the recorded segments of the MIC retain high integrity of *feeling*. Finally, the MIC of the Tulare Irrigation District Canal is a significant resource in the agricultural development and the history of the surrounding area and continues to play a significant role in the present day. As such, the recorded segments of the MIC retain high integrity of *association* to the themes of irrigated agriculture. Given that the St. Johns Siphon and the Kaweah River Siphon were constructed during the period of significance and facilitate water conveyance under the rivers, and retain some integrity of all seven aspect and sufficient overall integrity, ASM recommends that the siphons are eligible for listing in the NRHP/CRHR under Criteria A/1 as contributors to the MIC of the TID Canal for the period of significance of 1950-1964.

ASM considered whether the recorded segments of the MIC are eligible under NRHP/CRHR Criteria B/2. In order for a resource to be eligible under this criterion, it must be the result of direct

efforts of a prominent individual associated with the development of the local area or region and must be the most prominent feature associated with that individual. Research did not reveal that any particular person important to the history of the area was directly involved in the planning, development and/or construction of the canal. As such, ASM recommends the recorded segments of the MIC as not eligible under NRHP/CRHR Criteria B/2. ASM assumes that the siphons are also not eligible for listing in the NRHP/CRHR as contributors to the MIC of the TID Canal.

ASM considered whether the recorded segments of the MIC are eligible under NRHP/CRHR Criteria C/3. The MIC of the Tulare Irrigation District was initially constructed in 1877 by the Kaweah Canal and Irrigation Company, where it originated at St. Johns River, cut through the areas northeast of Tulare, and once its rights were purchased by the Tulare Irrigation District, was used as a main artery of the northeast sections of the broader Tulare area. While the construction of the canal at this time was important for the area, the canal did not represent a distinctive characteristic of canal design, or a method of construction used during the late nineteenth century. The canal was designed and constructed by the Kaweah Canal and Irrigation Company in a way largely similar to other canal systems and structures in the central California area in the late 1800s. The construction and first uses of the canal were noted in the local newspapers. However, there was no exceptional praise for the engineering and/or construction of the canal, rather the "fine" canal was noted for its cost, the roads that have been laid out as a result of the construction of the canal, the rising land value, and the rising agricultural use of land as a direct result. It was also noted that "no important mineral discoveries" occurred as a result of the canal (*Sacramento Union* 1882). Additionally, the canal was constructed before the TID was organized, and its initial construction was not associated with any irrigation district. As such, while the canal was part of the initial construction of water conveyance systems in California in the mid-to-late nineteenth century, it does not appear to historically represent a specific engineering design problem that was solved, as nothing of note was printed in the local newspapers nor did any resources contemporary to the development of the canal in the late nineteenth century note any particular challenges in the construction, design, or engineering. Research did not reveal that the MIC operates in a capacity beyond its intended use to redirect water and irrigate the local areas, and as such does not appear to be a distinctive type of canal in comparison to other examples from its period of construction, in particular the Tulare Irrigation Company Canal which runs to the north of the MIC. However, as a canal constructed in the mid-to-late nineteenth century, it represents the general trend of evolving technology in the engineering of canals as an early example of canal construction. While design does not appear to represent an answer to a specific problem, its early design and use is exemplary of the early endeavors to irrigate California's central valley. Finally, research did not reveal that the design and engineering of the canal was the work of a significant engineer or builder. The entire TID system has not been recorded and evaluated, which includes the entire TID and MIC segments, and has not been evaluated as a potential historic district. However, as described above, the MIC of the Tulare Irrigation District, does not appear to embody the distinct characteristics of a type, period, or method of construction, represent the work of a master or possess high artistic values, nor represent a significant and distinguishable entity whose components may lack individual distinction. Therefore, for the purposes of this Project, ASM assumes the segments within the Project APEs cannot be contributing resources under Criteria C/3, considering a potential period of significance of 1877 (the year of construction of the canal) through 1964 (the end of the mid-twentieth century era of redevelopment). Given that the St. Johns Siphon and the Kaweah River Siphon were constructed during the period of significance and

facilitated water conveyance under the rivers, ASM recommends that the siphons are not eligible for listing in the NRHP/CRHR as contributors to the MIC of the TID Canal.

ASM then considered whether the recorded segments of the MIC are eligible under NRHP/CRHR Criteria D/4. As a built environment resource, Criterion D is not applicable as the segments of the canal do not have the potential to provide information about history or prehistory that is not available through historic research. As such, ASM recommends the recorded sections of the MIC as not eligible under NRHP/CRHR Criteria D/4.

