# OKIEVILLE RECHARGE BASIN PROJECT

## DRAFT INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

JANUARY 2022

SCH NO.

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

AB ..... Assembly Bill
APE ..... Area of Potential Effect
AQP ..... Air Quality Plan
Cal/OSHA ..... California Occupational Safety and Health Administration
CalEEMod ..... California Emissions Estimator Modeling (software)
CARB ..... California Air Resources Board
CDFW ..... California Fish and Wildlife
CEQA ..... California Environmental Quality Act
$CH_4$ ..... Methane
CNDDB ..... California Natural Diversity Database
$CO_2$ ..... Carbon dioxide
County ..... Tulare County
dBA ..... A-weighted decibels
EIR ..... Environmental Impact Report
EPA ..... Environmental Protection Agency
FEMA ..... Federal Emergency Management Agency
FMMP ..... Farmland Mapping and Monitoring Program
GAMAQI ..... Guidelines for Assessing and Mitigating Air Quality Impacts
GHG ..... Greenhouse Gas
GIS ..... Geographic Information System
GSA ..... Groundwater Sustainability Agency
IS ..... Initial Study
IS/MND ..... Initial Study/Mitigated Negative Declaration
km ..... kilometers
MKGSA ..... Mid-Kaweah Groundwater Sustainability Agency
MMRP ..... Mitigation Monitoring and Reporting Program
MND ..... Mitigated Negative Declaration
MTCO2e ..... Metric tons of carbon dioxide equivalent
NAHC ..... Native American Heritage Commission
ND ..... Negative Declaration
NOx ..... Nitrogen oxides

NRCS ..... Natural Resources Conservation Service
$O_3$ ..... Ozone
$PM_{10}$ ..... 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 ..... Okieville Recharge Basin Project
RWQCB ..... Regional Water Quality Control Board
SCE ..... Southern California Edison
SJVAPCD ..... San Joaquin Valley Air Pollution Control District
$SO_2$ ..... Sulfur Dioxide
SR ..... State Route
SWPPP ..... Storm Water Pollution Prevention Plan
SWRCB ..... State Water Resources Control Board
TID ..... Tulare Irrigation District
USACE ..... United States Army Corps of Engineers
USDA ..... United States Department of Agriculture
USFWS ..... United States Fish and Wildlife Service
USGS ..... United States Geological Survey
µg/m3 ..... micrograms per cubic meter

# 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 Okieville Basin 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 Air Quality and Greenhouse Gas Emissions Model, Biological Evaluation, and Cultural Resources Class III Inventory/Class I Survey Report, 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

Okieville Recharge Basin 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

James Fisher
Water Resources Engineer
(559) 686-3425
jmf@tulareid.org

#### CEQA Consultant

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

### 2.1.4 Project Location

The Project is located in the western portion of Tulare County, approximately 240 miles southeast of Sacramento and 56 miles northwest of Bakersfield (see Figure 2-1 and Figure 2-2) within Tulare Irrigation District. The Project site is located approximately on Assessor's Parcel Numbers 158-040-019 and 158-040-004. The approximate centroid of the Project site is 36° 13' 11" North, -119° 27' 50" West. The Area of Potential Effect is approximately 21 acres.

### 2.1.5 General Plan Designation and Zoning

| Project Area | General Plan Designation | Zoning District |
|---|---|---|
| **ONSITE** | Valley Agriculture | AE-40 (Exclusive Agricultural, 40-acre minimum parcel size) |
| **ADJACENT LANDS** | Valley Agriculture | AE-40 (Exclusive Agricultural, 40-acre minimum parcel size) |

## 2.1.6 Description of Project

### Project Background and Purpose

The Mid-Kaweah GSA (MKGSA) and the underlying aquifer have experienced historical overdraft and declining groundwater levels. The proposed Okieville Recharge Basin intends to stabilize groundwater levels and provide long-term clean groundwater supply availability for all beneficial users within the disadvantaged Community of Okieville. Without the proposed basin, existing wells' groundwater levels would continue to deplete, requiring landowners to drill new or deepen the existing wells and potentially require new or more expensive solutions.

The purpose of the project is to attain the following:

- Increase recharge capacity and the resulting amount of groundwater in storage
- Slow the decline and stabilize groundwater levels in the Project vicinity (under Okieville)
- Increasing groundwater reserves for droughts (drought protection)
- Reducing energy costs by raising groundwater levels
- Creating temporary waterfowl habitat

The District would be processing a lot-line adjustment to secure the 21-acre project site (APE) on Assessor's Parcel Numbers 158-040-019 and would prepare easements for pipelines and power to an existing well for the current landowner.

Historically, the Project site has been farmed for cotton, but at present, the site is unplanted and fallow land. The property is adjacent to the Packwood Ditch, which is a canal facility the District currently manages and accesses on a regular basis for operation and maintenance. There are a limited number of rural residential homes in the vicinity; in addition to a home located just to the south and one to the east of the Project property.

### Project Description

The Okieville Recharge Basin Project involves the construction of a 21-acre recharge facility and supporting infrastructure, adjacent and up-gradient of the Community of Okieville (a Disadvantaged Community). The Project's purpose is two-fold: one, to increase the availability of wet-year recharge capacity and, two, to provide water quality benefits to the residents of Okieville. The Project is anticipated to provide 630 acre-feet per year of average annual benefits and 1,400 acre feet of maximum recharge in wet years of high-quality Sierra watershed surface supplies dedicated to recharging up-gradient of the community, which should improve the quality of local groundwater pumped by the Okieville-Highland Acres Mutual Water Company well and delivery system. The District also intends to implement a Monitoring Program, including monitoring wells, to determine the empirical benefits of groundwater recharge on the quantity and quality of groundwater available to the community.

The proposed supporting infrastructure for the basin includes the following components:

- New turnout and inlet to basin
- Existing turnout to be relocated
- New outlet from basin into ditch
- New inlet pipe 180 feet long and up to 48" in diameter
- New outlet pipe 75 feet long and up to 48" in diameter

### Construction Schedule

Construction will occur over approximately nine months. Generally, construction will occur between the hours of 7am and 5pm, Monday through Friday, excluding holidays.

### Equipment

Construction equipment will likely include excavators, backhoes, graders, skid steers, loaders, and hauling trucks. Post-construction activities will include system testing, commissioning, 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 of the facility would be consistent with that of the District's other similar facilities in that groundwater conditions will be monitored to minimize negative impacts on the surrounding areas (such as nearby wells, crops, and septic systems). The accounting of water delivered to the Project site, and the intended recovery by landowners will occur through the water balance or other similar mechanisms under the Groundwater Sustainability Plan developed by the Mid-Kaweah Groundwater Sustainability Agency.

## 2.1.7 Site and Surrounding Land Uses and Setting

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

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

## 2.1.8 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, SWPPP
- San Joaquin Valley Air Pollution Control District – Rules and Regulations (Regulation VIII, Rule 9510)

## 2.1.9 Consultation with California Native American Tribes

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

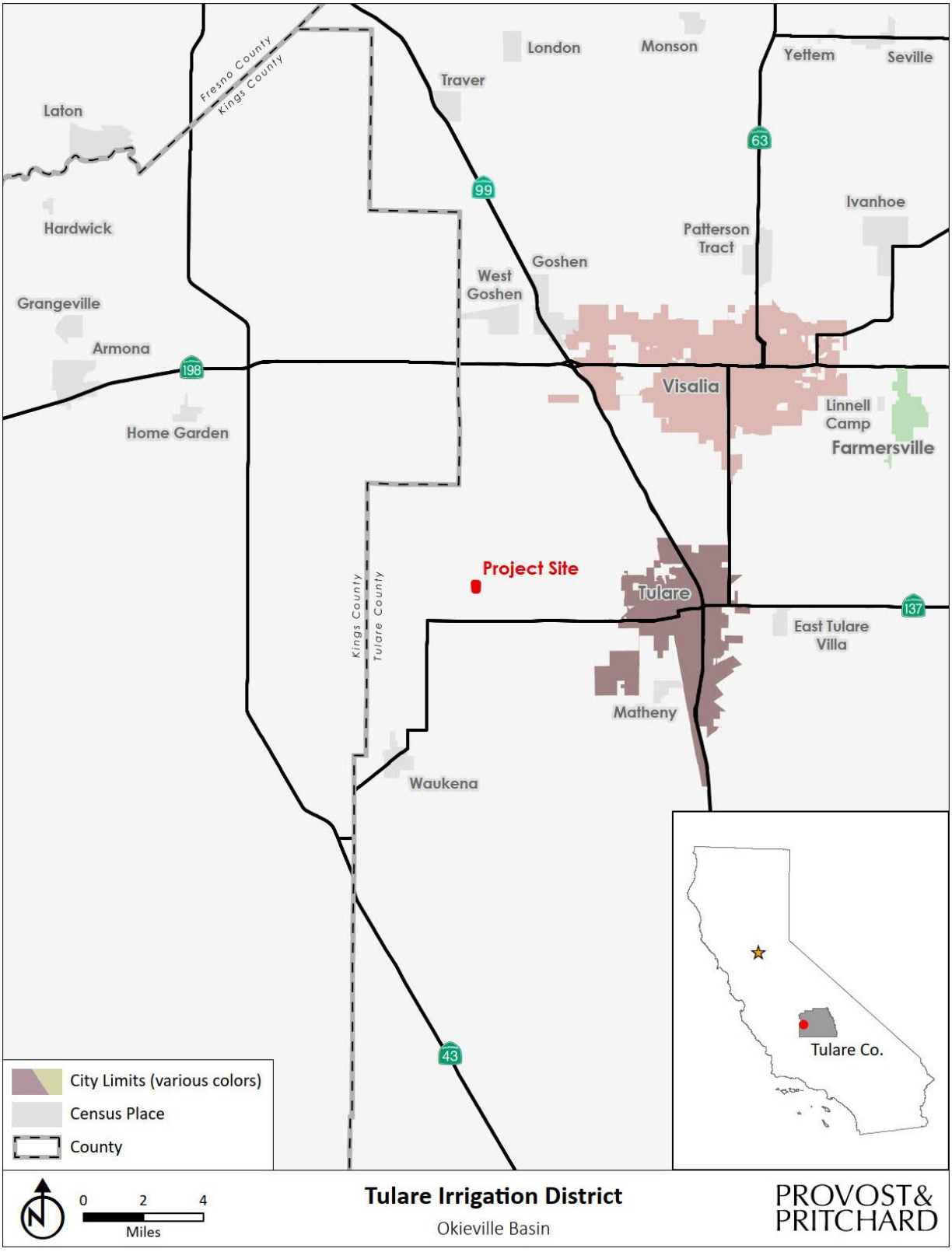



**Figure 2-1: Regional Location Map**

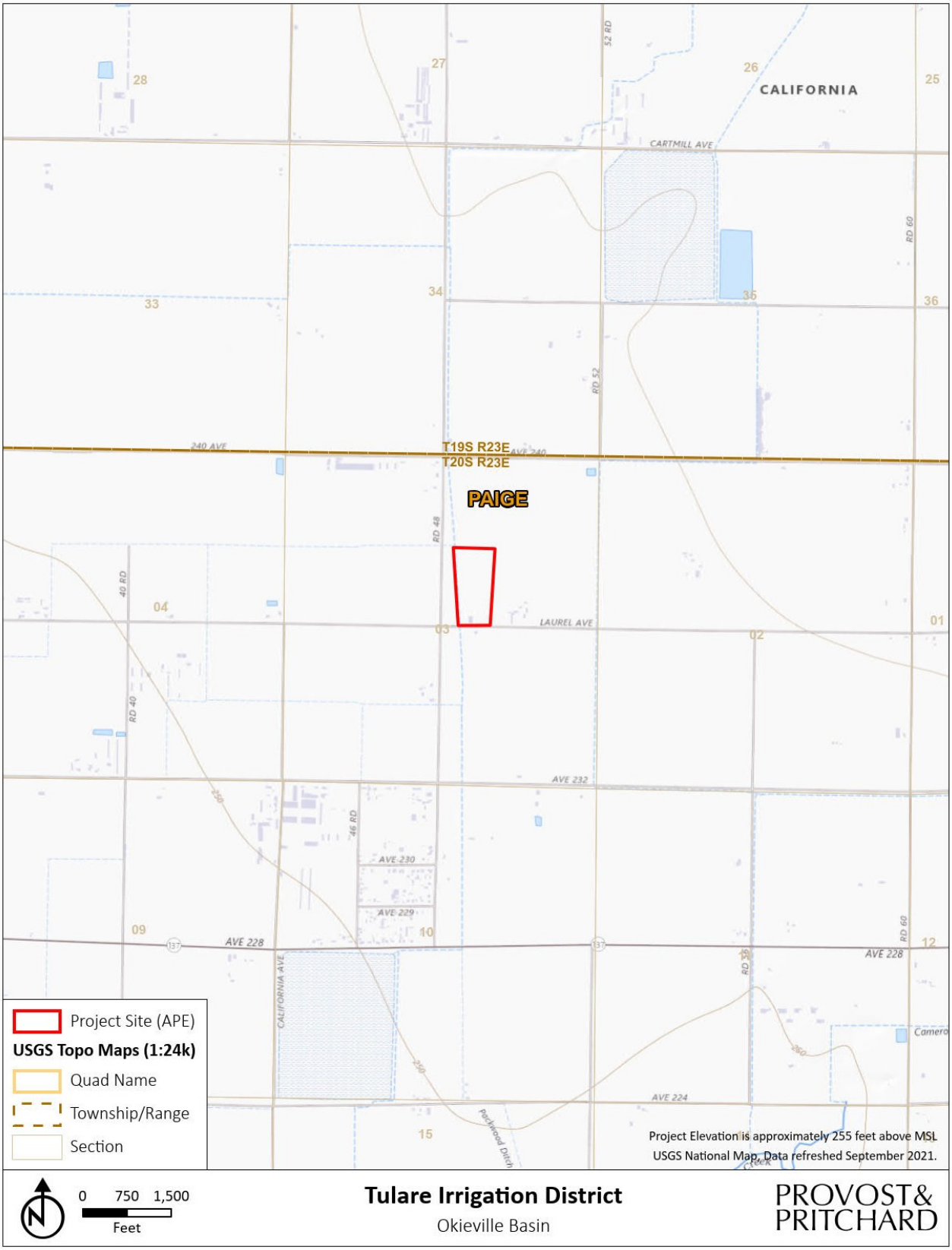



**Figure 2-2: Topographic Quadrangle Map**

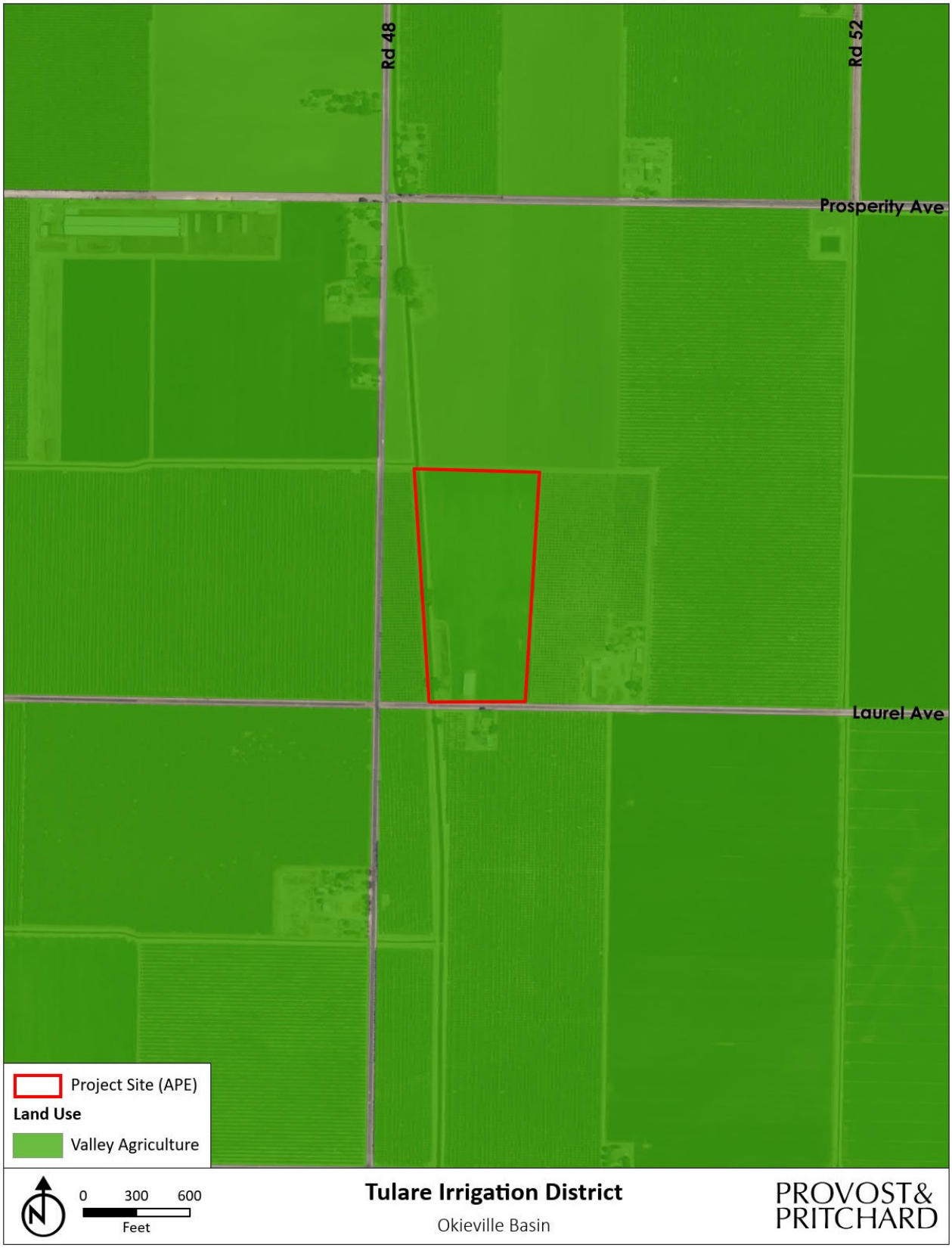



**Figure 2-3: General Plan Land Use Designation Map**

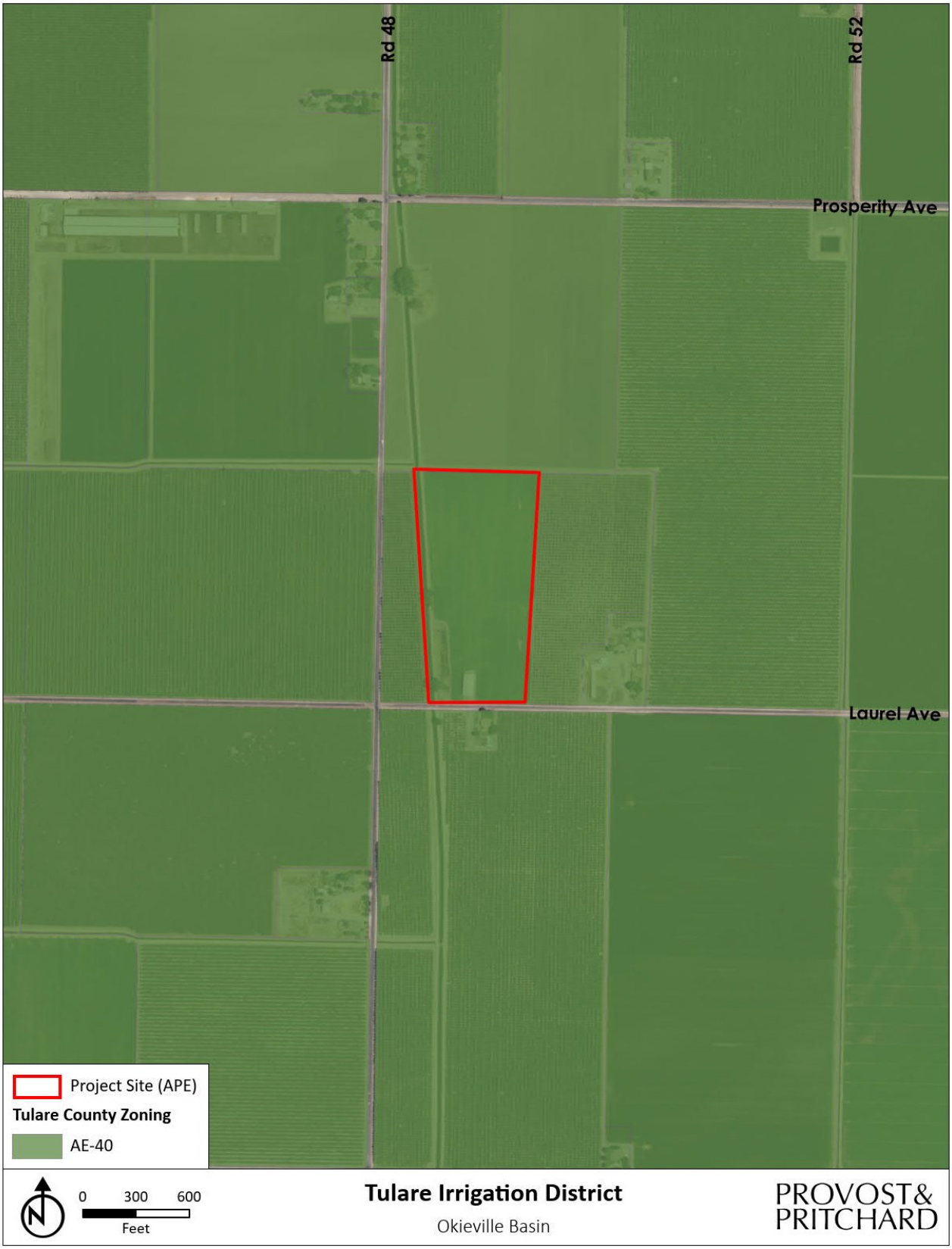



**Figure 2-4: Zone District Map**

# 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 would 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

24-Jan-2021
Date

JAMES M FISHER
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 western 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 in the form of vineyards and almonds, and pasture land. The nearest officially "designated State Scenic Highway" identified by Caltrans is State Route (SR) 180 located approximately 34 miles northeast of the Project site.[1] Farming residences, rural roadways, agricultural ditches, water retention basins, and other infrastructure typical of rural agricultural areas in the San Joaquin Valley are also in the vicinity. The proposed basin Project is consistent with the aesthetics of the area.