In summary, the recorded segments of the MIC are recommended eligible under NRHP and CRHR Criteria A/1 as contributors to the MIC of the TID Canal with a period of significance of 1950-1964.

5.2 ASSESSMENT OF EFFECTS

The proposed Project will result in retention of the 1950s siphons as secondary structures to the two new siphons to safeguard the water supply through the TID MIC (P-54-005296). However, construction of the new siphons will require widening short segments of the MIC and extending the head walls of the intake and outtake structures of the extant St. Johns River Siphon and Kaweah River Siphon to construct two new siphons. As such, the Project will result in some physical effects to the TID MIC (P-54-005296), limited to the small segments to be widened. The Secretary of the Interior's *Standards for the Treatment of Historic Properties for Rehabilitation (Standards for Rehabilitation*) allow for reasonable change to a historic property, including related new construction and changes to setting, provided that change does not destroy character-defining features unnecessarily or impair a historic property's ability to convey its significance. Thus, following is an analysis of the proposed Project for compliance with the *Standards for Rehabilitation*.

Per the *Standards for Rehabilitation*, the TID MIC would continue to irrigate agricultural lands it has historically. The historic character of the TID MIC would be preserved because the majority of extant materials, features, and spatial relationships that characterize the linear resource would be retained. Only a small amount of the historic materials will be impacted and will result in an almost immeasurable percent of change to the entire TID MIC. The spatial relationship between the TID MIC and its setting would remain unchanged. The new siphons would be differentiated from the historic features of the canal, but still visually compatible in terms of materials, features, size, scale, and proportion. Additionally, views of the setting from the APE, including the canal, will remain the same. After completion of the project, the TID MIC will remain eligible for the NRHP and CRHR. Therefore, ASM recommends that the Project will not result in an adverse effect to historic properties under Section 106 of the and a less-than-significant impact to a historical resource pursuant to under CEQA.

5.3 RECOMMENDATIONS

Based on the above analyses and findings, ASM recommends a finding of an ***no adverse effect*** under NHPA and a ***less-than-significant impact*** under CEQA. The proposed Project will widen segments of the canal and introduce new siphons at the St. Johns River and the Kaweah River.

However, the proposed Project follows the *Standards for Rehabilitation;* after the Project is completed, the overall historic character of the TID MIC will remain and it will remain eligible for the NRHP and CRHR.

It is further recommended that, in the unlikely event that previously unrecorded cultural resources are identified during Project construction, work be halted within a 100 ft. radius of the find and a qualified archaeologist be contacted to evaluate the newly discovered resource.

REFERENCES

Advisory Council on Historic Preservation
n.d. National Register Evaluation Criteria. Electronic document, http://www.achp.gov/nrcriteria.html. Accessed June 18, 2018.

AECOM
2016 "Primary Record – CWA20-221-1 (Tulare Irrigation District Canal);" *Cultural Resources Survey Report for the Southern California Edison North of Magunden Transmission Line Rating Remediation Project, Kern and Tulare Counties, California*.

Boyd, W.H.
1997 *Lower Kern River Country 1850-1950: Wilderness to Empire*. Kings River Press, Lemoore.

California State Parks
2024 How Can Substantial Adverse Change be Avoided or Mitigated?" Available at https://ohp.parks.ca.gov/?page_id=21727. Accessed April 3, 2024.

Cook, S. F.
1978 Historical Demography. In *Handbook of North American Indians, Volume 8, California*, R. F. Heizer, editor, pp. 91-98. Washington, D.C., Smithsonian Institute.

Culleton, Brendan J.
2006 Implications of a Freshwater Radiocarbon Reservoir Correction for the Timing of the Late Holocene Settlement of the Elk Hills, Kern County, California. *Journal of Science* 33:1331-1339.

Driver, H.E.
1937 Cultural Element Distributions: VI, Southern Sierra Nevada. *University of California Anthropological Records* 1(2):53-154. Berkeley

Elsasser, A.
1962 *Indians of Sequoia and Kings Canyon National Parks*. Three Rivers: Sequoia Natural History Association.

Fenenga, F.
1952 The Archaeology of the Slick Rock Village, Tulare County, California. *American Antiquity* 17:339-347.

Fenenga, G.
1993 Test Excavations at the Witt Site (CA-KIN-32). In W.J. Wallace and F.A. Riddell, editors, pp. 25-38, *Finding the Evidence: The Quest for Tulare Lake's Archaeological Past*. Contributions to Tulare Lake Archaeology II. Redondo Beach, Tulare Lake Archaeological Research Group.

Fredrickson, D.A., and J. Grossman
1977 A San Dieguito component at Buena Vista Lake, California. *Journal of California and Great Basin Anthropology* 4:173-190.

Gayton, A.H.
1930 Yokuts-Mono Chiefs and Shamans. *University of California Publications in American Archaeology and Ethnology* 24. Berkeley, 361-420.
1948 Yokuts and Western Mono Ethnography. *University of California Anthropological Records* 10:1–290. Berkeley.

Gifford, E.W., and W.E. Schenck
1926 Archaeology of the Southern San Joaquin Valley. *University of California Publications in American Archaeology and Ethnology* 23(1):1-122.

Glennan, W.S.
1987a Concave-Based Lanceolate Fluted Projectile Points from California. *Prehistory of the Antelope Valley, California: An Overview*, R.W. Robinson, ed., Antelope Valley Archaeological Society, Occasional Papers No.1: 21-24.
1987b Evidence for Paleoeastern Culture Type in the Southwestern Great Basin. P*rehistory of the Antelope Valley, California: An Overview*, R.W. Robinson, ed., Antelope Valley Archaeological Society, Occasional Papers No.1:11-20.

Grunsky, C.E.
1898 Irrigation Near Fresno. *Water-Supply and Irrigation Papers of the United States Geological Survey, No. 18*. Washington, Government Printing Office.

Harrington, John Peabody
n.d. Yokuts ethnographic notes. National Anthropological Archives.

Hattersley-Drayton, Karana
2022 "Primary Record – Tulare Irrigation Canal (Segment);" *Cultural Resources Assessment for the Higgin's Ranch Annexation and Tentative Subdivision Map Project, City of Visalia, Tulare County, California*.

Hewes, G.
1941 Archaeological reconnaissance of the central San Joaquin Valley. *American Antiquity* 7:123-133.

Horne, S.P.
1981 *The Inland Chumash: Ethnography, Ethnohistory and Archaeology*. Ph.D. dissertation, UCSB. University Microfilms, Ann Arbor.

Jones. T.L., G.M. Brown, L.M. Raab, J.L. McVickar, W.G. Spaulding. D.J. Kennett, A. York, and P.L. Walker
1999 Demographic Crisis in Western North America during the Medieval Climatic Anomaly. *Current Anthropology* 40:137-170.

JRP Historical Consulting Services
2009 North Kern Water Storage District, Lateral Canal 8-1: Inventory and Evaluations, Kern County, California. Prepared for North Kern Water Storage District.
2019 *Historic Property Survey Report: Friant Kern Canal*.

King, C., C. Smith, and T. King
n.d. *Archaeological Report Related to the Interpretation of Archaeological Resources Present at the Vasquez Rocks County Park*. Report on file, SCCIC.

Kroeber, A.L.
1925 Handbook of the Indians of California. *Bureau of American Ethnology, Bulletin 78*. Washington, D.C.

Levine, Yasha
2011 California Class War History: Meet the Oligarch Family That's Been Scamming Taxpayers for 150 Years, and Counting! Available online at http://exiledonline.com/california-class-war-history-meet-the-oligarch-family-thats-been-scamming-taxpayers-for-150-years-and-counting/; accessed November 8, 2023.

Menafee, Eugene L. and Fred A. Dodge
1913 *History of Tulare and Kings Counties, California*. Historic Record Company, Los Angeles.

Meyer, J., D. Craig Young, and Jeffrey S. Rosenthal
2010 *Volume I: A Geoarchaeological Overview and Assessment of Caltrans Districts 6 and 9.* Submitted to California Department of Transportation.

Morgan, W.A.
1914 *History of Kern County, California with Biographical Sketches*. Los Angeles: Historic Record Company.

Moratto, M.
1984 *California Archaeology*. New York: Academic Press.

NETRonline
2023 Historic Aerials. Electronic document online at https://www.historicaerials.com/viewer. Accessed December 2023.

Pacific Legacy, Inc.
2006 *Southern San Joaquin Valley Oil Fields Comprehensive Study*. Manuscript on file, BLM Bakersfield office.