[1] (California State Scenic Highway System Map 2019)

### 4.1.2 Impact Analysis

a) Have substantial adverse effect on a scenic vista?

**Less than Significant Impact.** The existing area scenic features can be described as the Packwood Ditch (owned and operated by TID) located in the to the west and the vast expanse of agricultural uses of crops such as cotton and and corn in the vicinity. The Project would be consistent with these features and the proposed basin would not obtrude on its surroundings in a significant manner. Impacts would be less than significant.

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

**Less than Significant Impact.** There are no official scenic resources located on or in the vicinity of the Project site. The nearest designated State Scenic Highway is a portion of SR 180, located in Fresno County approximately 34 miles northeast of the Project site. Impacts would be less than significant.

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

**Less than Significant Impact.** The Project site has been historically farmed, most recently with cotton. Presently, the site does not have any seeds planted as the cotton has been harvested and removed. The Project site is zoned and located amid lands designated for agriculture by Tulare County. The new 21-acre recharge facility and supporting infrastructure would blend in with existing uses and the Project would not substantially degrade the visual character of the area. Impacts would be less than significant.

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

**No Impact.** The area surrounding the Project site is primarily agriculture and associated agricultural uses. No artificial lighting is proposed to be on-site. Vehicular traffic to the site after the facility is constructed would be limited to as needed daytime maintenance trips which are currently occurring to the adjacent irrigation ditch. Therefore, the Project would 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. There would be no impact.

# 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. The County's total gross production value for 2019 was $7.5 billion. Milk is the County's number one commodity at nearly $1.6 billion. A wide range of commodities are cultivated in the County, including grapes, citrus and stone fruits, nuts, corn, and cattle. Rich soil, irrigation water, Mediterranean climate, and steady access to local, national, and global markets make this possible.

TID is composed of approximately 70,000 net acres. The District's purpose is to obtain and provide surface water supply to irrigate farms within the District and to assist in recharging the underlying groundwater basin. Examples of crops grown in the District include pistachios, corn, and almonds. The District operates and maintains 330 miles of canal and approximately 30 miles of pipeline. The Project site was recently farmed for cotton. Presently, the site is unplanted as the cotton has been recently harvested and removed. Most of the land adjacent to the Project site is zoned for agricultural use, with the majority designated as prime agricultural land.

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 (DOC)'s 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, five of which are agriculture related: prime farmland, farmland of statewide importance, unique farmland, farmland of local importance, and grazing land — rated according to soil quality and irrigation status. Each is 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 site as Farmland of Statewide Importance.[2]

[2] (California Department of Conservation. 2016. California Important Farmland Finder 2020)

### 4.2.2 Impact Analysis

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

**Less than Significant Impact.** The Project site is designated as Farmland of Statewide Importance and has recently been farmed with cotton. See Figure 4-1 for the FMMP map. The Project would allow the construction of a 21-acre recharge facility and supporting infrastructure to connect to the existing adjacent ditch to replenish groundwater from surface water sources when available, thereby contributing to rechargeing the area's aquifer so agricultural operations may continue. Therefore, the 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 basins 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 groundwater levels, thereby sustaining agriculture. The basin would facilitate greater security of groundwater storage for District growers, inherently promoting the agricultural zoning and Williamson Act intentions. The project site parcels are currently under Williamson Act contract numbers 07129 and 09170. The principal objectives of the Williamson Act program include protection of agricultural resources, preservation of open space land, and promotion of efficient urban growth patterns. The implementation of a recharge basin would promote groundwater security 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))?

**No Impact.** There are no lands zoned for forest or timberland use in the District. Therefore, the Project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. There would be no impact.

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

**No Impact.** There are no forests or timberland in the District, therefore the Project would not result in the loss of forest land or conversion of forest land to non-forest use. land or timberland. There would be no impact.

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

**Less than Significant Impact.** The Project would not convert the land from its existing agricultural use to any other land use pursuant to the FMMP. The intent of the Project is to support ongoing agricultural endeavors by enhancing groundwater availability. As a result, the Project would result in continued

farming on surrounding agricultural lands that might potentially be fallowed due to lack of water. Impacts would be less than significant.

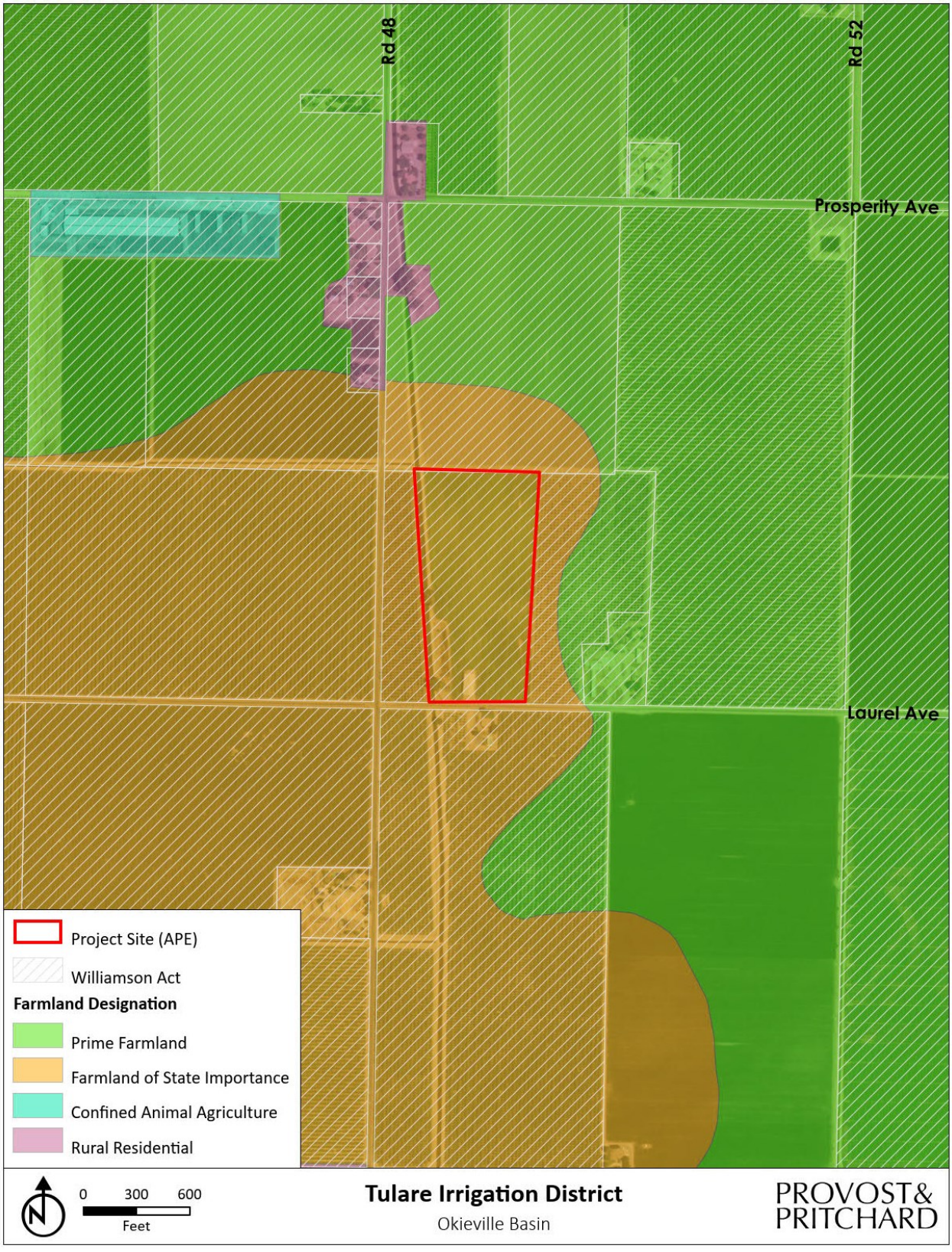



**Figure 4-1: FMMP Map**

# 4.3 AIR QUALITY

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

| Would the project: | Potentially Significant Impact | Less than Significant with Mitigation Incorporated | Less than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Conflict with or obstruct implementation of the applicable air quality plan? | ☐ | ☐ | ☒ | ☐ |
| b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard? | ☐ | ☐ | ☒ | ☐ |
| c) Expose sensitive receptors to substantial pollutant concentrations? | ☐ | ☐ | ☒ | ☐ |
| d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? | ☐ | ☐ | ☒ | ☐ |

## 4.3.1 Baseline Conditions

The Project site has been historically farmed, most recently with cotton. Presently, the site is vacant with the exception of a pole barn that will be relocated.

**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 to particles when the relative humidity is less than 70%. | Unclassified | | |

** For more information on standards visit: https://ww3.arb.ca.gov/research/aaqs/aaqs2.pdf*
*** No Federal 1-hour standard. Reclassified extreme nonattainment for the Federal 8-hour standard (2021).*
****Secondary Standard*
*Source: CARB 2015; SJVAPCD 2015*

### 4.3.2 Impact Analysis

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

Less than Significant Impact. The CEQA Guidelines indicate that a significant impact would occur if the Project would conflict with or obstruct implementation of the applicable air quality plan. The GAMAQI does not provide specific guidance on analyzing conformity with the Air Quality Plan (AQP). Therefore, the Air Quality and GHG report assumed the following criteria for determining Project consistency with the current AQPs:

1. Will the project result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQPs? This measure is determined by comparison to the regional and localized thresholds identified by the San Joaquin Valley Air Pollution Control District (SJVAPCD) for regional and local air pollutants.

2. Will the project comply with applicable control measures in the AQPs? The primary control measures applicable to development projects is Regulation VII-Fugitive $PM_{10}$ Prohibitions and Rule 9510 Indirect Source Review.

Regional air quality impacts and attainment of standards are the result of cumulative impacts of all emission sources within the air basin. Individual projects are generally not large enough to contribute measurably to an existing violation of air quality standards. Therefore, the cumulative impact of the Project is based on its cumulative contribution. Because of the region's non-attainment status for ozone, $PM_{2.5}$, and $PM_{10}$, if Project generated emission of either of the ozone precursor pollutants ROG, NOx, $PM_{10}$, or $PM_{2.5}$ would exceed the SJVAPCD's significance thresholds, then the Project would be considered to contribute to violations of the applicable standards and conflict with the attainment plans. As demonstrated in Table 4-5 below, project emissions of criteria pollutants would not exceed the SJVAPCD's significance and screening thresholds. Therefore, the Project would not contribute to air quality violations in conflict with attainment plans.

**Table 4-5: Project Emissions, Annualized**

| | ROG | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| Tons | 0.1281 | 1.3238 | 0.9796 | 0.0024 | 0.1197 | 0.0545 |
| Significance Threshold | 10 | 10 | 100 | 27 | 15 | 15 |
| Exceeds Threshold? | No | No | No | No | No | No |

**Table 4-6: Project Emissions, Maximum Daily**

| | ROG | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| Pounds | 1.4660 | 15.0391 | 11.2570 | 0.0269 | 1.0181 | 0.5828 |
| Screening Threshold | 100 | 100 | 100 | 100 | 100 | 100 |
| Exceeds Threshold? | No | No | No | No | No | No |

The AQP contains a number of control measures, including Regulation VIII-Fugitive $PM_{10}$ Prohibitions and Rule 9510 Indirect Source Review which are applicable to the Project. Regulation VIII-Fugitive $PM_{10}$ Prohibitions and Rule 9510 Indirect Source Review are adopted rules and regulations that constitute enforceable requirements with which the project must comply. The Project would comply with all

applicable SJVAPCD rules and regulations(Rule 4102 (Nuisance), Rule 4641 (Cutback, Slow Cure,and Emulsified Asphalt, Paving and Maintenance Operations), and Rule 4002 (National Emission Standardsfor Hazardous Air Pollutants); therefore, the Project complies with the criterion and would not conflict with or obstruct implementation of the applicable air quality attainment plans.

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.** A Lead Agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project would comply with the requirements in a previously approved plan or mitigation program, including, but not limited to an air quality attainment or maintenance plan that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located [California Code of Regulations (CCR) §15064(h)(3)].

The Project would be required to submit and comply with applicable rules under Regulation VIII, Fugitive $PM_{10}$ Prohibitions. The Project's emissions are under the thresholds of Rule 9510 to necessitate the further reduction of construction equipment emissions or the payment off-site emission reduction fees. Therefore, impacts would be less than significant.

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

**Less than Significant Impact.** The Project is located approximately 60 feet to the north of a rural single-family residence. The Project site is approximately 21 acres, and construction is estimated to take nine months to complete. Construction equipment would not be stationary and would move throughout the day and months. The San Joaquin Valley Air Pollution Control District's Prioritization Calculator assumes a 70-year exposure period. After inserting the Project's $PM_{2.5}$ daily and annual emissions, and dividing annual emission by 70 to establish a 1-year exposure period, the health risk associated with the Project would be 2.91 for Cancer and 0.03 for Chronic exposures. The threshold of significance is 20 for cancer and 1 for chronic exposures. The Project would have a less than significant impact.

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

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

# 4.4 BIOLOGICAL RESOURCES

**Table 4-7: 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

The Project is located at the intersection of Road 48 and Avenue 236 in the western portion of Tulare County, California, northeast of the community of Okieville, a California Disadvantaged Community. The Project lies within the Lower San Joaquin Valley, part of the Central Valley of California in a predominantly agricultural area (See Figure 4-2 for an aerial view of the Project site). The Central Valley is bordered by the Sierra Nevada Mountain Ranges to the east, the Coast Ranges to the west, the Klamath Mountains and Cascade Range to the north, and the Transverse Ranges and Mojave Desert to the south.

The Project's Area of Potential Effect (APE) includes a 21-acre parcel of land, plus a 50-foot buffer surrounding the APE. The APE, which has been historically farmed, most recently for cotton, is currently

fallowed land. The surrounding lands are agricultural, yielding pistachios, almonds, wheat, and corn as well as sparse rural residential homesteads.

The Project includes the construction of a 21-acre recharge facility and supporting infrastructure connecting to TID's adjacent ditch. Construction would require clearing the APE of any remaining vegetation, relocation of an approximately 0.15-acre pole barn, approximately 100,000 cubic yards of basin earthwork, and the installation of 2,500 feet of linear fence. The Project would increase the availability of wet-year recharge capacity, provide water quality benefits to the community, and strengthen the upper unconfined groundwater aquifer for the community of Okieville. Approximately 80 local households are solely reliant on this groundwater resource as drinking water supply.

The APE is comprised of bare ground, sparse herbaceous vegetation, three large Valley Oak trees (*Quercus lobata*), a dry ditch, and a pole barn. Most of the APE experiences regular agricultural discing. Although limited, vegetation within the APE includes Valley Oaks (to remain), alkali heath (*Frankenia salina*), nettle-leaved goosefoot (*Chenopodiastrum murale*), horseweed (*Erigeron canadensis*), barnyard grass (*Echinochloa* sp.), and willow (*Salix* sp.).

The survey of the APE resulted in the observation of bird species including House Finch (*Haemorhous mexicanus*), Killdeer (*Charadrius vociferus),* Red-tailed Hawk (*Buteo jamaicensis*), Black Phoebe (*Sayornis nigricans*), American Crow (*Corvus brachyrhynchos*), Great Blue Heron (*Ardea herodias*), and Turkey Vulture (*Cathartes aura*) (see Appendix B: Biological Evaluation).

Most of the San Joaquin Valley experiences a Mediterranean climate. Warm, dry summers are followed by cool, moist winters. Summer temperatures range from 70 to 80 degrees Fahrenheit, but often exceeds 90 degrees Fahrenheit. Winter minimum temperatures are near 40 degrees Fahrenheit. Near the Project, the average annual precipitation is approximately 10 inches, falling mainly from November to March.

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. The Project site lies within the Middle Branch Cross Creek watershed; Hydrologic Unit Code (HUC): 1803000714 and a single subwatershed: Packwood Creek subwatershed; HUC: 180300071401. The nearest waterway, Packwood Ditch, runs along the western portion of the APE. Packwood Ditch eventually connects with Packwood Creek, which is approximately 1.5 miles northeast of the APE.[3]

One soil mapping unit representing Gambogy loam was identified within the APE. The soil is found on 100% of the APE and is poorly drained, has moderately slow permeability, and negligible runoff. The one soil unit is primarily used for agriculture in the form of irrigated cropland and annual pasture, uncultivated areas generally host annual grasses and herbaceous plants. The major soil mapping unit was not identified as hydric. Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions such that under sufficiently wet conditions, hydrophytic vegetation can be supported.[4]

[3] (United States Environmental Protection Agency (USEPA) 2021)
[4] (National Resource Conservation Service (NRCS) 2021)

### 4.4.2 Impact Analysis

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

Less than Significant Impact with Mitigation Incorporated. A reconnaissance-level field survey of the APE and surrounding area was conducted on October 19, 2021, by Provost & Pritchard biologists, Jacob Rogers and Shaylea Stark. The survey consisted of walking and driving the APE while identifying and noting plant and animal species encountered, biological habitats and communities, and land uses. Further, the site and surrounding areas were assessed for suitable habitats of various wildlife species.

Of the 19 regionally occurring special status species, 18 are considered absent from or unlikely to occur within the APE due to past or ongoing disturbance and/or the absence of suitable habitat. The following 12 species were deemed absent from occurring within the APE: blunt-nosed leopard lizard (*Gambelia sila*), California Red-legged frog (*Rana draytonii*), California Tiger Salamander (*Ambystoma californiense*), Delta Smelt (*Hypomesus transpacificus*), Giant gartersnake (*Thamnophis gigas)*, Loggerhead Shrike (*Lanius ludovicianus*), Monarch butterfly (*Danaus plexippus*), Northern California legless lizard (*Anniella pulchra*), vernal pool fairy shrimp (*Branchinecta lynchi*), western pond turtle (*Emys marmorata*), western spadefoot (*Spea hammondii*), and western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). The following seven species were deemed unlikely to occur within the APE: Burrowing Owl (*Athene cunicularia),* Crotch bumble bee (*Bombus crotchii*), Mountain Plover (*Charadrius montanus*) , San Joaquin kit fox (*Vulpes macrotis mutica),* Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*), Tricolored Blackbird (*Agelaius tricolor*), and western mastiff bat (*Eumops perotis californicus*). Since it is unlikely that these species would occur onsite, implementation of the Project should have no impact on these 18 special status species through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted.

The APE contains suitable nesting and/or foraging habitat for ground and tree nesting avian species. Killdeer were observed during the survey, these birds are known to build nests on bare ground or compacted dirt roads. Although no nests were observed at the time of survey, trees near the APE have the potential to host nesting birds. The APE provides suitable nesting habitat for Swainson's Hawk and other raptors. Raptors could also potentially use the ruderal area and surrounding agricultural areas for foraging. Mitigation is warranted and is identified in Section 4.4.3 below.

All 11 of the special status plant species documented in the APE are considered absent from or unlikely to occur within the APE due to past or ongoing disturbance and/or the absence of suitable habitat. The following species were deemed absent from the APE: alkali-sink goldfields (*Lasthenia chrysantha*), Brittlescale (*Atriplex depressa*), California alkali grass (*Puccinellia simplex*), California jewelflower (*Caulanthus californicus*), California satintail (*Imperata brevifolia*), Earlimart orache (*Atriplex cordulata var. erecticaulis*), heartscale (*Atriplex cordulata var. cordulata*), lesser saltscale (*Atriplex minuscula*), recurved larkspur (*Delphinium recurvatum),* San Joaquin adobe sunburst (*Pseudobahia peirsonii*), and subtle orache (*Atriplex subtilis*). Since it is unlikely that these species would occur onsite, implementation of the Project will have no effect on individual plants or regional populations of these special status plant species. Mitigation measures are not warranted. (see Appendix B: Biological Evaluation)

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

No Impact. There are no California Natural Diversity Database-designated "natural communities of special concern" recorded within the APE or surrounding lands.[5] The APE and surrounding lands are agricultural fields that are disced regularly throughout the year which limits viable habitat from establishing. During the biological survey no riparian habitat or other sensitive natural communities were identified. There would be no impact.

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?

No Impact. Potential Waters of the United States, riparian habitat, typical wetlands, vernal pools, lakes, or streams, and other sensitive natural communities were not observed onsite at the time of the biological survey. The nearest natural water source is Packwood Creek located approximately 1.5 miles northeast of the APE. Undoubtedly, some native wildlife species use the APE in the absence of preferred habitat. However, because of the aforementioned disturbance the APE represents relatively low-quality habitat for native plants and animals. Along the edge of the APE there is an irrigation ditch called Packwood Ditch, which is an artificial water feature, and is typically not regulated by USACE or RWQCB as a jurisdictional water.[6] The irrigation ditch was dry at the time of the survey and contained most of the vegetation found within the APE. There would be no impact.

d) Would the project 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?

No Impact. Wildlife movement corridors are routes that animals regularly and predictably follow during seasonal migration, dispersal from native ranges, daily travel within home ranges, and inter-population movements. Movement corridors in California are typically associated with valleys, ridgelines, and rivers and creeks supporting riparian vegetation.

The APE does not contain features that would be likely to function as wildlife movement corridors. Further, the APE is located in an area where it is possible to be used by animals but is not ideal due to the heavy disturbance of agricultural activities, which would discourage dispersal and migration. Mitigation measures are not warranted and there would be no impact.

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

No Impact. The three Valley Oak trees found along the southwest boundary of the APE would be avoided during Project activities. Therefore, the Project would have no impact on the Tulare County General Plan.[7] There would be no impact.

[5] (California Natural Diversity Database (CNDDB) 2021)
[6] (United States Environmental Protection Agency (USEPA) 2021)
[7] (Tulare County 2030 General Plan Update 2010)

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

**No Impact.** The Project is consistent with the goals and policies of the Tulare County General Plan. There are no known habitat conservation plans or a Natural Community Conservation Plan in the Project vicinity.[8] There would be no impact.

### 4.4.3 Mitigation

**BIO-1** **(Avoidance):** The Project's construction activities would occur, if feasible, between September 16 and January 31 (outside of nesting bird season) in an effort to avoid impacts to nesting birds.

**BIO-2** **(Pre-construction Surveys):** If activities must occur within nesting bird season (February 1 to September 15), a qualified biologist would conduct pre-construction surveys for Swainson's hawk nests onsite and within a 0.5-mile radius. This survey would be conducted in accordance with the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley[9] or current guidance. The pre-construction survey would also provide a presence/absence survey for all other nesting birds within the APE and an additional 50 feet, no more than 7 days prior to the start of construction. All raptor nests would be considered "active" upon the nest-building stage.

**BIO-3** **(Establish Buffers):** On discovery of any active nests near work areas, the biologist would determine appropriate construction setback distances based on applicable CDFW and/or USFWS guidelines and/or the biology of the species in question. Construction buffers would be identified with flagging, fencing, or other easily visible means, and would be maintained until the biologist has determined that the nestlings have fledged and are no longer dependent on the nest.

[8] (Tulare County 2030 General Plan Update 2010)
[9] (Swainson's Hawk Technical Advisory Committee 2000)

**Figure 4-2. Aerial View of APE**

# 4.5 CULTURAL RESOURCES

**Table 4-8: 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

### Phase 1 Cultural Resources Survey

An intensive Class III inventory/Phase I survey of the TID Okieville Basin Project APE was conducted by ASM Associate Archaeologist/Crew Chief Robert Azpitarte, B.A., on November 9, 2021. The field methods employed 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 Instructions for Recording Historic Resources and the BLM 8100 Manual, using DPR 523 forms. Parallel survey transects spaced at 15-m apart were employed for pedestrian survey of the Project APE.

The Project APE is mostly undeveloped and consists of a currently inactive agricultural field. It is bounded by Laurel Avenue (paved) on the south, Packwood Ditch on the west, and dirt roads on the east and north. Surrounding the APE are irrigation ditches, dirt roads, and active agricultural fields and orchards. Surface visibility within the APE was excellent for Class III inventory/Phase I survey. A light deposit of modern refuse (e.g., plastics, glass, paper, aluminum, clothing) was noted on the ground surface.

No cultural resources of any kind were identified within the proposed TID Okieville Basin 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 October 2021. 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 (SPHI), the California Historical Landmarks (SHL), the California

Register of Historical Resources (CAL REG), the National Register of Historic Places (NRHP), and the California State Built Environment Resources Directory (BERD) 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 October 2021. 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 (CalNAGPRA), among many other powers and duties. NAHC provide a current list of Native American Tribal contacts to notify of the Project. The six tribal representatives identified by NAHC were contacted in writing via United States Postal Service in a letter November 8, 2021, informing each Tribal contact 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. Santa Rosa Rancheria Tachi Yokut Tribe, Leo Sisco, Chairperson
3. Tule River Indian Tribe, Joey Garfield, Tribal Archaeologist
4. Tule River Indian Tribe, Neil Peyron, Chairperson
5. Tule River Indian Tribe, Kerri Vera, Environmental Department
6. Wuksache Indian Tribe/Eshom Valley Band, Kenneth Woodrow, Chairperson

## 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?

Less than Significant Impact. The Project would construct a recharge basin facility to increase recharge capacity, slow the decline and stabilize groundwater levels in the Project vicinity (under Okieville). The Project would also require improvements to Packwood Ditch to the west. According to the CHRIS search performed by ASM, the Packwood Ditch is a historical resource owned and operated by TID. On January 10, 2022, Dr. Whitley, ASM Archaeologist, reviewed the historical maps for the Project. Based on these sources, Packwood Ditch has been repeatedly modified/channelized, up to and including between 2012 and 2015. Based on these alterations, it has lost its integrity of location, materials, craftsmanship, feeling and association, and it does not qualify as a significant historical resource under CEQA. Any future modifications/alterations therefore will not result in adverse impacts to a significant cultural resource. No additional cultural resource studies are warranted or required for the project. Therefore, impacts would be less than significant.

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

**No Impact.** The field assessment did not find any known archaeological resources within the APE or identified within 0.5 miles of the APE. Therefore, the Project would have no impact to archaeological resources.

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

**Less than Significant Impact with Mitigation Incorporated**. No formal cemeteries or other places of human internment are known to exist on the Project site; however, in accordance with Health and Safety Code Section 7050.5 and Public Resource Code Section 5097.98, if human remains are uncovered, Mitigation Measure CUL-2 as outlined below, would be implemented to reduce impacts to less than significant to human remains should they be discovered during construction.

### 4.5.3 Mitigation

**CUL-1** In the event that archaeological remains are encountered at any time during development or ground-moving activities within the entire project area, all work in the vicinity of the find shall halt until a qualified archaeologist can assess the discovery. The District shall implement all recommendations of the archaeologist necessary to avoid or reduce to a less than significant level potential impacts to cultural resource. Appropriate actions could include a Data Recovery Plan or preservation in place.

**CUL-2** If human remains are uncovered, or in any other case when human remains are discovered during construction, the Tulare County Coroner will be notified to arrange proper treatment and disposition. If the remains are identified—on the basis of archaeological context, age, cultural associations, or biological traits—as those of a Native American, California Health and Safety Code 7050.5 and Public Resource Code 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent who will determine the manner in which the remains are treated.

# 4.6 ENERGY

**Table 4-9: 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

Southern California Edison (SCE) supplies electricity to the project area. SCE obtains its power through hydroelectric, natural gas, and eligible renewable sources. SCE continually produces new electric generation and natural gas sources and implements continuous improvements to gas lines throughout its service areas to ensure the provision of services to residents. New construction would be subject to Titles 20 and 24 of the CCR which each serve to reduce demand for electrical energy by implementing energy-efficient standards for residential, as well as non-residential buildings. As the recharge basin Project does not involve buildings of any kind, these regulations are not applicable.

## 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?

No Impact. As discussed in Section 4.3, the Project would not exceed any air emission thresholds during construction or operation. The Project would comply with construction best management practices and will be required to complete a Stormwater Pollution Prevention Program (SWPPP) as part of construction. Once completed, the Project would be mostly passive in nature and would not use an excessive amount of energy. Therefore, the Project would not result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during construction or operation.

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

No Impact. The Project would be passive in nature once it is completed, and the construction phase would be temporary in nature and would not exceed any thresholds set by the SJVAPCD.

# 4.7 GEOLOGY AND SOILS

**Table 4-10: Geology and Soils Impacts**

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

## 4.7.1 Baseline Conditions

### Geology and Soils

The Project is located in 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.[10] 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 site is not located within an Alquist-Priolo Earthquake Fault Zone and no known faults cut through the soil at the site.[11] The nearest major fault is the San Andreas Fault, located over 60 miles southwest of the Project site. 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.

### 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.

### Dam and Levee Failure

The nearest inundation zone is located approximately 1,355 feet north of the Project site. See Figure 4-3: FEMA Flood Map.

## 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 Impacts.** The Project site is 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 site. The San Andreas Fault is the

[10] (Harden 1998)
[11] (California Department of Conservation 2015)

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 TID employees. Any impact would be less than significant.

The Project site and its vicinity are located in an area traditionally characterized by relatively low seismic activity. The Project site is 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 site is not in 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 site is 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 basin 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 Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Since the Project site has relatively flat terrain with a low potential for soil erosion and would comply with the SWRCB requirements, 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 basin 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.[12] 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 site is 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?

**Less than Significant Impact.** The Project site is located in an area with a significant depth to saturation, consistent with the south side of Tulare County. Septic installation or alternative waste water 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.** Unique paleontological resources or sites or unique geological features have not been identified in the Project area. There would be no impact.

[12] (United State Geological Survey (USGS) n.d.); (California Department of Conservation (DOC) n.d.)

# 4.8 GREENHOUSE GAS EMISSIONS

**Table 4-11: Greenhouse Gas Emissions Impacts**

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

## 4.8.1 Baseline Conditions

Commonly identified GHG emissions and sources include the following:

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

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

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

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

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

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

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

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

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

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

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

Emissions of GHGs contributing to global climate change are largely attributable to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. About three-quarters of human emissions of $CO_2$ to the global atmosphere during the past 20 years are due to fossil fuel burning. Atmospheric concentrations of $CO_2$, $CH_4$, and $N_2O$ have increased 31 percent, 151 percent, and 17 percent respectively since the year 1750 (CEC 2008). GHG emissions are typically expressed in carbon dioxide-equivalents ($CO_2e$), based on the GHG's Global Warming Potential (GWP). The GWP is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, one ton of $CH_4$ has the same contribution to the greenhouse effect as approximately 21 tons of $CO_2$. Therefore, $CH_4$ is a much more potent GHG than $CO_2$.

## Short-Term Construction-Generated Emissions

Total GHG emissions generated during construction are presented in Table 4-12 below:

**Table 4-12. Construction Greenhouse Gas Emissions**

| Year | Annual Emissions (MTCO2e) |
|---|---|
| 2022 | 207.04 |
| Amortized over 30 years | 6.90 |

The existing site was historically planted with cotton, while perennial in nature, is grown annually. Therefore, cotton was removed and replanted every year. Greenhouse gas emissions associated with the removal of the cotton field are considered part of baseline emissions, and therefore are not discussed. Removal of the cotton field would be required to comply with all SJVAPCD permits.

### Long-Term Operational Emissions

Project operations, consisting of electricity consumption for water extraction, and fuel consumption for operations and maintenance purposes, are not anticipated to be higher than what is currently experienced from harvesting the existing cotton.

## 4.8.2 Impact Analysis

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

**Less than Significant Impact.** Estimated construction-generated emissions are summarized in Table 4-13. Construction-related emissions would be under the thresholds for land-use development projects, utilizing the threshold of significance established by the Bay Area Air Quality Management District. Impacts would be less than significant. Long term operational emissions are not anticipated to exceed those of an annual harvest of walnuts at the existing orchard. There would be no additional adverse impact.

**Table 4-13. Short-Term Construction-Generated GHG Emissions**

| Year | Emissions (MT $CO_2e$)(1) |
|---|---|
| *Total Emissions* | *207.04* |
| *AB 32 Consistency Threshold for Land-Use Development Projects** | *1,100* |
| *Exceed Threshold?* | *No* |

1. *Emissions were quantified using the CalEEmod, Version 2016.3.2. Refer to Appendix A for modeling results and assumptions. Totals may not sum due to rounding.*

* 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 November 2021.

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

**Less than Significant Impact.** The California Air Resources Board prepared in 2017 the *California's 2017 Climate Change Scoping Plan*, which sets forth how the State intends to reduce greenhouse gas emissions to meet the Senate Bill 32 goal of 40 percent below the greenhouse gas emissions level of 1990 by 2030. The agricultural sector is anticipated to achieve a 4 to 8 percent reduction as its portion of greenhouse gas emissions. The Project supports State and local plans and policies by reducing greenhouse gases through cessation of agricultural operations at the Project site, which would result in fewer fuels consumed. Impacts to applicable plans, policies, and regulations would be less than significant.

# 4.9 HAZARDS AND HAZARDOUS MATERIALS

**Table 4-14 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 (UST) cases and non-UST cleanup programs, including Spills-Leaks-Investigations-Cleanups sites, Department of Defense (DOD)sites, and Land Disposal program. A search of the DTSC EnviroStor database and the SWRCB Geotracker performed on October 1, 2021 determined that there are no known active hazardous waste generators or hazardous material spill sites within the Project site.

### Airports

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

### 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 just to the south and one to the east of the Project property.

## 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?

Less than Significant Impact. The Project does not involve land that is listed as an active hazardous materials site pursuant to Government Code Section 65962.5 and is not included on a list compiled by

DTSC. Both the SWQCB's GeoTracker and DTSC's EnviroStor websites were queried on October 1, 2021 for contaminated groundwater or sites in the area with negative findings Operation of the recharge basin would not involve the transport, use, or disposal of hazardous materials and the parcel proposed for the basin has not been identified as active hazardous waste generators or hazardous material spill sites. Facility operation would be consistent with that of the District's other similar basins in that groundwater conditions would be monitored to minimize negative impacts on the surrounding areas (such as nearby wells, crops, and septic systems). The impacts would be less than significant.

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 Visalia Municipal Airport is located approximately eight miles northeast of the Project site. The Fresno-Yosemite International Airport is located approximately 40 miles northwest of the Project site. The Project site is not located in an airport land use plan or within two miles of an airport. 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 site 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 4-15: 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 site historically contained an cotton farming operation and is now fallow. Growing cottons tend to be water-intensive. In order to maintain high yields, cotton relies on a high consumption of water. The surrounding area consists of similar row crops, field crops, and specialty crops that require high demands of water. Additionally TID's canal, Packwood Ditch is adjacent to the proposed basin site.

## 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. SWRCB requires that a Stormwater Pollution Prevention Plan (SWPPP) be prepared for projects that disturb one (1) 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. Additionally, there would be no discharge to any surface source. However, by design, there would be percolation discharge to groundwater via the proposed recharge basin. Use of chemicals or surfactants would not be generated through the maintenance or operation of the Project and as such, there would be no discharge directly associated with Project implementation that could impact water quality standards. The Project would not violate any water quality standards and would not impact waste discharge requirements. In addition to increased groundwater recharge, the Project's purpose is to increase water quality for the residents of Okieville. The impact would be less than significant.

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

Less than Significant Impact. The purpose of the Project consists of constructing a recharge basin to improve groundwater supplies, followed by extraction of those supplies by District landowners via the TID ditch. The Project would provide an estimated 630 acre-feet per year of groundwater recharge. The Project would benefit the downgradient community of Okieville, a Disadvantaged Community of approximately 80 households that rely solely on groundwater supplies for its drinking water. The Project would slow the decline of groundwater levels and slow the degradation of groundwater quality in the underlying Kaweah Subbasin. Groundwater recoveries would not exceed the total water recharged, so as to not deplete any groundwater supplies. The Mid-Kaweah Groundwater Sustainability Plan set Interim Milestones for reducing groundwater overdraft by 2040. The Interim Milestone for 2025 is to have reduced the groundwater overdraft by 5%. The Project would help the MKGSA in meeting this milestone by recharging additional water supplies and reducing to total overdraft. Having the project completed and in use ahead of 2025, would help in achieving this goal. No additional groundwater would be required compared to baseline conditions; therefore, the impacts would be less than significant. The Project would not substantially decrease groundwater supplies or interfere with groundwater recharge. 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?

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

**c-d) Less than Significant Impacts.** Packwood Ditch, owned and operated by TID runs adjacent to the Project site to the west. The recharge basin will be fed by Packwood Ditch via two turnouts and an inlet structure, which stems from TID's appropriative rights to Kaweah River and Friant Division Central Valley Project water supplies. Part of the Project includes improvements and supporting infrastructure to Packwood Ditch. These improvements include a new outlet from the recharge basin to the ditch, a new inlet from the ditch to the recharge basin, relocation of the existing turnout, a new turnout to the proposed inlet, and the new inlet pipest to and from the ditch and recharge basin. The proposed improvements, including the recharge basin, would allow for improved surface water management by TID in the Packwood Ditch system. The Project would consist of excavating to a uniform depth for the purpose of groundwater recharge. In order to minimize erosion and run-off during construction activities, a SWPPP may be implemented, and the contractor would 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. Additionally, the Project area is not at risk of tsunami or within a seiche zone. As demonstrated in Figure 4-3, the Project site is not located within the 100-year flood zone. 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 improve groundwater storage and prevent exceedances of storm water drainage systems or additional polluted runoff by providing a depressional space for surface water. The Project would not substantially alter the course of the flow of a stream or river in which substantial erosion or siltation could occur. Therefore, impacts would be less than significant.