Powers, Stephen
1971 The Yokuts Dance for the Dead. In *The California Indians: A Source Book* (second edition), edited by R.F. Heizer and M.A. Whipple, pp. 513-519. Berkeley, University of California Press (original 1877).
1976 *Tribes of California*. Berkeley, University of California Press (original 1877).

Preston, William L.
1981 *Vanishing Landscapes: Land and Life in the Tulare Lake Basin*. Berkeley, University of California Press.

Rosenthal, J. S., White, G. G., & Sutton, M. Q.
2007 The Central Valley: A View From the Catbird's Seat. *California Prehistory: Colonization, Culture, and Complexity*(50):147-164.

Sacramento Union
1882 "Tulare." January 7.

Schiffman, R.A., and A.P. Garfinkel
1981 Prehistory of Kern County: An Overview. *Bakersfield College Publications in Archaeology, Number 1*.

Siefkin, Nelson
1999 Archaeology of the Redfeldt Mound (CA-KIN-66), Tulare Basin, California. M.A. Thesis, Department of Sociology and Anthropology, California State University, Bakersfield.

Sutton, M.Q.
1988a An Introduction to the Archaeology of the Western Mojave Desert, California. *Archives of California Prehistory, No. 14*. Salinas: Coyote Press.
1988b On the Late Prehistory of the Western Mojave Desert. *Pacific Coast Archaeological Society Quarterly* 24(1):22-29.
2009 People and Language: Defining the Takic Expansion into the Southern California. *Pacific Coast Archaeological Society Quarterly* 40(2, 3): 31-73.

Thompson, H.
1892 California State Engineering Department. Fresno Sheet. Electronic document online at https://ia802207.us.archive.org/6/items/dr_california-state-engineering-department-detail-irrigation-map-fresno-shee-5832002/5832002.jpg. Accessed December 2023.

TID (Tulare Irrigation District)
n.d. Tulare Irrigation District History. Available online at http://tulareid.org/district-profile; accessed November 8, 2021.

United States Geological Survey (USGS)
1926 "California (Tulare County) Exeter Quadrangle." Topography by E. S. Rickard. Surveyed 1924-1925.
1950 "Exeter Quadrangle, California-Tulare County." Topography by Kelsh plotter 1950, Culture and Drainage by Multiplex Methods from Aeiral Photographs 1946.
2023 "Exeter Quadrangle, California-Tulare County."

W&S Consultants
1994 Phase II Test Excavations and Determinations of Significance at CA-LAN-2133, -2233, -2234, -2235, -2236, -2240, -2241 and -2242, Los Angeles County, California. Manuscript on file, CSUF AIC.
1999 Class III Inventory/Limited Archaeological Testing Program for the Manuscript on file, CSUB AIC.
2004 Class II Inventory of the Carrizo Plain National Monument, San Luis Obispo County, California. Report on file, BLM Bakersfield office.
2006 *Phase II Test Excavations and Determinations of Significance for the Tejon Mountain Village Project, Kern County, California*. Report on file, Tejon Ranch Company.

Wedel, W.
1941 Archaeological Investigations at Buena Vista Lake, Kern County, California. *Bureau of American Ethnology Bulletin* 130.

Whitley, D.S.
1992 Shamanism and Rock Art in Far Western North America. *Cambridge Archaeological Journal* 2(1):89-113.
2000 *The Art of the Shaman: Rock Art of California*. Salt Lake City: University of Utah Press.

Whitley, D.S., and M.P. Beaudry
1991 Chiefs on the Coast: The Development of Complex Society in the Tiquisate Region in Ethnographic Perspective. In *The Development of Complex Civilizations in Southeastern Mesoamerica*, edited by W. Fowler, pp. 101-120. Orlando: CRC Press.

Whitley, D.S., G. Gumerman IV, J. Simon, and E. Rose
1988 The Late Prehistoric Period in the Coso Range and Environs. *Pacific Coast Archaeological Society Quarterly* 24(1):2-10.

Whitley, D.S., J. Simon, and J.H.N. Loubser
2007 The Carrizo Collapse: Art and Politics in the Past. In *A Festschrift Honoring the Contributions of California Archaeologist Jay von Werlhof*, edited by R.L. Kaldenberg, pp. 199-208. Ridgecrest: Maturango Museum Publication 20.

Zimmerman, K.L., C.L. Pruett, and M.Q. Sutton
1989 A Clovis-Like Projectile Point from the Southern Sierra Nevada. *Journal of California and Great Basin Anthropology* 11:89-91.