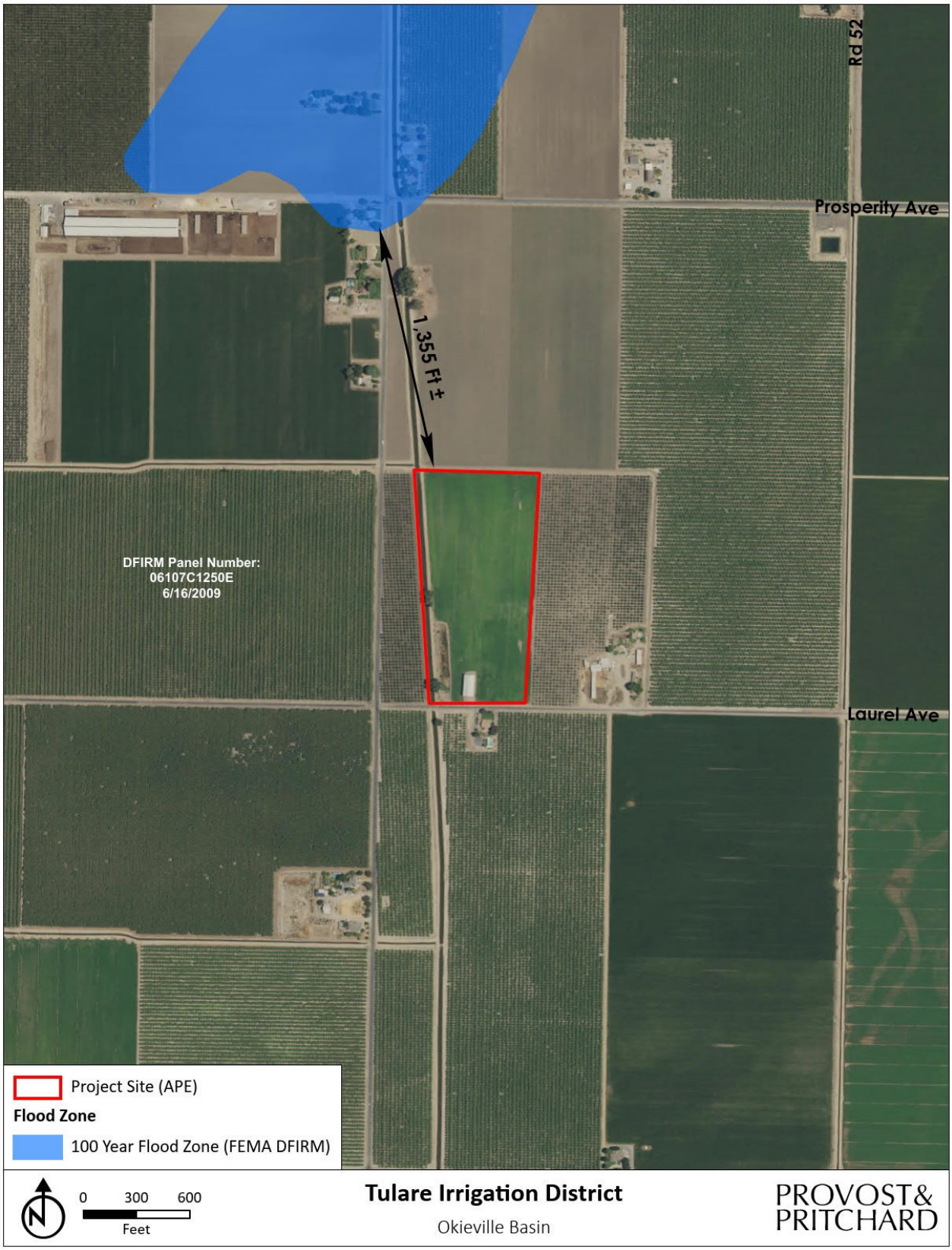



**Figure 4-3: FEMA Flood Map**

# 4.11 LAND USE AND PLANNING

**Table 4-16: Land Use and Planning Impacts**

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

## 4.11.1 Baseline Conditions

The Project area is classified by DOC's FMMP as Farmland of Statewide Importance (Refer to Figure 4-1). The Project site is designated as Valley Agriculture by the Tulare County General Plan (Refer to Figure 2-3) and is within the AE-40 (Exclusive Agriculture) zone district (Refer to Figure 2-4). Properties directly surrounding the Project site are currently in use for agriculture and are also designated Valley Agriculture and zoned AE-40. The District is located on the Valley floor east of the Coast Ranges and west of the Sierra Nevada Mountain Range. The proposed recharge facilty is located approximately 7.5 miles west of SR 99. Topographically, the Project area has a max elevation of 246 feet above mean sea level. No forest or timber land is present at the Project site or in the Project vicinity.

## 4.11.2 Impact Analysis

a) Would the project physically divide an established community?

No Impact. The Project is located in an agricultural area approximately 4.6 miles west of the City of Tulare and one-half mile northeast of of the unincorporated community of Okieville. The Project is approximately 23 miles west of the Friant-Kern Canal. Surrounding uses are primarily agricultural uses. The Project would not physically divide any 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 site is 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. One of the goals of the Project is to recharge high-quality water that will strengthen (both in quantity and quality) the upper unconfined groundwater aquifer in the vicinity of Okieville. Therefore, no impacts to land use are anticipated. Additionally, the construction and operation of a recharge basin and supporting infrastructure 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.

# 4.12 MINERAL RESOURCES

**Table 4-17: 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. Similarly, the only active oil and gas fields are located in the foothills along Deer Creek.

The Project site is not delineated on a local land use plan as a locally important mineral resource recovery site.

## 4.12.2 Impact Analysis

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

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

a and b) No Impacts. The California Geological Survey Division of Mines and Geology has not classified the Project site 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 site. No known mineral resources are within the Project area. 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.

# 4.13 NOISE

**Table 4-18: 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 site and most of the surrounding area is designated as Agriculture by the Tulare County General Plan. There are two residences within 500 feet of the Project with one being located just to the south and one to the east of the property. Pleasant Elementary School, the closest school to the Project site, is located approximately five miles to the east. The Project is located in an agricultural area approximately 4.6 miles west of the City of Tulare and one-half mile northeast of the unincorporated community of Okieville.

The Project site 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 Road 48 to the west and Laurel Ave to the south. While much of unincorporated Tulare County is composed of discrete small communities and remote rural residences, major noise generators include SR 99, located approximately seven miles east of the 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 site, 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, mostly from trucks. Other construction equipment could include scrapers, backhoes, and drilling rigs. Noise from construction activities would not exceed Tulare County Noise Element standards of 60 dBA. The Project is located within agricultural lands, 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 groundborne 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 groundborne 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 Visalia Municipal Airport is located approximately eight miles northeast of the Project and the Fresno Yosemite International Airport is located approximately 40 miles northwest of the Project. As the Project is not located within an airport land use plan or two miles of an airport, there would be no impact.

# 4.14 POPULATION AND HOUSING

**Table 4-19: 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 Sample, 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. The Packwood Ditch runs adjacent to the west portion of the Project site. Properties within the immediate vicinity of the Project site are designated and zoned for agricultural uses by Tulare County.

## 4.14.2 Impact Analysis

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

No Impact. The Project involves the construction of a recharge basin to increase water resources in the region. The Project would not induce substantial unplanned population growth in an area directly or indirectly. There would be no impact.

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

No Impact. The Project involves the construction of a recharge basin to increase water resources in the region and would benefit the residents of Okieville. The Project would not displace existing people or housing, therefore there would be no impact.

# 4.15 PUBLIC SERVICES

**Table 4-20: 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 25, approximately 8.5 miles east-southeast of the Project.

Police Protection: Police protection is provided by the Tulare County Sheriff. The closest station is located in the City of Visalia approximately nine miles northeast of the Project.

Schools: Pleasant Elementary School, the closest school to the Project site, is located approximately five miles southwest of the Project site.

Parks: The Tulare County park closest to the Project site is Bender Park, approximately five miles to the east.

Landfills: The nearest landfill to the Project site 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 and operation of a recharge facility and supporting infrastructure so it would have no impact on the listed public services.

# 4.16 RECREATION

**Table 4-21: 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 park 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 U.S. Army Corps of Engineers. 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.[13]

As noted in Section 4.15, the Tulare County park closest to the Project site is Bender Park, approximately five miles to the east.

[13] (Tulare County 2030 General Plan Update 2010)

## 4.16.2 Impact Analysis

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

**No Impact.** The Project would construct a recharge facility and supporting infrastructure on a parcel that was historically farmed for cotton. The Project would not increase the use of existing neighborhod and regional parks or other recreational facilities. There would be no impact.

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

**No Impact.** The Project would not include recreational facilities or require the construction or expansion of recreational facilities. The Project would construct a recharge facility and supporting infrastructure to increase the availability of wet-year recharge capacity and to provide water quality benefits to the residents of Okieville. There would be no impact.

# 4.17 TRANSPORTATION

**Table 4-22: 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 site is surrounded by agricultural operations with very little urban development. There are no State or interstate highways are in the immediate vicinity. The Visalia Municipal Airport is located approximately eight miles northeast of the Project and the Fresno Yosemite International Airport is located approximately 40 miles northwest of the Project. The site is currently accessed by Laurel Ave to the south and this will not change.

## 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 construct a recharge facility and supporting infrastructure to increase the availability of wet-year recharge capacity and to provide water quality benefits to the residents of Okieville. 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 woud 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 basin. 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)?

**Less than Significant 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. here would be no impact.

d) Would the project result in inadequate emergency access?

**Less than Significant Impact.** The Project would have no lasting impact on existing roads or emergency access routes as it involves the conversion of farmland to a recharge/regulation basin. There would be no impact.

# 4.18 TRIBAL CULTURAL RESOURCES

**Table 4-23: 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.

An intensive Class III inventory/Phase I survey of the TID Okieville Basin Project APE was conducted by ASM Associate Archaeologist/Crew Chief Robert Azpitarte, B.A., on November 9, 2021. The field methods employed 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 Instructions for Recording Historic Resources and the BLM 8100 Manual, using DPR 523 forms. Parallel survey transects spaced at 15-m apart were employed for pedestrian survey of the Project APE.

The proposed Project APE is mostly undeveloped and consists of a currently inactive agricultural field. It is bounded by Laurel Avenue (paved) on the south, Packwood Ditch on the west, and dirt roads on the east and north. Surrounding the APE are irrigation ditches, dirt roads, and active agricultural fields and orchards. Surface visibility within the APE was excellent for Class III inventory/Phase I survey. A light deposit of modern refuse (e.g., plastics, glass, paper, aluminum, clothing) was noted on the ground surface.

No cultural resources of any kind were identified within the proposed TID Okieville Basin Project APE. (Appendix C). The Project site, along with its surrounding region, has been historically farmed.

### Records Search

A records search of site files and maps was conducted on October 18, 2021, at the SSJVIC, California State University, Bakersfield. The results of a search of the Sacred Lands File were received from the NAHC on November 5, 2021. These searches determined that no previous studies have previously been conducted within the Project APE, and no cultural resources of any kind are known to exist within it. In addition, no previous studies are known to have been conducted within 0.5 mile of the APE; however, one historic linear resource (Packwood Ditch) is documented within the records search buffer.

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

Public Resources Code Section 21080.3.1, et seq. (codification of AB 52, 2013-14) requires that a lead agency, within 14 days of determining that it would undertake a project, must notify in writing any California Native American Tribe traditionally and culturally affiliated with the geographic area of the project if that Tribe has previously requested notification about projects in that geographic area. The notice must briefly describe the project and inquire whether the Tribe wishes to initiate request formal consultation. Tribes have 30 days from receipt of notification to request formal consultation. The lead agency then has 30 days to initiate the consultation, which then continues until the parties come to an agreement regarding necessary mitigation or agree that no mitigation is needed, or one or both parties determine that negotiation occurred in good faith, but no agreement would be made. The Tule River Indian Reservation is located approximately 15 miles to the east.

### Native American Outreach

A search of the NAHC Sacred Lands File was conducted in October 2021. According to the NAHC records, there are no sacred sites or tribal cultural resources are known in or near the Project APE. Letters requesting information on any tribal cultural resources were sent to representatives on the NAHC contact list on November 8, 2021. Follow-up emails were also sent on November 22 and December 2, 2021 (Appendix C).

## 4.18.2 Impact Asessment

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

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

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

**a i-ii) Less than Significant Impacts with Mitigation Incorporated.** A search of the NAHC Sacred Lands File was completed for the Project APE. Results of this file search were negative and no tribal cultural resources were identified in the Project APE. A records search was also conducted at the SSJVIC, California State University, Bakersfield. The search results determined that tribal cultural resources were not discovered.

Communication was received from the Santa Rosa Rancheria – Tachi Yokut Tribe during Native American outreach. They indicated that due to their tribal knowledge and history of the area, the Tribe is requesting to have monitors on site for ground disturbance and to be retained for a cultural presentation for all construction staff. Although the Cultural research, field survey and report did not identify cultural resources within the APE, Mitigation Measure **TCR-1** has been incorporated ito the project to ensure that construction personnel are aware and trained to distinguish a cultural resource upon discovery.

Although there is little or no chance the Project would cause a substantial adverse change to the significance of a tribal cultural resource as defined, Mitigation Measures **CUL-1 and CUL-2,** described in Section 4.5 are recommended in the event cultural materials or human remains are unearthed during excavation or construction.

## 4.18.3 Mitigation

**TCR-1** Prior to construction, 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.

# 4.19 UTILITIES AND SERVICE SYSTEMS

**Table 4-24: Utilities and Service Systems Impacts**

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

## 4.19.1 Baseline Conditions

The Project site is located within the Kaweah Subbasin of the San Joaquin Valley Groundwater Basin, as defined by the California Department of Water Resources Groundwater Bulletin 118. Groundwater overdraft and declines in groundwater basin storage are recurring problems in Tulare County. Measures for ensuring the continued availability of groundwater 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.

## 4.19.2 Impact Analysis

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

No Impact. The Project would not require relocation or expansion of existing facilities for wastewater treatment, storm water drainage, electric power, natural gas, or telecommunications. The Project includes the construction of a new recharge facility but would not cause significant environmental effects

since the Project would follow all required standards and policies. Additionally, the Project construction would increase water supply, improve groundwater conditions, reduce costs to produce groundwater, increase diversification and availability of water supplies, and facilitate compliance with the Sustainable Groundwater Management Act. 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?

No Impact. The Project would not include recreational facilities or require the construction or expansion of recreational facilities. The Project would construct a recharge facility and supporting infrastructure to increase the availability of wet-year recharge capacity and to provide water quality benefits to the residents of Okieville. Project operation is passive and would not reduce the area's available water supply under any scenario. There would be no impact.

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

No Impact. The Project does not require wastewater treatment, so analysis of capacity is unwarranted. There would be no impact.

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

No Impact. The Project would not generate any solid waste, therefore there would be no impact.

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

No Impact. The Project would comply with all federal, State, and local standards, policies, and goals. There would be no impact.

# 4.20 WILDFIRE

**Table 4-25: 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 site is served by the Tulare County Fire Department for its fire protection needs. The site is not located in a very high fire hazard severity zone nor is the site located in a State responsibility area. The nearest very high fire hazard severity zone is located approximately 34 miles northeast of the site.[14] The nearest State responsibility area is approximately 20 miles east of the site.[15] The Project would not result in population growth and it does not involve the construction of any habitable structures.

## 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?

No Impact. The Project is not located in or near a State responsibility areas or lands classified as very high fire hazard severity zones. There would be no impact.

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

[14] (ArcGIS n.d.)
[15] (ArcGIS n.d.)

expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

**No Impact.** The Project is not located in or near a State Responsibility Area or lands classified as very high fire hazard severity zones, therefore there would be no impact.

c) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

**No Impact.** The Project is not located in or near State responsibility areas or lands classified as very high fire hazard severity zones, therefore furether analysis is not warranted. There would be no impact.

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?

**No Impact.** The Project is not located in or near State responsibility areas or lands classified as very high fire hazard severity zone. There would be no impact.

# 4.21 CEQA MANDATORY FINDINGS OF SIGNIFICANCE

**Table 4-26: 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, 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 a 21-acre recharge facility and supporting infrastructure. 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 a water recharge facility. 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 Tulare Irrigation District – Okieville Recharge Basin Project (Project) in Tulare County. The MMRP lists mitigation measures recommended in the IS/MND for the Project and identifies monitoring and reporting requirements.

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

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

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

| Mitigation, Monitoring, and Reporting Program | | | | | | |
|---|---|---|---|---|---|---|
| Item | Mitigation Measure | When Monitoring is to Occur | Frequency of Monitoring | Agency Responsible for Monitoring | Method to Verify Compliance | Verification of Compliance |
| **Biological Resources** | | | | | | |
| **BIO-1** | (Avoidance): The Project's construction activities would occur, if feasible, between September 16 and January 31 (outside of nesting bird season) in an effort to avoid impacts to nesting birds | Between September 16 and January 31 | During Construction | TID | | |
| **BIO-2** | (Pre-construction Surveys): If activities must occur within nesting bird season (February 1 to September 15), a qualified biologist would conduct pre-construction surveys for Swainson's hawk nests onsite and within a 0.5-mile radius. This survey would be conducted in accordance with the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee, 2000) or current guidance. The pre-construction survey would also provide a presence/absence survey for all other nesting birds within the APE and an additional 50 feet, no more than 7 days prior to the start of construction. All raptor nests would be considered "active" upon the nest-building stage | No more than 7 days prior to the start of construction | One survey | TID | | |
| **BIO-3** | (Establish Buffers): On discovery of any active nests near work areas, the biologist would determine appropriate construction setback distances based on applicable CDFW and/or USFWS guidelines and/or the biology of the species in question. Construction buffers would be identified with flagging, fencing, or other easily visible means, and would be maintained until the biologist has determined that the nestlings have fledged and are no longer dependent on the nest | On discovery of any active nests near work areas | During Construction | TID | | |
| **Cultural Resources** | | | | | | |
| **CUL-1** | In the event that archaeological remains are encountered at any time during development or ground-moving activities within the entire project | During excavation | Nine months | TID | | |

| Mitigation, Monitoring, and Reporting Program | | | | | | |
|---|---|---|---|---|---|---|
| Item | Mitigation Measure | When Monitoring is to Occur | Frequency of Monitoring | Agency Responsible for Monitoring | Method to Verify Compliance | Verification of Compliance |
| | area, all work in the vicinity of the find shall halt until a qualified archaeologist can assess the discovery. The District shall implement all recommendations of the archaeologist necessary to avoid or reduce to a less than significant level potential impacts to cultural resource. Appropriate actions could include a Data Recovery Plan or preservation in place | | | | | |
| **CUL-2** | If human remains are uncovered, or in any other case when human remains are discovered during construction, the Tulare County Coroner will be notified to arrange proper treatment and disposition. If the remains are identified—on the basis of archaeological context, age, cultural associations, or biological traits—as those of a Native American, California Health and Safety Code 7050.5 and Public Resource Code 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent who will determine the manner in which the remains are treated. | During excavation | Nine months | TID | | |
| **Tribal Cultural Resources** | | | | | | |
| **TCR-1** | Prior to construction, 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. | Prior to construction | One training | TID | | |

# CHAPTER 6 REFERENCES

ArcGIS. n.d. *California State Responsibility Areas.*

https://www.arcgis.com/apps/mapviewer/index.html?layers=5ac1dae3cb2544629a845d9a19e83991.

ArcGIS. n.d. *Is Your Home in a Fire Hazard Severity Zone?*

https://www.arcgis.com/apps/Styler/index.html?appid=5e96315793d445419b6c96f89ce5d153.

California Department of Conservation (DOC). n.d. *California Earthquake Hazards Zone Application.* Accessed October 2021. https://maps.conservation.ca.gov/cgs/EQZApp/app/.

California Department of Conservation. 2015. *Fault Activity Map of California.* Accessed October 2021. https://maps.conservation.ca.gov/cgs/fam/.

California Department of Conservation. 2016. California Important Farmland Finder. 2020. *California Department of Conservation. 2016. California Important Farmland Finder.* https://maps.conservation.ca.gov/DLRP/CIFF/.

California Natural Diversity Database (CNDDB). 2021. *California Department of Fish and Wildlife. California Natural Diversity Database (CNDDB).* October. Accessed October 2021.

California State Scenic Highway System Map. 2019. *California State Scenic Highway System Map.* https://www.arcgis.com/apps/webappviewer/index.html?id=2e921695c43643b1aaf7000dfcc19983.

Harden, D.R. 1998. *California Geology.* Prentice Hall.

National Resource Conservation Service (NRCS). 2021. *websoilsurvey.* October. Accessed October 2021. http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

Scalmanini, Luhdorff and. 2020. "Westside Subbasin Groundwater Sustainability Plan." January. https://sgma.water.ca.gov/portal/service/gspdocument/download/1979.

Swainson's Hawk Technical Advisory Committe. 2000. "Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley." *CDFW.* May. Accessed October 2021.

Tulare County 2030 General Plan Update. 2010. "Tulare County 2030 General Plan Update." *Tulare County 2030 General Plan Update.*

http://generalplan.co.tulare.ca.us/documents/GeneralPlan2010/GeneralPlan2030Update.pdf.

United State Geological Survey (USGS). n.d. *Areas of Land Subsidence in California.* Accessed October 2021. https://ca.water.usgs.gov/land_subsidence/california-subsidence-areas.html.

United States Environmental Protection Agency (USEPA). 2021. *United States Environmental Protection Agency WATERS Geoviewer.* October. Accessed October 2021.

https://www.epa.gov/waterdata/waters-geoviewer.

# Appendix A: CalEEMod Output Files

Tulare ID Okieville Basin - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

# Tulare ID Okieville Basin

**Tulare County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Other Non-Asphalt Surfaces | 21.00 | Acre | 21.00 | 914,760.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Rural | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 51 |
| **Climate Zone** | 3 | | | **Operational Year** | 2022 |
| **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 estimated to take 8 months. Average 22 working days per month = 176 working days.

Off-road Equipment -

Grading - Graded area based on equipment used

Consumer Products - No consumer products will be used

Area Coating - No parking lot area

Landscape Equipment - No landscape equipment

Construction Off-road Equipment Mitigation -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblAreaCoating | Area_Parking | 54886 | 0 |

Tulare ID Okieville Basin - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

| | | | |
|---|---|---|---|
| tblConstDustMitigation | WaterUnpavedRoadVehicleSpeed | 0 | 15 |
| tblConstructionPhase | NumDays | 35.00 | 176.00 |
| tblConstructionPhase | PhaseEndDate | 4/1/2022 | 9/5/2022 |
| tblConstructionPhase | PhaseStartDate | 2/12/2022 | 1/1/2022 |
| tblConsumerProducts | ROG_EF | 2.14E-05 | 0 |
| tblConsumerProducts | ROG_EF_Degreaser | 3.542E-07 | 0 |
| tblConsumerProducts | ROG_EF_PesticidesFertilizers | 5.152E-08 | 0 |
| tblGrading | AcresOfGrading | 176.00 | 105.00 |
| tblLandscapeEquipment | NumberSummerDays | 180 | 0 |
| tblOffRoadEquipment | LoadFactor | 0.38 | 0.38 |
| tblOffRoadEquipment | LoadFactor | 0.41 | 0.41 |
| tblOffRoadEquipment | OffRoadEquipmentType | | Dumpers/Tenders |
| tblOffRoadEquipment | OffRoadEquipmentType | | Excavators |
| tblOffRoadEquipment | OffRoadEquipmentType | | Graders |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 2.00 |
| tblProjectCharacteristics | UrbanizationLevel | Urban | Rural |

## 2.0 Emissions Summary

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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 | | | | | |
| 2022 | 0.1281 | 1.3238 | 0.9796 | 2.3500e-003 | 0.0720 | 0.0477 | 0.1197 | 0.0104 | 0.0441 | 0.0545 | 0.0000 | 205.4037 | 205.4037 | 0.0604 | 4.1000e-004 | 207.0373 |
| **Maximum** | **0.1281** | **1.3238** | **0.9796** | **2.3500e-003** | **0.0720** | **0.0477** | **0.1197** | **0.0104** | **0.0441** | **0.0545** | **0.0000** | **205.4037** | **205.4037** | **0.0604** | **4.1000e-004** | **207.0373** |

### 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 | | | | | |
| 2022 | 0.1281 | 1.3238 | 0.9796 | 2.3500e-003 | 0.0414 | 0.0477 | 0.0891 | 7.0500e-003 | 0.0441 | 0.0512 | 0.0000 | 205.4034 | 205.4034 | 0.0604 | 4.1000e-004 | 207.0370 |
| **Maximum** | **0.1281** | **1.3238** | **0.9796** | **2.3500e-003** | **0.0414** | **0.0477** | **0.0891** | **7.0500e-003** | **0.0441** | **0.0512** | **0.0000** | **205.4034** | **205.4034** | **0.0604** | **4.1000e-004** | **207.0370** |

| | 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** | **42.52** | **0.00** | **25.58** | **31.95** | **0.00** | **6.06** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

Tulare ID Okieville Basin - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

| Quarter | Start Date | End Date | Maximum Unmitigated ROG + NOX (tons/quarter) | Maximum Mitigated ROG + NOX (tons/quarter) |
|---|---|---|---|---|
| 1 | 1-1-2022 | 3-31-2022 | 0.5306 | 0.5306 |
| 2 | 4-1-2022 | 6-30-2022 | 0.5364 | 0.5364 |
| 3 | 7-1-2022 | 9-30-2022 | 0.3949 | 0.3949 |
| | | Highest | 0.5364 | 0.5364 |

## 2.2 Overall Operational

### Unmitigated Operational

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

## 2.2 Overall Operational

**Mitigated Operational**

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

| | 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 | Grading | Grading | 1/1/2022 | 9/5/2022 | 5 | 176 | |

**Acres of Grading (Site Preparation Phase): 0**

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**Acres of Grading (Grading Phase): 105**

**Acres of Paving: 21**

**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 |
|---|---|---|---|---|---|
| Grading | Dumpers/Tenders | 2 | 8.00 | 16 | 0.38 |
| Grading | Excavators | 2 | 8.00 | 158 | 0.38 |
| Grading | Graders | 2 | 8.00 | 187 | 0.41 |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|
| Grading | 6 | 15.00 | 0.00 | 0.00 | 16.80 | 6.60 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

## 3.2 Grading - 2022

### 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 | | | | | 0.0557 | 0.0000 | 0.0557 | 6.0100e-003 | 0.0000 | 6.0100e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.1215 | 1.3185 | 0.9220 | 2.2100e-003 | | 0.0476 | 0.0476 | | 0.0440 | 0.0440 | 0.0000 | 192.0287 | 192.0287 | 0.0600 | 0.0000 | 193.5288 |
| **Total** | **0.1215** | **1.3185** | **0.9220** | **2.2100e-003** | **0.0557** | **0.0476** | **0.1033** | **6.0100e-003** | **0.0440** | **0.0500** | **0.0000** | **192.0287** | **192.0287** | **0.0600** | **0.0000** | **193.5288** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 6.6000e-003 | 5.3300e-003 | 0.0576 | 1.4000e-004 | 0.0164 | 9.0000e-005 | 0.0164 | 4.3500e-003 | 8.0000e-005 | 4.4300e-003 | 0.0000 | 13.3749 | 13.3749 | 3.9000e-004 | 4.1000e-004 | 13.5085 |
| **Total** | **6.6000e-003** | **5.3300e-003** | **0.0576** | **1.4000e-004** | **0.0164** | **9.0000e-005** | **0.0164** | **4.3500e-003** | **8.0000e-005** | **4.4300e-003** | **0.0000** | **13.3749** | **13.3749** | **3.9000e-004** | **4.1000e-004** | **13.5085** |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

## 3.2 Grading - 2022

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0251 | 0.0000 | 0.0251 | 2.7100e-003 | 0.0000 | 2.7100e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.1215 | 1.3185 | 0.9220 | 2.2100e-003 | | 0.0476 | 0.0476 | | 0.0440 | 0.0440 | 0.0000 | 192.0285 | 192.0285 | 0.0600 | 0.0000 | 193.5286 |
| **Total** | **0.1215** | **1.3185** | **0.9220** | **2.2100e-003** | **0.0251** | **0.0476** | **0.0726** | **2.7100e-003** | **0.0440** | **0.0467** | **0.0000** | **192.0285** | **192.0285** | **0.0600** | **0.0000** | **193.5286** |

### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 6.6000e-003 | 5.3300e-003 | 0.0576 | 1.4000e-004 | 0.0164 | 9.0000e-005 | 0.0164 | 4.3500e-003 | 8.0000e-005 | 4.4300e-003 | 0.0000 | 13.3749 | 13.3749 | 3.9000e-004 | 4.1000e-004 | 13.5085 |
| **Total** | **6.6000e-003** | **5.3300e-003** | **0.0576** | **1.4000e-004** | **0.0164** | **9.0000e-005** | **0.0164** | **4.3500e-003** | **8.0000e-005** | **4.4300e-003** | **0.0000** | **13.3749** | **13.3749** | **3.9000e-004** | **4.1000e-004** | **13.5085** |

Tulare ID Okieville Basin - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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 Non-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 Non-Asphalt Surfaces | 14.70 | 6.60 | 6.60 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |

### 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other Non-Asphalt Surfaces | 0.491968 | 0.051162 | 0.166648 | 0.188672 | 0.034593 | 0.008513 | 0.012315 | 0.015417 | 0.000659 | 0.000471 | 0.024128 | 0.001541 | 0.003914 |

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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 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 Non-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 Non-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 Applied**

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Other Non-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 Non-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 Applied**

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

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.0000 | 0.0000 | 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** |

Tulare ID Okieville Basin - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

## 6.2 Area by SubCategory

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.0000 | 0.0000 | 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** |

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

Tulare ID Okieville Basin - Tulare County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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 Non-Asphalt Surfaces | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

### 7.2 Water by Land Use

**Mitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Other Non-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 Applied**

## 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Other Non-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 Non-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 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

# Appendix B: Biological Evaluation

# Biological Evaluation

TULARE IRRIGATION DISTRICT

OKIEVILLE BASIN PROJECT

NOVEMBER 12, 2021

Shaylea M. Stark, Biologist
PROVOST & PRITCHARD CONSULTING GROUP | 455 W. FIR ST, 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

# I. Introduction

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

## Project Description

The Project is located at the intersection of Road 48 and Avenue 236 in the western portion of Tulare County, California, northeast of the community of Okieville, a California Disadvantaged Community (see **Figure 1** and **Figure 2**). The Project's Area of Potential Effect (APE) includes a 21-acre parcel of land currently used for wheat and Sudan grass agriculture and includes an additional surveyed buffer of 50 feet (see **Figure 3**). The surrounding lands are in agricultural use, yielding pistachios, almonds, wheat, and corn.

The Project includes construction of a 21-acre recharge facility and supporting infrastructure. This would require clearing the APE of any remaining vegetation, removal of an approximately 0.15-acre pole barn, 100,000 cubic yards of basin earthwork, and the installation of 2,500 feet of linear fence. The Project would increase the availability of wet-year recharge capacity, provide water quality benefits, and strengthen the upper unconfined groundwater aquifer for the community of Okieville. Approximately 80 local households are solely reliant on this groundwater as a drinking water supply.

## Report Objectives

Construction activities could potentially damage biological resources or modify habitats that are crucial for sensitive plant and wildlife species. Development would be regulated by State or federal agencies, and/or addressed by local regulatory agencies.

This report addresses issues related to the following:

1. The presence of sensitive biological resources onsite, or with the potential to occur onsite.
2. The federal, State, and local regulations regarding these resources.
3. Mitigation measures that would be required to reduce the magnitude of anticipated impacts and/or comply with permit requirements of state and federal resource agencies.

Therefore, the objectives of this report are:

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

## Study Methodology

A reconnaissance-level field survey of the APE (**Figure 3**) and surrounding area was conducted on October 19, 2021, by Provost & Pritchard biologists, Jacob Rogers and Shaylea Stark. The survey consisted of walking and driving the APE while identifying and noting plant and animal species encountered, biological habitats and communities, and land uses. Further, the site and surrounding areas were assessed for suitable habitats of various wildlife species.

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

The field investigation did not include focused surveys for special status species. The field survey conducted included the appropriate level of detail to assess the significance of potential impacts to sensitive biological resources resulting from the Project. Furthermore, the field survey was sufficient to generally describe those features of the Project that could be subject to the jurisdiction of federal and/or State agencies, such as the United States Army Corps of Engineers (USACE), CDFW, Regional Water Quality Control Board (RWQCB) and SWRCB and used to support CEQA documents.

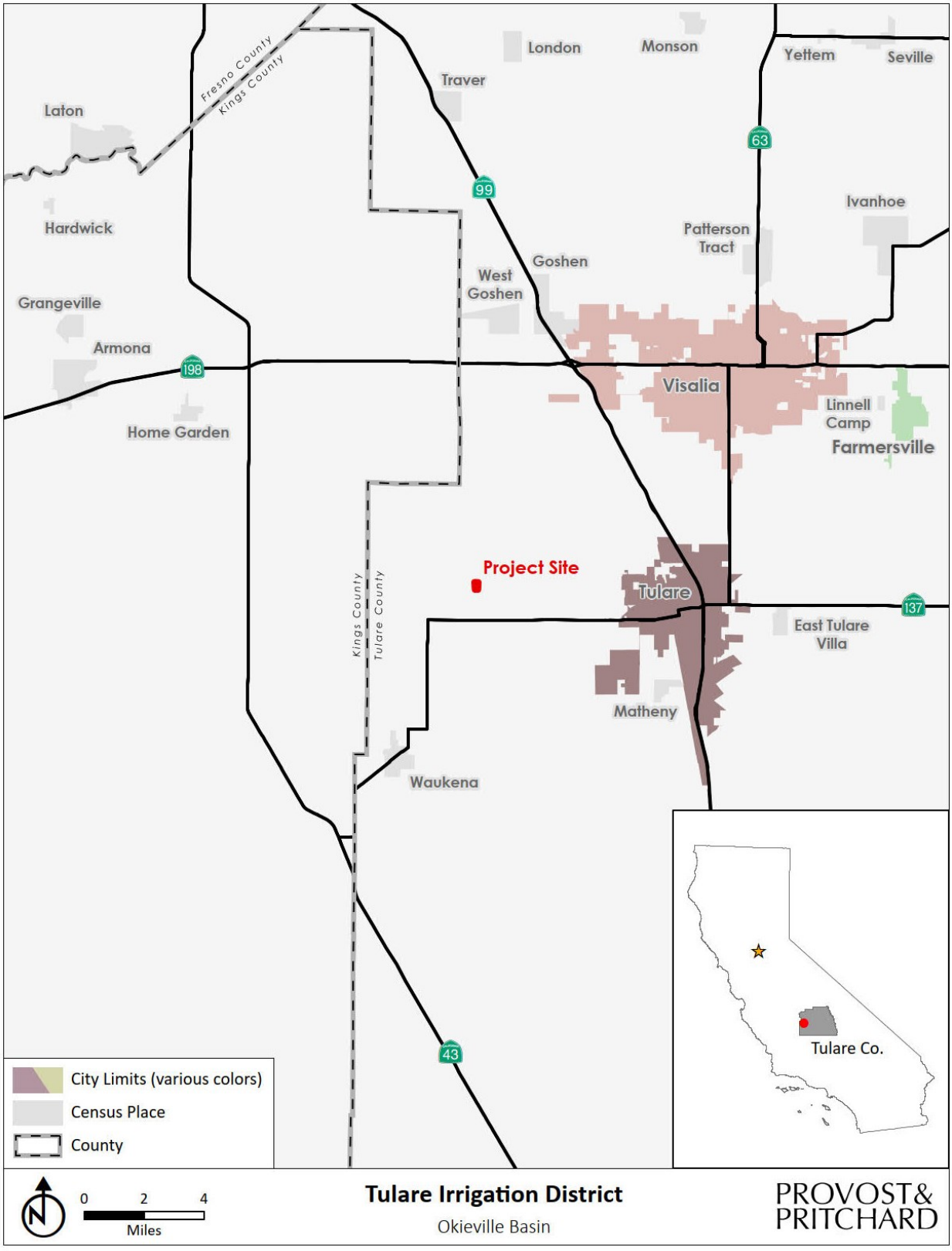



***Figure 1. Regional Location Map***

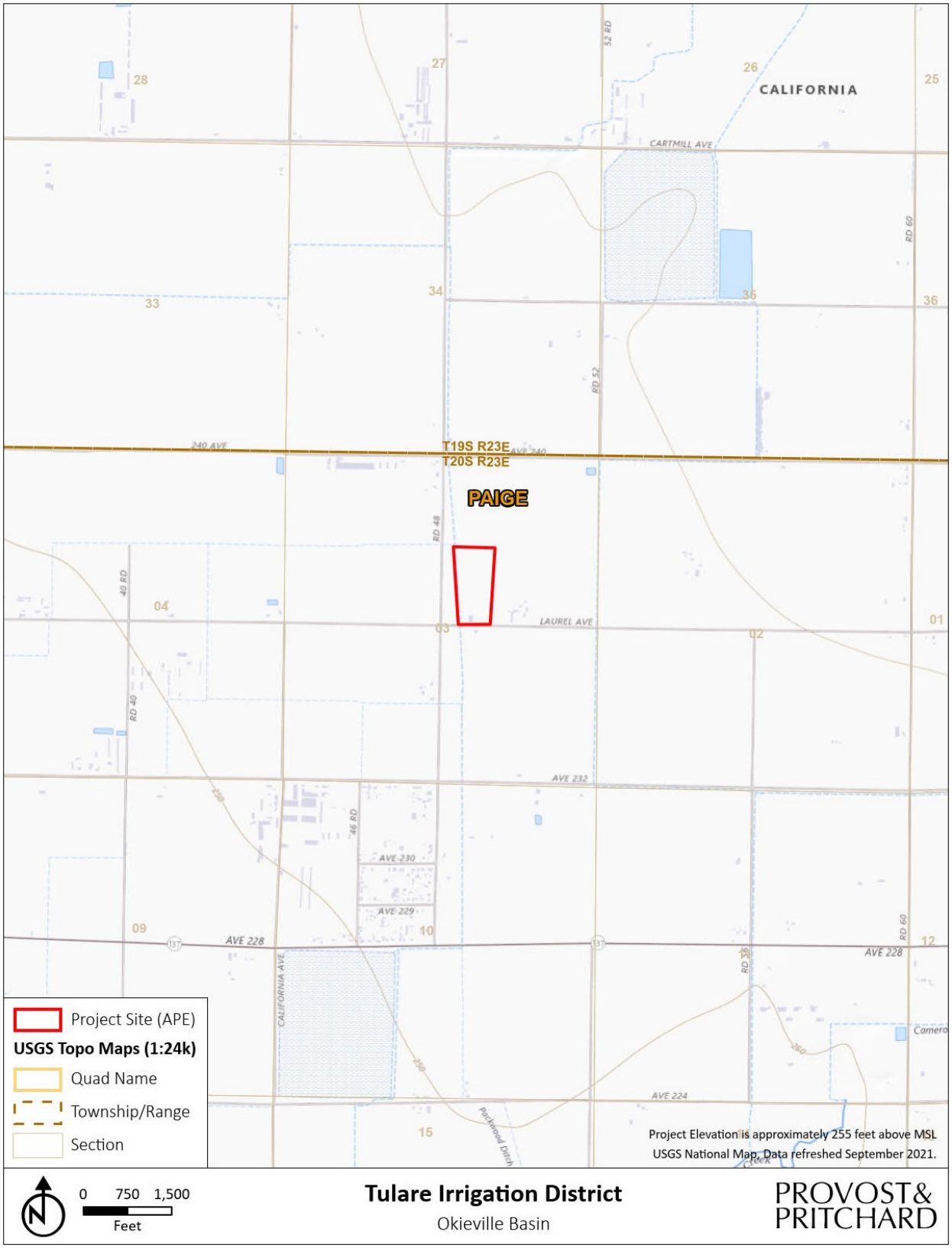



*Figure 2. Topographic Quadrangle Map*

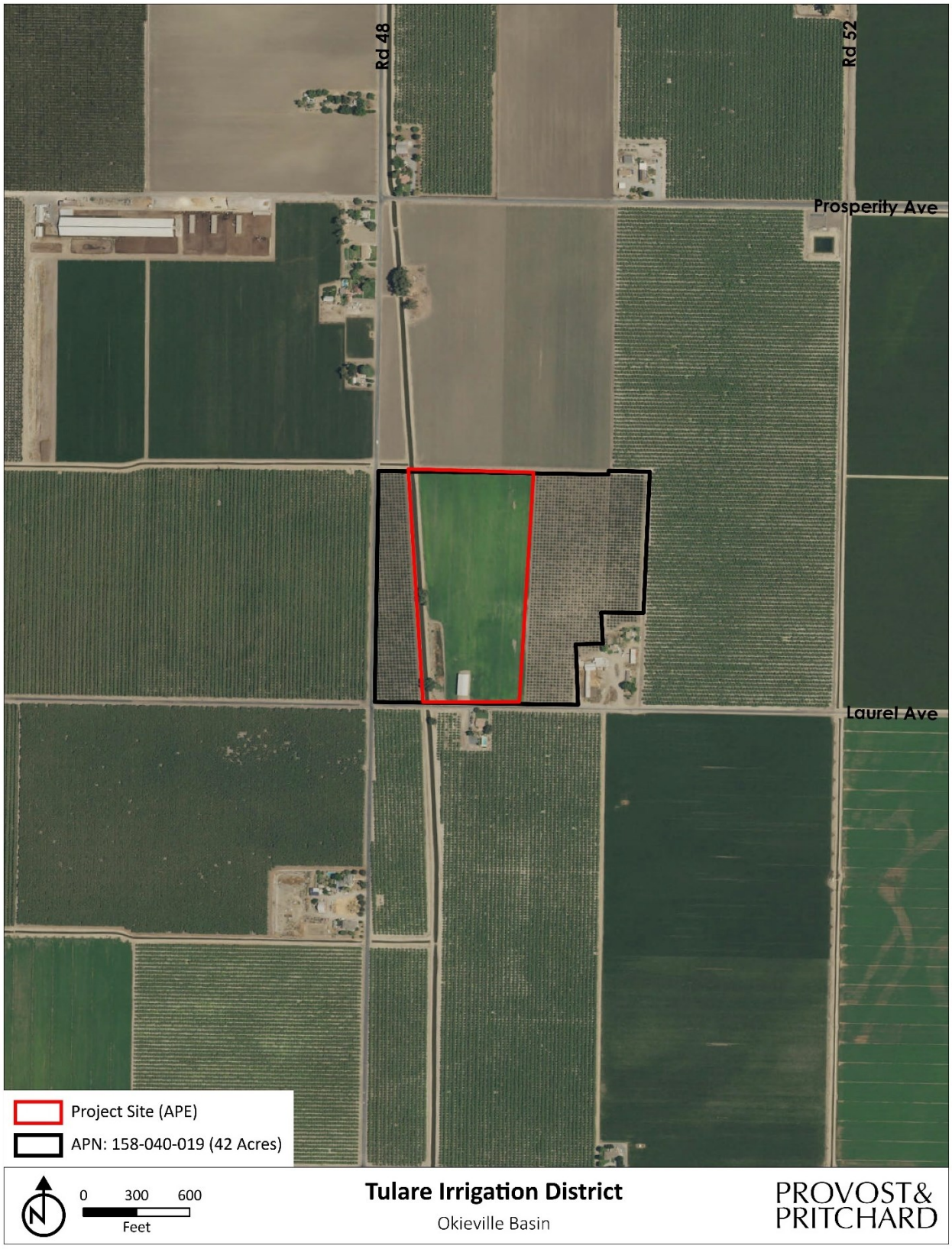



***Figure 3. Area of Potential Effect Map***

# II. Existing Conditions

## Regional Setting

The Project is located in southwest Tulare County, California, northeast of Waukena and southwest of Tagus, at the intersection of Road 48 and Avenue 236 (**Figure 1** and **Figure 2**). The land surrounding the APE is agricultural land with a couple houses on the various properties. This area is within the San Joaquin Valley and lies west of the foothills of the Sierra Nevada Mountain Range.

Most of the San Joaquin Valley experiences a Mediterranean climate. Warm, dry summers are followed by cool, moist winters. Summer temperatures range from 70 to 80 degrees Fahrenheit, but often exceeds 90 degrees Fahrenheit Winter minimum temperatures are near 40 degrees Fahrenheit. Near the Project, the average annual precipitation is approximately 10 inches, falling mainly from November to March.

The Project site lies within the Middle Branch Cross Creek watershed; Hydrologic Unit Code (HUC): 1803000714 and a single subwatershed: Packwood Creek subwatershed; HUC: 180300071401.

Photographs of the APE are available in **Appendix A.**

## Project Site

### *Ruderal/Agricultural*

As illustrated in **Figure 3**, the APE includes 21 acres of formerly agricultural, but now ruderal land. The APE is surrounded by expansive acres of diverse agriculture in every direction. The vast agricultural landscape is heavily disturbed, offers little value to wildlife, and creates unsuitable habitat for many native species.

The APE is comprised of bare ground, sparse herbaceous vegetation, three large Valley Oak trees, a dry ditch, and a pavilion covering hay. Most of the APE experiences regular discing for agricultural purposes. Although limited, vegetation within the APE includes Valley Oaks (*Quercus lobata*), Alkali Heath (*Frankenia salina*), Nettle leaved goosefoot (*Chenopodiastrum murale*), Horseweed (*Erigeron canadensis*), Barnyard grass (*Echinochloa* sp.), and Willow (*Salix* sp.). Representative photographs of the site at the time of the survey are presented in **Appendix A** at the end of this document.

The survey of the APE resulted in the observation of bird species including House Finch (*Haemorhous mexicanus*), Killdeer (*Charadrius vociferus),* Red-tailed Hawk (*Buteo jamaicensis*), Black Phoebe (*Sayornis nigricans*), American Crow (*Corvus brachyrhynchos*), Great Blue Heron (*Ardea herodias*), and Turkey Vulture (*Cathartes aura*).

## Soils

One soil mapping unit representing one soil type was identified within the APE. The soils and their core properties are displayed in the **Table 1** below, according to the Major Land Resource Area of California (MLRA) 19 map area. The one soil unit is primarily used for agriculture in the form of irrigated cropland and annual pasture, uncultivated areas generally host annual grasses and herbaceous plants.

*Table 1. Soils of the Area of Potential Effect.*

| Soil | Soil Map Unit | Percent of APE | Hydric Unit | Hydric Minor Units | Drainage | Permeability | Runoff |
|---|---|---|---|---|---|---|---|
| Gambogy | Loam, 0 to 1 percent slopes | 100% | No | No | Poorly drained | Moderately slow permeability | Negligible runoff |

The major soil mapping unit was not identified as hydric. Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions such that under sufficiently wet conditions, hydrophytic vegetation can be supported.

## Natural Communities of Special Concern

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

According to CNDDB, there are no recorded observations of natural communities of special concern with potential to occur within the APE or vicinity. Additionally, no natural communities of special concern were observed during the biological survey.

## Designated Critical Habitat of the APE

The USFWS often designates areas of "Critical Habitat" when it lists species as threatened or endangered. Critical Habitat is a specific geographic area that contains features essential for the conservation of a threatened or endangered species and would require special management or protection. According to CNDDB and IPaC, designated critical habitat is absent from the APE and vicinity.

## Wildlife Movement Corridors

Wildlife movement corridors are routes that animals regularly and predictably follow during seasonal migration, dispersal from native ranges, daily travel within home ranges, and inter-population movements. Movement corridors in California are typically associated with valleys, ridgelines, and rivers and creeks supporting riparian vegetation.

The APE does not contain features that would be likely to function as wildlife movement corridors. Further, the APE is located in an area where it is possible to be used by animals but is not ideal due to the heavy disturbance of agricultural activities, which would discourage dispersal and migration.

## Special Status Plants and Animals

California contains several "rare" plant and animal species. In this context, rare is defined as species known to have low populations or limited distributions. As human population grows, urban expansion encroaches on the already-limited suitable habitat. This results in sensitive species becoming increasingly more vulnerable to extirpation. State and federal regulations have provided CDFW and USFWS with a mechanism for conserving and protecting the diversity of plant and animal species native to California. Numerous native plants and animals have been formally designated as "threatened" or "endangered" under State and federal endangered species legislation. Other formal designations include "candidate" for listing or "species of special concern" by CDFW.

The CNPS has a list of native plants considered rare, threatened, or endangered. Collectively these plants and animals are referred to as "special status species."

A thorough search of CNDDB for published accounts of special status plant and animal species was conducted for the *Paige* 7.5-minute quadrangle, which contains the entire Project, and for the eight surrounding quadrangles: *Remnoy*, *Goshen*, *Visalia*, *Tulare*, *Tipton*, *Taylor Weir*, *Corcoran*, and *Waukena*. **Figure 2** shows the Project's 7.5-minute quadrangle, according to United States Geological Survey Topographic Maps. These species, and their potential to occur within the APE, are listed in **Table 2** and **Table 3** on the following pages. Raw data obtained from CNDDB is available in **Appendix B.** All relevant sources of information, as discussed in the *Study Methodology* section of this report, as well field observations, were used to determine if any special status species are known to be within the APE.

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

| *Species* | *Status* | *Habitat* | *Occurrence on Project Site* |
|---|---|---|---|
| **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.** Blunt-nosed leopard lizard or suitable habitat with mammal burrows were not observed during the biological survey. The APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species. The last recorded observation of this species was over 45 years ago, 11 miles west of the APE. |
| **Burrowing Owl (*Athene cunicularia*)** | CSC | Resides in open, dry annual or perennial grasslands, deserts, and scrublands with low growing vegetation. Nests underground in existing burrows created by mammals, most often ground squirrels. | **Unlikely.** The disturbed habitats of the APE are unsuitable for this species. Nesting and foraging habitat is absent due to incompatible vegetative cover and a lack of fossorial mammal burrows. At most, a Burrowing Owl individual could potentially pass over or through the site but would not be expected to nest or forage within or adjacent to the APE. The presence of raptors in the vicinity makes this site generally unsuitable for Burrowing Owl. There were four observations of this species in the region but the most recent was 5 years ago, 8.5 miles southwest from the APE. |
| **California red-legged frog (*Rana draytonii*)** | FT, CSC | Inhabits perennial rivers, creeks, and stock ponds with vegetative cover within the Coast Range and northern Sierra foothills. | **Absent.** The APE does not provide suitable habitat for this species and is outside of its current known range. The closest stream, Packwood Creek, is 1.5 miles away. There have been no recorded observations of this species in the vicinity of the APE. |

| *Species* | *Status* | *Habitat* | *Occurrence on Project Site* |
|---|---|---|---|
| California tiger salamander (*Ambystoma californiense*) | FT, CT, CWL | Requires vernal pools or seasonal ponds for breeding and small mammal burrows for aestivation. Generally found in grassland and oak savannah plant communities in central California from sea level to 1500 feet in elevation. | **Absent.** The APE does not provide suitable habitat for this species and is outside of its current known range. There are no fossorial mammal burrows, and the nearest vernal pool is over 4 miles from the APE. There have been no recorded observations of this species in the vicinity of the APE. |
| 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.** The disturbed habitats of the APE are unsuitable for this species. A crotch bumblebee could potentially pass through the area, but nesting and foraging habitat is absent due to agricultural land use. The last recorded observation of this species was 60 years ago, 12 miles northeast of the APE. |
| Delta smelt (Hypomesus transpacificus) | FT, CE | This pelagic and euryhaline species is Endemic to the Sacramento-San Joaquin River Delta, upstream through Contra Costa, Sacramento, San Joaquin, and Solano Counties. | **Absent.** Suitable perennial aquatic habitat for this species is absent from the APE and surrounding lands. There have been no recorded observations of this species in the vicinity of the APE. |
| Giant gartersnake (*Thamnophis gigas*) | FT, CT | Occurs in marshes, sloughs, drainage canals, irrigation ditches, rice fields, and adjacent uplands. Prefers locations with emergent vegetation for cover and open areas for basking. This species uses small mammal burrows adjacent to aquatic habitats for hibernation in the winter and to escape from excessive heat in the summer. | **Absent**. The APE and surrounding areas do not provide suitable habitat for this species and is outside of its current known range. There have been no recorded observations of this species in the vicinity of the APE. |
| Loggerhead shrike (*Lanius ludovicianus*) | CSC | Frequents open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low herbaceous cover. In the Central Valley, nests in riparian areas, desert scrub, and agricultural hedgerows. | **Absent.** Loggerhead Shrike or suitable habitat were not observed during the biological survey. The APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species. The last recorded observation of this species was over 100 years ago, 13 miles southeast of the APE. |
| 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. | **Absent.** Monarch butterflies or suitable habitat were not observed during the biological survey. The APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species and lack the vegetation required to support this species. There have been no recorded observations of this species in the vicinity of the APE. |
| Mountain plover (*Charadrius montanus*) | CSC | Breeds on open plains at moderate elevations. Winters in short-grass plains and fields, plowed or fallow fields, and sandy deserts. Prefers flat, bare ground with burrowing rodents. | **Unlikely**. Mountain Plover or suitable habitat were not observed onsite during the biological survey. The APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species and lack the |

| *Species* | *Status* | *Habitat* | *Occurrence on Project Site* |
|---|---|---|---|
| | | | prey required to support this species. The last recorded observation of this species was over 30 years ago, 9 miles south of the APE. |
| Northern California legless lizard (*Anniella pulchra*) | CSC | Found primarily underground, burrowing in loose, sandy soil. Forages in loose soil and leaf litter during the day. Occasionally observed on the surface at dusk and night. | **Absent.** Northern California legless lizards or suitable habitat were not observed during the biological survey. The APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species. The last recorded observation of this species was over 85 years ago, 12 miles northeast of the APE. |
| San Joaquin kit fox (*Vulpes macrotis mutica*) | FE, CT | Underground dens with multiple entrances in alkali sink, valley grassland, and woodland in valleys and adjacent foothills. | **Unlikely.** San Joaquin kit fox or suitable habitat with burrows were not observed during the biological survey. The APE and surrounding areas are frequently cultivated and disced agricultural lands that are unsuitable for this species. There are 24 recorded observations of this species in the vicinity of the APE; however, only one of these observations occurred within the past 30 years, 5.5 miles east of the APE. |
| 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.** Swainson's Hawks are relatively common in this area of the Central Valley. There are 54 recorded observations of this species in the vicinity of the APE, 29 of which were in the last 10 years. The three large Valley oak trees on site and adjacent eucalyptus trees provide suitable nesting habitat, although no nests were observed at the time of the survey. The ruderal field and surrounding agricultural fields provides marginal foraging habitat. The nearest recorded observation was 5 years ago, less than 1 mile southeast of the APE. |
| Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*) | FE, CE | Burrows in soil. Often found in grassland and shrubland. | **Unlikely.** Tipton kangaroo rat individuals or signs were not observed during the biological survey. There were no fossorial mammal burrows seen and the highly disturbed nature of the APE and surrounding lands which experience regular discing are unsuitable for this species. The nearest recorded observation of this species in the vicinity was reported in undisturbed grassland habitats of Pixley National Wildlife Refuge, approximately 15 miles south of the APE. |
| Tricolored Blackbird (*Agelaius tricolor*) | CT, CSC | Nests colonially near fresh water in dense cattails or tules, or in thickets of riparian shrubs. Forages in grassland and cropland. Large colonies are often found on dairy farm forage fields. | **Unlikely.** Tricolored Blackbird individuals were not observed during the biological survey. Suitable nesting habitat and wetland vegetation is absent and foraging habitat is marginal. The nearest recorded observation of this species was 7 years ago, 4 miles west of the APE. |

| *Species* | *Status* | *Habitat* | *Occurrence on Project Site* |
|---|---|---|---|
| Vernal pool fairy shrimp (*Branchinecta lynchi*) | FT | Occupies vernal pools, clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools. | **Absent.** Suitable soils and vernal pool habitat are absent from the APE. The nearest recorded observation of this species was over 20 years ago, 4.5 miles southwest of the APE. |
| Western mastiff bat (*Eumops perotis californicus*) | CSC | Found in open, arid to semi-arid habitats, including dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas, where it feeds on insects in flight. Roosts most commonly in crevices in cliff faces but may also use high buildings and tunnels. | **Unlikely.** Western mastiff bats could fly over the area and forage, but suitable roosting habitat is absent from the APE. The nearest recorded observation of this species was over 20 years ago, 9.5 miles northeast from the APE. |
| Western pond turtle (*Emys marmorata*) | CSC | An aquatic turtle of ponds, marshes, slow-moving rivers, streams, and irrigation ditches with riparian vegetation. Requires adequate basking sites and sandy banks or grassy open fields to deposit eggs. | **Absent.** Western pond turtle individuals or suitable habitat were not observed during the biological survey. The APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species. There are no irrigation ditches with water and the nearest stream, Packwood Creek, is 1.5 miles away from the APE. Breeding habitat is absent from the APE and surrounding lands. The last recorded observation of this species was over 140 years ago, 12 miles northeast of the APE. |
| Western spadefoot (*Spea hammondii*) | CSC | Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Vernal pools or temporary wetlands, lasting a minimum of three weeks, which do not contain bullfrogs, fish, or crayfish are necessary for breeding. | **Absent.** Western spadefoot individuals or suitable habitat were not observed during the biological survey. The APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species. The nearest stream, Packwood creek, is 1.5 miles away from the APE and the nearest recorded observation of this species was over 15 years ago, 10 miles north of the APE. |
| 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 APE and surrounding areas are frequently cultivated agricultural lands that are unsuitable for this species. There is no suitable nesting habitat and there are only two locations where this species is known to breed. One is over 190 miles northwest from the APE and the other is 65 miles southeast from the APE. The nearest recorded observation of this species was over 100 years ago, 12 miles northeast of the APE and is presumed to be extirpated. |

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

| *Species* | *Status* | *Habitat* | *Occurrence on Project Site* |
|---|---|---|---|
| Alkali-sink goldfields (*Lasthenia chrysantha)* | CNPS 1B | This species is found in vernal pool and wet saline flat habitats. Occurrences are documented in the San Joaquin and Sacramento Valleys at elevations below 656 feet. Bloom period is from February - April. | **Absent.** Vernal pool soils and habitat are absent from the APE and disturbance in the site makes conditions unsuitable for this species. The nearest recorded observation was over 120 years ago, 7 miles east of the APE and thought to be possibly extirpated. The most recent observation was over 55 years ago, 10 miles northwest of the APE. |
| Brittlescale (*Atriplex depressa*) | CNPS 1B | This species is found in the San Joaquin Valley and Sacramento Valley in alkaline or clay soils, typically in meadows or annual grassland at elevations below 1050 feet. It is sometimes associated with vernal pools. Bloom period is from June–October. | **Absent.** Vernal pool soils and habitat are absent and disturbance from agriculture makes the APE unsuitable for this species. The only result within the vicinity was observed over 140 years ago, 12 miles northeast of the APE. |
| California alkali grass (*Puccinellia simplex*) | CNPS 1B | This species is 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 3000 feet. Bloom period is from March–May. | **Absent.** Required soils and habitat are absent and disturbance from agriculture makes the APE unsuitable for this species. The most recent observation of this species was over 75 years ago, 10 miles northwest of the APE. |
| California jewelflower (*Caulanthus californicus*) | FE, CE, CNPS 1B | This species is found in the San Joaquin Valley and Western Transverse Ranges in sandy soils. It occurs on flats and slopes, generally in non-alkaline grassland at elevations between 230 feet and 6100 feet. Bloom period is from February–April. | **Absent.** Required soils and habitat are absent and disturbance from agriculture makes the APE unsuitable for this species. The only recorded observation of this species in the region was over 85 years ago, 7 miles east of the APE and is presumed to be extirpated. |
| 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 1600 feet. Bloom period is from September – May. | **Absent.** Required soils and habitat are absent and disturbance from agriculture makes the APE unsuitable for this species. The only recorded observation of this species in the vicinity was over 125 years ago, 12 miles northeast of the APE. |
| Earlimart orache (*Atriplex cordulata var. erecticaulis)* | CNPS 1B | This species is found in the San Joaquin Valley in saline or alkaline soils, typically within valley and foothill grassland at elevations below 375 feet. Bloom period is from August–September. | **Absent.** Required habitat is absent and disturbance from agriculture makes the APE unsuitable for this species. The nearest recorded observation was 19 years ago, 5.5 miles west of the APE. The most recent recorded observation was 10 years ago, 8.5 miles southwest of the APE. |
| Heartscale (*Atriplex cordulata var. cordulata*) | CNPS 1B | This species is found in the San Joaquin Valley and Sacramento Valley in saline or alkaline soils within shadscale scrub, valley grassland, and wetland-riparian communities at elevations below 230 feet. Bloom period is from June–July. | **Absent.** Required habitat is absent and disturbance from agriculture makes the APE unsuitable for this species. The only recorded observation in the vicinity was over 80 years ago and 8.5 miles north of the APE. |

| *Species* | *Status* | *Habitat* | *Occurrence on Project Site* |
|---|---|---|---|
| Lesser saltscale (*Atriplex minuscula*) | CNPS 1B | This species is 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. Bloom period is from April–October. | **Absent**. Required habitat is absent and disturbance from agriculture makes the APE unsuitable for this species. The most recent observation of this species was 10 years ago, 8 miles southwest of the APE. |
| Recurved larkspur (*Delphinium recurvatum*) | CNPS 1B | This species occurs in poorly drained, fine, alkaline soils in grassland and alkali scrub communities at elevations between 100 feet and 2600 feet. Bloom period is from March–June. | **Absent**. Required habitat is absent and disturbance from agriculture makes the APE unsuitable for this species. The most recent observation of this species was 74 years ago, 15 miles southeast of the APE. The nearest observation of this species was 100 years ago, 9 miles west of APE. |
| San Joaquin adobe sunburst (*Pseudobahia peirsonii*) | FT, CE, CNPS 1B | This species is found in the San Joaquin Valley and the Sierra Nevada Foothills in bare dark clay soils in valley and foothill grassland and cismontane woodland communities at elevations between 325 feet and 2950 feet. Bloom period is from March–May. | **Absent**. Required soils and habitat are absent and disturbance from agriculture makes the APE unsuitable for this species. The only recorded observation of this species was over 120 years ago, 7 miles east of the APE. It is presumed to be extirpated. |
| Subtle orache (*Atriplex subtilis)* | CNPS 1B | This species is found in the San Joaquin Valley in saline depressions in alkaline soils within valley and foothill grassland communities at elevations below 330 feet. Bloom period is from June–October. | **Absent**. Required habitat is absent and disturbance from agriculture makes the APE unsuitable for this species. The most recent observation of this species was 10 years ago, 8.5 miles southwest of the APE. |

**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 |
| FPE | Federally Endangered (Proposed) |
| FPT | Federally Threatened (Proposed) |
| FC | Federal Candidate |
| CE | California Endangered |
| CT | California Threatened |
| CCT | California Threatened (Candidate) |
| CFP | California Fully Protected |
| CSC | California Species of Concern |
| CWL | California Watch List |
| CCE | California Endangered (Candidate) |
| CR | California Rare |

**CNPS LISTING**

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

# III. Impacts and Mitigation

## Significance Criteria

### *CEQA*

General plans, area plans, and specific projects are subject to the provisions of CEQA. The purpose of CEQA is to assess the impacts of proposed projects on the environment prior to project implementation. Impacts to biological resources are just one type of environmental impact assessed under CEQA and vary from project to project in terms of scope and magnitude. Projects requiring removal of vegetation would result in the mortality or displacement of animals associated with this vegetation. Animals adapted to humans, roads, buildings, and pets would replace those species formerly occurring on a site. Plants and animals that are State and/or federally listed as threatened or endangered would be destroyed or displaced. Sensitive habitats such as wetlands and riparian woodlands would be altered or destroyed. Such impacts would be considered either "significant" or "less than significant" under CEQA. According to CEQA, Statute and Guidelines (AEP 2012), "significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest. Specific project impacts to biological resources would be considered "significant" if they would:

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

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

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

# Relevant Goals, Policies, and Laws

## Tulare County General Plan

The Tulare County General Plan 2030 Agriculture and Environmental Resources Management Elements contain the following goals and policies related to the Project:

### 3. Agriculture

*AG-1.7* Preservation of Agricultural Lands: The County would promote the preservation of its agricultural economic base and open space resources through the implementation of resource management programs such as the Williamson Act, Rural Valley Lands Plan, Foothill Growth Management Plan or similar types of strategies and the identification of growth boundaries for all urban areas located in the County.

*AG-1.17* Agricultural Water Resources: The County would seek to protect and enhance surface water and groundwater resources critical to agriculture.

AG-1.10 Extension of Infrastructure into Agricultural Areas: The County would oppose extension of urban services, such as sewer lines, water lines, or other urban infrastructure, into areas designated for agriculture use unless necessary to resolve a public health situation. Where necessary to address a public health issue, services should be located in public rights-of-way in order to prevent interference with agricultural operations and to provide ease of access for operation and maintenance. Service capacity and length of lines should be designed to prevent the conversion of agricultural lands into urban/suburban uses.

### 4. Land Use

*C. Environment Component*

Principle 1: Protection Protect the supply and quality of urban, agricultural, and environmental water serving the County.

Principle 3: Recharge Identify and encourage the development of locations where water recharge systems can be developed to replenish water supplies.

### 7. Scenic Landscapes

*SL-1.3* Watercourses. The County would protect visual access to, and the character of, Tulare County's scenic rivers, lakes, and irrigation canals by:

1. Locating and designing new development to minimize visual impacts and obstruction of views of scenic watercourses from public lands and right-of-ways, and

2. Maintaining the rural and natural character of landscape viewed from trails and watercourses used for public recreation.

## Threatened and Endangered Species

Permits would be required from the USFWS and/or CDFW if activities associated with a project have the potential to result in the "take" of a species listed as threatened or endangered under the federal and/or state Endangered Species Acts. Take is defined by the State of California as "to hunt, pursue, catch, capture, or kill, or

attempt to hunt, pursue, catch, capture or kill" (California Fish and Game Code, Section 86). Take is more broadly defined by the federal Endangered Species Act to include "harm" (16 United States Code (USC), Section 1532(19), 50 Code of Federal Regulation (CFR), Section 17.3). CDFW and USFWS are responsible agencies under CEQA and National Environmental Policy Act (NEPA). Both agencies review CEQA and NEPA documents in order to determine the adequacy of their treatment of endangered species issues and to make project-specific recommendations for their conservation.

### Designated Critical Habitat

When species are listed as threatened or endangered, the USFWS often designates areas of "Critical Habitat" as defined by Section 3(5)(A) of the federal Endangered Species Act (ESA). Critical Habitat is a term defined in the ESA as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that would 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 would be affected.

### Migratory Birds

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

### Birds of Prey

Birds of prey are protected in California under provisions of Fish and Game Code (Section 3503.5), which states that it is unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks and eagles) or Strigiformes (owls), as well as their nests and eggs. The Bald Eagle and Golden Eagle are afforded additional protection under the federal Bald and Golden Eagle Protection Act (16 USC 668), which makes it unlawful to kill birds or their eggs.

### Nesting Birds

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

### *Wetlands and other "Jurisdictional Waters"*

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

- All waters which are currently used, or were used in the past, or would be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
- All impoundments of waters otherwise defined as waters of the United States under the definition;
- Tributaries of waters identified in paragraphs the bulleted items above.

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 would not assert jurisdiction over ditches excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

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

prepared. Such an agreement typically stipulates that certain measures would be implemented to protect the habitat values of the lake or drainage in question.

## Potentially Significant Project-Related Impacts and Mitigation

Species identified as candidate, sensitive, or special status species and their associated habitats in local or regional plans, policies, or regulations by CDFW or USFWS were not found and are not presumed to occur within the APE. However local and migratory birds would have the potential to be impacted by the Project and are identified below with corresponding mitigation measures.

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

The APE contains suitable nesting and/or foraging habitat for ground and tree nesting avian species. Killdeer were observed during the survey, these birds are known to build nests on bare ground or compacted dirt roads. Although, no nests were observed at the time of survey, trees near the APE have the potential to host nesting birds. The APE provides suitable nesting habitat for Swainson's Hawk and other raptors. Raptors could also potentially use the ruderal area and surrounding agricultural areas for foraging.

If birds are nesting within the APE during construction, they have the potential to be injured or killed by Project-related activities. In addition to the direct "take" of nesting birds, nesting birds within the APE or adjacent areas could be disturbed by Project-related activities resulting in nest abandonment. Projects that adversely affect the nesting success of raptors and migratory birds or result in the mortality of individual birds is considered a violation of State and federal laws and are considered a potentially significant impact under CEQA.

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

> **Mitigation Measure BIO-1a (*Avoidance*):** The Project's construction activities would occur, if feasible, between September 16 and January 31 (outside of nesting bird season) in an effort to avoid impacts to nesting birds.
>
> **Mitigation Measure BIO-1b (*Pre-construction Surveys*):** If activities must occur within nesting bird season (February 1 to September 15), a qualified biologist would conduct pre-construction surveys for Swainson's hawk nests onsite and within a 0.5-mile radius. This survey would be conducted in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee, 2000) or current guidance. The pre-construction survey would also provide a presence/absence survey for all other nesting birds within the APE and an additional 50 feet, no more than 7 days prior to the start of construction. All raptor nests would be considered "active" upon the nest-building stage.
>
> ***Mitigation Measure NEST-1c (Establish Buffers):*** On discovery of any active nests near work areas, the biologist would determine appropriate construction setback distances based on applicable CDFW and/or USFWS guidelines and/or the biology of the species in question. Construction buffers would be identified with flagging, fencing, or other easily visible means, and would be maintained until the biologist has determined that the nestlings have fledged and are no longer dependent on the nest.

# Less Than Significant Project-Related Impacts

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

Of the 19 regionally occurring special status species, 18 are considered absent from or unlikely to occur within the APE due to past or ongoing disturbance and/or the absence of suitable habitat. As explained in Table 2, the following 12 species were deemed absent from occurring within the APE: blunt-nosed leopard lizard, California Red-legged frog, California Tiger Salamander, Delta Smelt, Giant gartersnake, Loggerhead Shrike, Monarch butterfly, Northern California legless lizard, vernal pool fairy shrimp, western pond turtle, western spadefoot, and western yellow-billed cuckoo. The following seven species were deemed unlikely to occur within the APE: Burrowing Owl, Crotch bumble bee, Mountain Plover, San Joaquin kit fox, Tipton kangaroo rat, Tricolored Blackbird, and western mastiff bat. Since it is unlikely that these species would occur onsite, implementation of the Project should have no impact on these 18 special status species through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted.

## *Project-Related Impacts to Special Status Plant Species*

All 11 of the special status plant species documented in the APE are considered absent from or unlikely to occur within the APE due to past or ongoing disturbance and/or the absence of suitable habitat. As explained in Table 3, the following species were deemed absent from the APE: alkali-sink goldfields, brittlescale, California alkali grass, California jewelflower, California satintail, Earlimart orache, heartscale, lesser saltscale, recurved larkspur, San Joaquin adobe sunburst, and subtle orache. Since it is unlikely that these species would occur onsite, implementation of the Project would have no effect on individual plants or regional populations of these special status plant species. Mitigation measures are not warranted.

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

There are no CNDDB-designated "natural communities of special concern" recorded within the APE or surrounding lands. Mitigation measures are not warranted.

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

Potential Waters of the United States, riparian habitat, typical wetlands, vernal pools, lakes, or streams, and other sensitive natural communities were not observed onsite at the time of the biological survey. The nearest water source is Packwood Creek 1.5 miles northeast of the APE. Undoubtedly, some native wildlife species use the APE in the absence of preferred habitat. However, because of the aforementioned disturbance the APE represents relatively low-quality habitat for native plants and animals. Along the edge of the APE there is an agricultural ditch, which is an artificial water feature, and is typically not regulated by USACE or RWQCB as a jurisdictional water.

Additionally, since construction would involve ground disturbance over an area greater than one acre, the Project would be required to obtain a Construction General Permit under the Construction Storm Water Program administered by the RWQCB. A prerequisite for this permit is the development of a Storm Water Pollution Prevention Plan (SWPPP) to ensure construction activities do not adversely affect water quality.

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

The APE does not contain features that would be likely to function as wildlife movement corridors. Furthermore, the Project is located in an area regularly disturbed by humans which would discourage dispersal and migration. Therefore, the Project would have no impact on wildlife movement corridors. Mitigation measures are not warranted.

### *Project-Related Impacts to Critical Habitat.*

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

### *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 habitat conservation plans (HCPs) or a Natural Community Conservation Plan (NCCP) in the Project vicinity. Mitigation measures are not warranted.

# IV. References

Baldwin, B., Goldman, D. H., Keil, D., Patterson, R., Rosatti, T., & Wilken, D. (2012). *The Jepson Manual; Vascular Plants of California, second edition.* Berkeley: University of California Press. (Accessed October 2021).

Calflora. (2021). Retrieved from Calflora: Information on California Plants for Education, Research and Conservation: http://www.calflora.org/ (Accessed October 2021).

California Department of Fish and Wildlife. (2021, November). *California Natural Diversity Database*. (Accessed October 2021).

California Native Plant Society. (2021). Retrieved from Inventory of Rare and Endangered Vascular Plants of California: http://www.rareplants.cnps.org/ (Accessed October 2021).

DWR. (2021, October). Retrieved from Groundwater Basin Boundary Assessment Tool (BBAT): http://gis.water.ca.gov/app/bbat/ (Accessed October 2021).

eBird, Cornell Lab of Ornithology. (2021). Retrieved from eBird: An online database of bird distribution and abundance: https://ebird.org/ (Accessed October 2021).

Jepson Flora Project (eds.). (2021). Retrieved from Jepson eFlora: http://ucjeps.berkeley.edu/eflora/ (Accessed October 2021).

Nafis, G. (2019). Retrieved from CaliforniaHerps: A Guide to the Amphibians and Reptiles of California: http://www.californiaherps.com/ (Accessed October 2021).

National Wetlands Inventory (NWI) map. (2021). Retrieved from http://fws.gov/wetlands/Data/Mapper.html (Accessed October 2021).

NatureServe Explorer. (2021). *An Online Encyclopedia of Life*. Retrieved from http://explorer.natureserve.org/ (Accessed October 2021).

Shuford, W., & Gardali, T. (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 October 2021).

Swainson's Hawk Technical Advisory Committee. (2000, May). Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. CA: CDFW. (Accessed October 2021).

Tulare County. (2021, August). Tulare County General Plan. Tulare County, CA (Accessed October 2021).

United States Army Corps of Engineers. (1987). *Corps of Engineers Wetlands Delineation Manual.* Department of the Army. (Accessed October 2021).

United States Department of Agriculture, Natural Recources Conservation Service. (2021). *The Plants Database*. Retrieved from http://plants.sc.egov.usda.gov/java/ (Accessed October 2021).

United States Department of Agriculture, Natural Resources Conservation Service. (2021). *Custom Soil Resources Report, California*. Retrieved from http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx (Accessed October 2021).

United States Environmental Protection Agency (USEPA). (2021). Retrieved from Waters GeoViewer: https://www.epa.gov/waterdata/waters-geoviewer (Accessed October 2021).

United States Fish and Wildlife Service. (1998). *Recovery Plan for Upland Species of the San Joaquin Valley, California*. (Accessed October 2021).

United States Fish and Wildlife Service. (2021). *Environmental Conservation Online System (ECOS)*. Retrieved from https://ecos.fws.gov/ecp/ (Accessed October 2021).

United States Fish and Wildlife Service. (2021). *Information on Planning and Consultation (IPaC)*. Retrieved from https://ecos.fws.gov/ipac/ (Accessed October 2021).

# *Appendix A: Photographs of the Project*

TULARE IRRIGATION DISTRICT

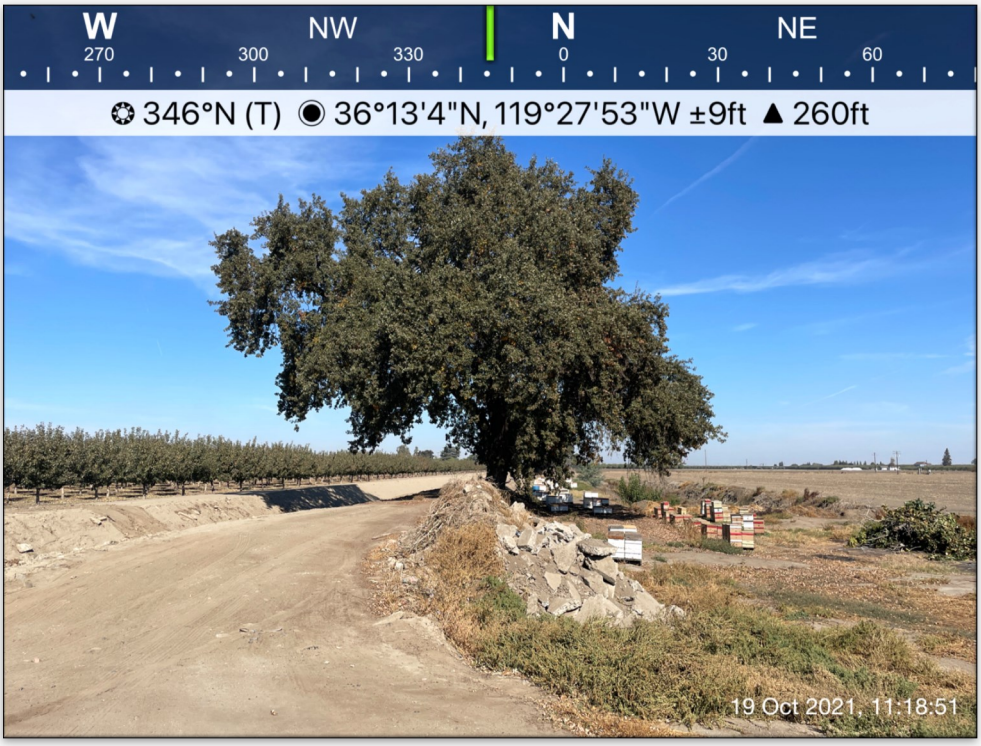
OKIEVILLE BASIN PROJECT


**Photograph 1**

*Overview of agriculture field taken from east boundary of APE.*


**Photograph 2**

*Overview of Valley oak trees large enough to support nesting birds taken from the southwest boundary of APE.*

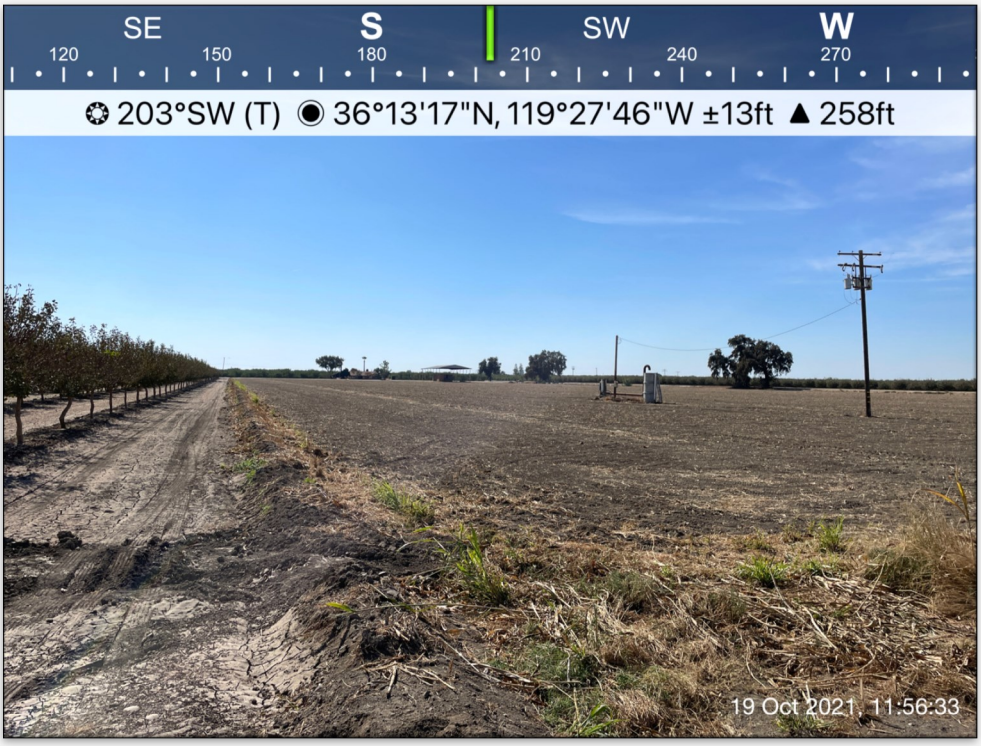



**Photograph 3**

*View of western boundary showing a Valley oak tree large enough to support nesting birds. Photograph was taken from southwest corner of APE.*


**Photograph 4**

*View of eastern boundary showing the agricultural field with an active agricultural field next to it. Photograph was taken from southeast corner of APE.*

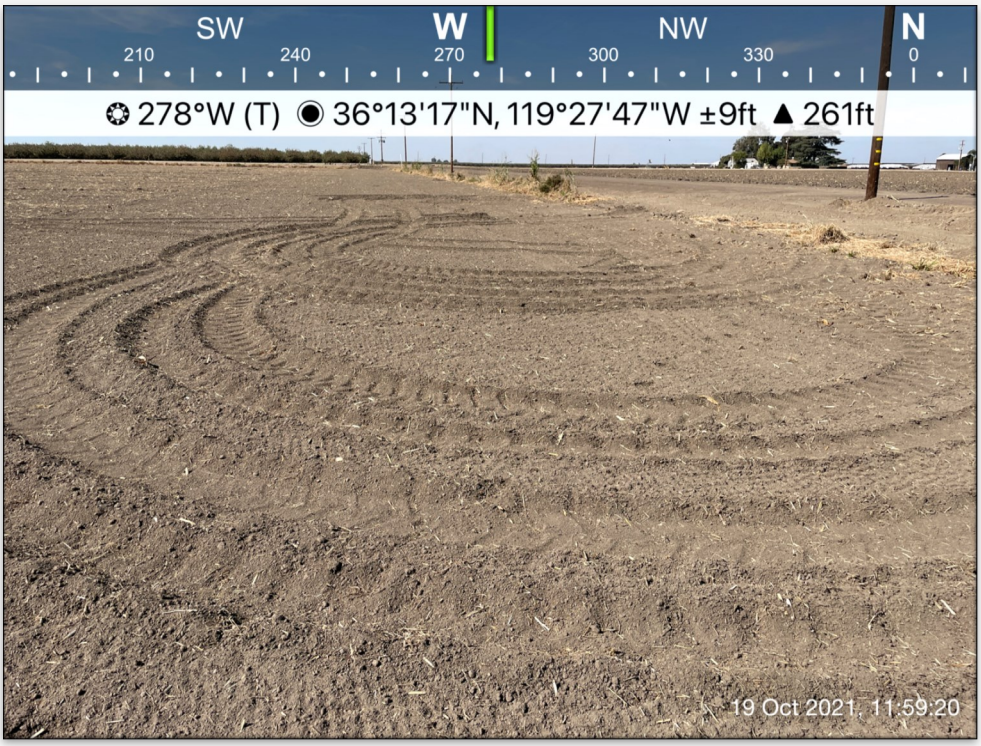



**Photograph 5**

*View of the eastern boundary showing sparse vegetation and a groundwater well. Photograph was taken from northeast corner of APE.*

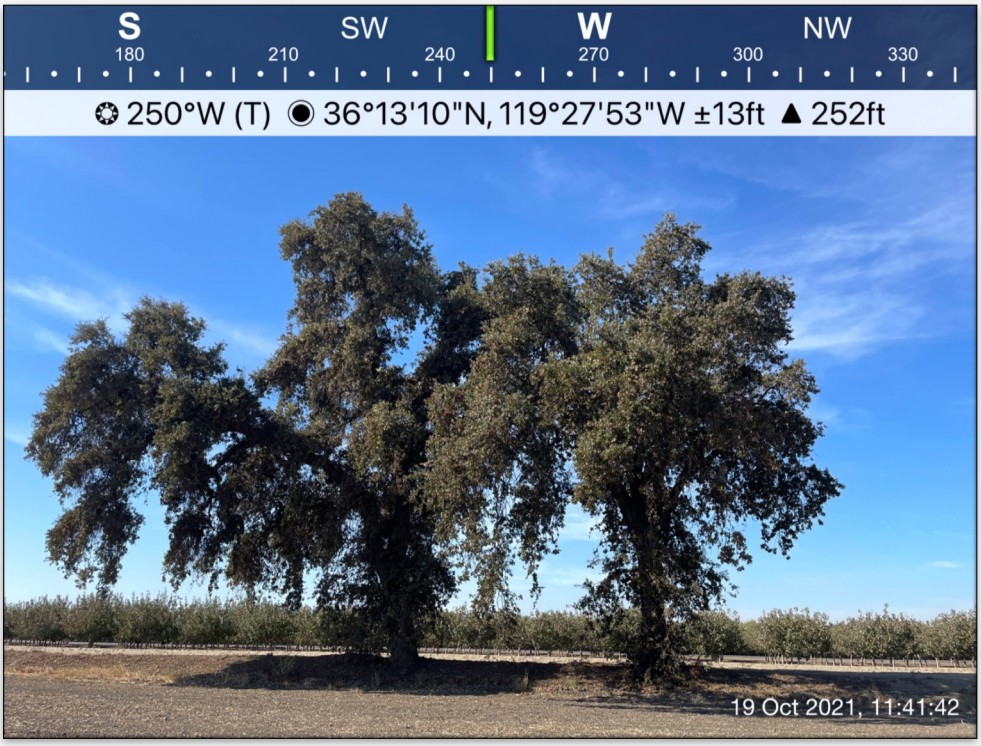

**Photograph 6**

*View of the western boundary showing the agricultural field and Valley oak trees large enough to support nesting birds. Photograph was taken from northwest corner of APE.*




**Photograph 7**

*Evidence of recent agricultural activities within APE. Field is disced regularly.*




**Photograph 8**

*Another example of Valley oak trees large enough to support nesting birds within APE.*


**Photograph 9**

*Pole barn covering hay located near southwest boundary of APE. The pole barn was built in 1998.*


**Photograph 10**

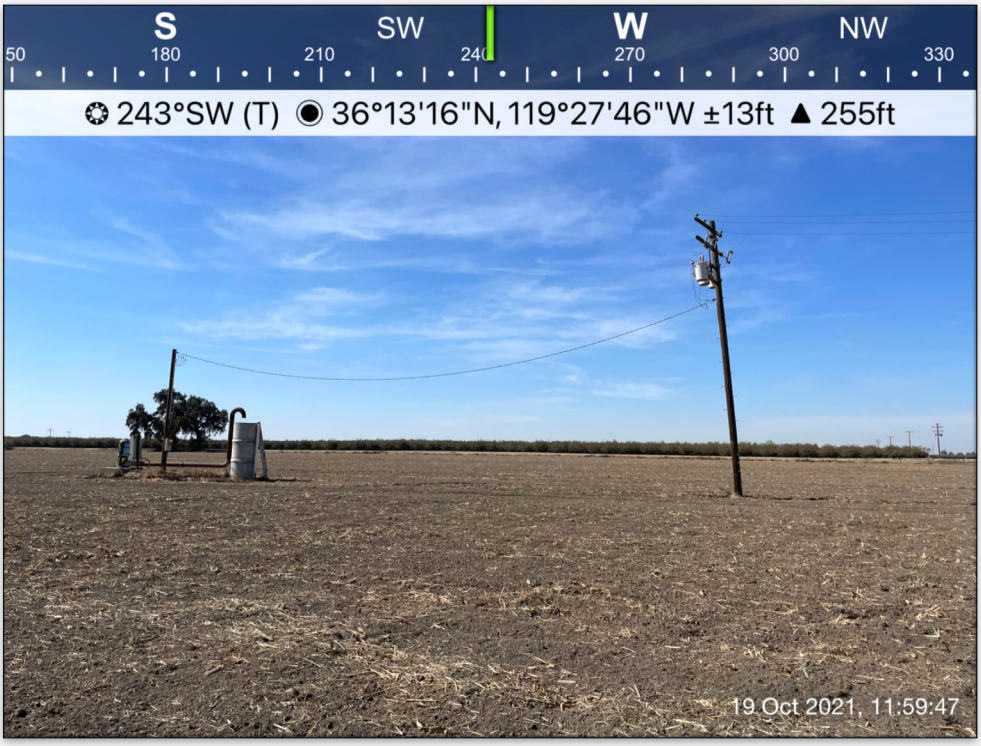
*Another photo of the pole barn covering hay located near southwest boundary of APE.*


**Photograph 11**

*Active beekeeping within APE. Located near southwest boundary.*

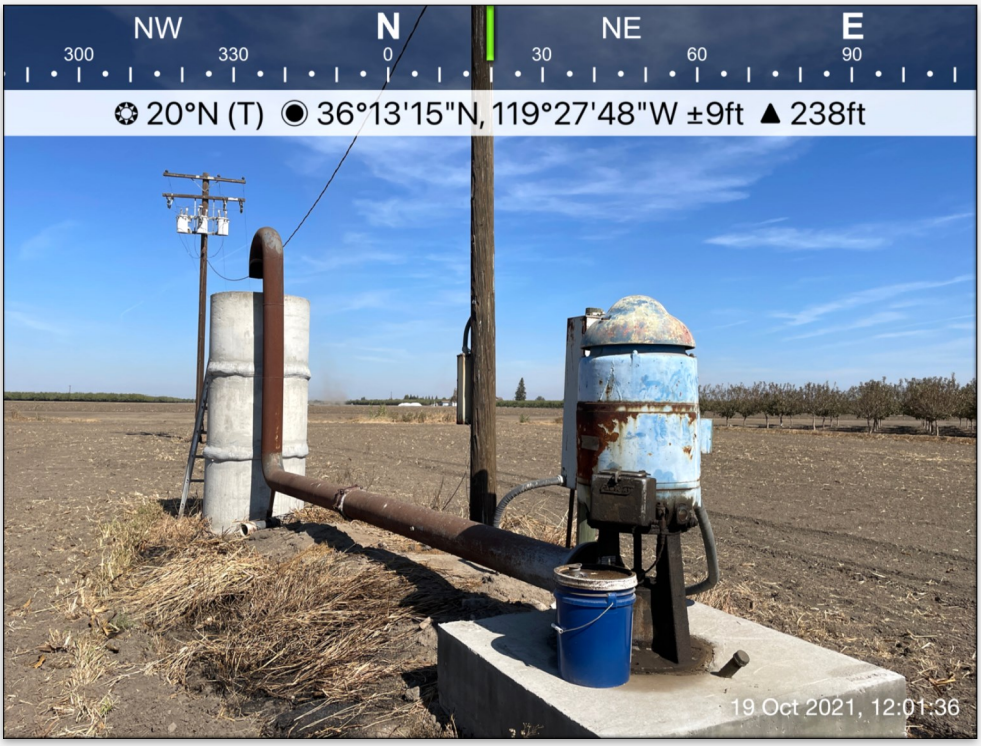

**Photograph 12**

*Dry ditch containing vegetation within the APE. Located near southwest boundary.*




**Photograph 13**

*Groundwater well and utility pole located near northeast boundary of APE.*




**Photograph 14**

*Close-up of groundwater well located near northeast boundary of APE.*


**Photograph 15**

*Active agricultural field past north boundary of APE.*


**Photograph 16**

*Trees large enough to support nesting birds located past the northwest boundary of APE.*


**Photograph 17**

*Surrounding agricultural farm past eastern boundary of APE.*


**Photograph 18**

*Another example of surrounding agricultural farms past eastern boundary of APE.*

# *Appendix B: CNDDB Quad Search*

TULARE IRRIGATION DISTRICT

OKIEVILLE BASIN PROJECT

# Selected Elements by Common Name

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Query Criteria:** Quad IS (Paige (3611924) OR Remnoy (3611935) OR Goshen (3611934) OR Visalia (3611933) OR Tulare (3611923) OR Tipton (3611913) OR Taylor Weir (3611914) OR Corcoran (3611915) OR Waukena (3611925))

| Species | Element Code | Federal Status | State Status | Global Rank | State Rank | Rare Plant Rank/CDFW SSC or FP |
|---|---|---|---|---|---|---|
| **alkali-sink goldfields**<br>*Lasthenia chrysantha* | PDAST5L030 | None | None | G2 | S2 | 1B.1 |
| **An andrenid bee**<br>*Andrena macswaini* | IIHYM35130 | None | None | G2 | S2 | |
| **blunt-nosed leopard lizard**<br>*Gambelia sila* | ARACF07010 | Endangered | Endangered | G1 | S1 | FP |
| **brittlescale**<br>*Atriplex depressa* | PDCHE042L0 | None | None | G2 | S2 | 1B.2 |
| **burrowing owl**<br>*Athene cunicularia* | ABNSB10010 | None | None | G4 | S3 | SSC |
| **California alkali grass**<br>*Puccinellia simplex* | PMPOA53110 | None | None | G3 | S2 | 1B.2 |
| **California jewelflower**<br>*Caulanthus californicus* | PDBRA31010 | Endangered | Endangered | G1 | S1 | 1B.1 |
| **California satintail**<br>*Imperata brevifolia* | PMPOA3D020 | None | None | G4 | S3 | 2B.1 |
| **Crotch bumble bee**<br>*Bombus crotchii* | IIHYM24480 | None | None | G3G4 | S1S2 | |
| **Earlimart orache**<br>*Atriplex cordulata var. erecticaulis* | PDCHE042V0 | None | None | G3T1 | S1 | 1B.2 |
| **heartscale**<br>*Atriplex cordulata var. cordulata* | PDCHE040B0 | None | None | G3T2 | S2 | 1B.2 |
| **hoary bat**<br>*Lasiurus cinereus* | AMACC05030 | None | None | G3G4 | S4 | |
| **Hopping's blister beetle**<br>*Lytta hoppingi* | IICOL4C010 | None | None | G1G2 | S1S2 | |
| **lesser saltscale**<br>*Atriplex minuscula* | PDCHE042M0 | None | None | G2 | S2 | 1B.1 |
| **loggerhead shrike**<br>*Lanius ludovicianus* | ABPBR01030 | None | None | G4 | S4 | SSC |
| **Morrison's blister beetle**<br>*Lytta morrisoni* | IICOL4C040 | None | None | G1G2 | S1S2 | |
| **mountain plover**<br>*Charadrius montanus* | ABNNB03100 | None | None | G3 | S2S3 | SSC |
| **Northern California legless lizard**<br>*Anniella pulchra* | ARACC01020 | None | None | G3 | S3 | SSC |
| **recurved larkspur**<br>*Delphinium recurvatum* | PDRAN0B1J0 | None | None | G2? | S2? | 1B.2 |

# Selected Elements by Common Name

## California Department of Fish and Wildlife

## California Natural Diversity Database

| Species | Element Code | Federal Status | State Status | Global Rank | State Rank | Rare Plant Rank/CDFW SSC or FP |
|---|---|---|---|---|---|---|
| **San Joaquin adobe sunburst**<br>*Pseudobahia peirsonii* | PDAST7P030 | Threatened | Endangered | G1 | S1 | 1B.1 |
| **San Joaquin kit fox**<br>*Vulpes macrotis mutica* | AMAJA03041 | Endangered | Threatened | G4T2 | S2 | |
| **subtle orache**<br>*Atriplex subtilis* | PDCHE042T0 | None | None | G1 | S1 | 1B.2 |
| **Swainson's hawk**<br>*Buteo swainsoni* | ABNKC19070 | None | Threatened | G5 | S3 | |
| **Tipton kangaroo rat**<br>*Dipodomys nitratoides nitratoides* | AMAFD03152 | Endangered | Endangered | G3T1T2 | S1S2 | |
| **tricolored blackbird**<br>*Agelaius tricolor* | ABPBXB0020 | None | Threatened | G1G2 | S1S2 | SSC |
| **Valley Sacaton Grassland**<br>*Valley Sacaton Grassland* | CTT42120CA | None | None | G1 | S1.1 | |
| **vernal pool fairy shrimp**<br>*Branchinecta lynchi* | ICBRA03030 | Threatened | None | G3 | S3 | |
| **western mastiff bat**<br>*Eumops perotis californicus* | AMACD02011 | None | None | G4G5T4 | S3S4 | SSC |
| **western pond turtle**<br>*Emys marmorata* | ARAAD02030 | None | None | G3G4 | S3 | SSC |
| **western spadefoot**<br>*Spea hammondii* | AAABF02020 | None | None | G2G3 | S3 | SSC |
| **western yellow-billed cuckoo**<br>*Coccyzus americanus occidentalis* | ABNRB02022 | Threatened | Endangered | G5T2T3 | S1 | |

**Record Count: 31**

# *Appendix C: IPaC Search*

TULARE IRRIGATION DISTRICT

OKIEVILLE BASIN 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: November 12, 2021
Consultation Code: 08ESMF00-2022-SLI-0353
Event Code: 08ESMF00-2022-E-01074
Project Name: Okieville Basin 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, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) 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 Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

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

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to

utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

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

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

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 Tracking Number 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

Consultation Code: 08ESMF00-2022-SLI-0353
Event Code: Some(08ESMF00-2022-E-01074)
Project Name: Okieville Basin Project
Project Type: WATER QUALITY MODIFICATION
Project Description: The Project is located at the intersection of Road 48 and Avenue 236 in the western portion of Tulare County, California, northeast of the community of Okieville, a California Disadvantaged Community. The Project includes construction of a 21-acre recharge facility and supporting infrastructure. This would require clearing the APE of any remaining vegetation, demolition of an approximately 0.15-acre pavilion, 100,000 cubic yards of basin earthwork, and the installation of 2,500 feet of linear fence.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@36.21967789999999,-119.46412729541882,14z


Counties: Tulare County, California

# Endangered Species Act Species

There is a total of 9 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 |
|---|---|
| San Joaquin Kit Fox *Vulpes macrotis mutica*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/2873 | Endangered |
| Tipton Kangaroo Rat *Dipodomys nitratoides nitratoides*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/7247 | Endangered |

## Reptiles

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

## Amphibians

| NAME | STATUS |
|---|---|
| California Red-legged Frog *Rana draytonii* | Threatened |
| There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2891 | |
| California Tiger Salamander *Ambystoma californiense* | Threatened |
| Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2076 | |

## Fishes

| NAME | STATUS |
|---|---|
| Delta Smelt *Hypomesus transpacificus* | Threatened |
| There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/321 | |

## Insects

| NAME | STATUS |
|---|---|
| Monarch Butterfly *Danaus plexippus* | Candidate |
| No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743 | |

## Crustaceans

| NAME | STATUS |
|---|---|
| Vernal Pool Fairy Shrimp *Branchinecta lynchi* | Threatened |
| There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/498 | |

## Critical habitats

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

# *Appendix D: NRCS Soils Report*

TULARE IRRIGATION DISTRICT

OKIEVILLE BASIN PROJECT

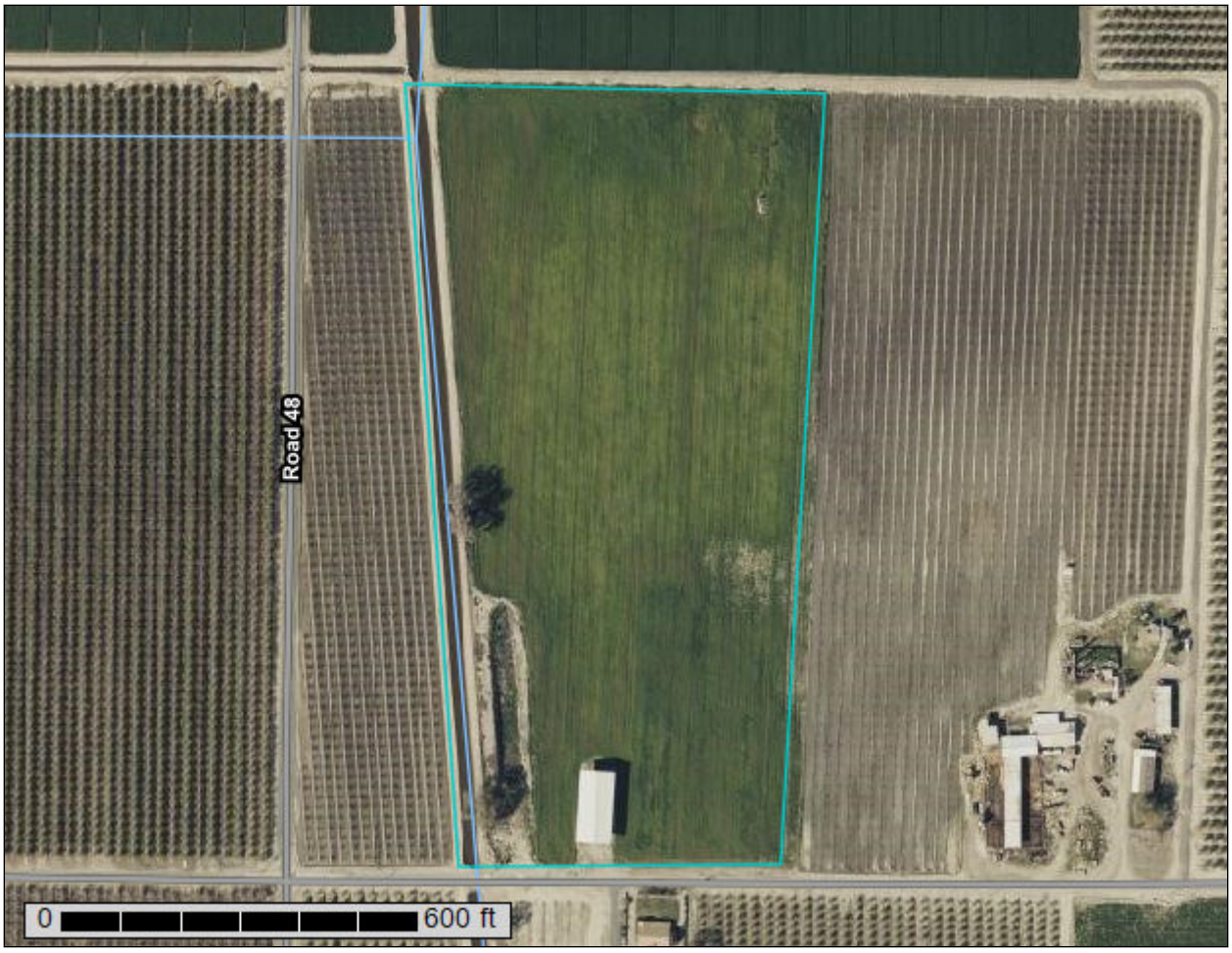
United States Department of Agriculture

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




October 13, 2021

# 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.

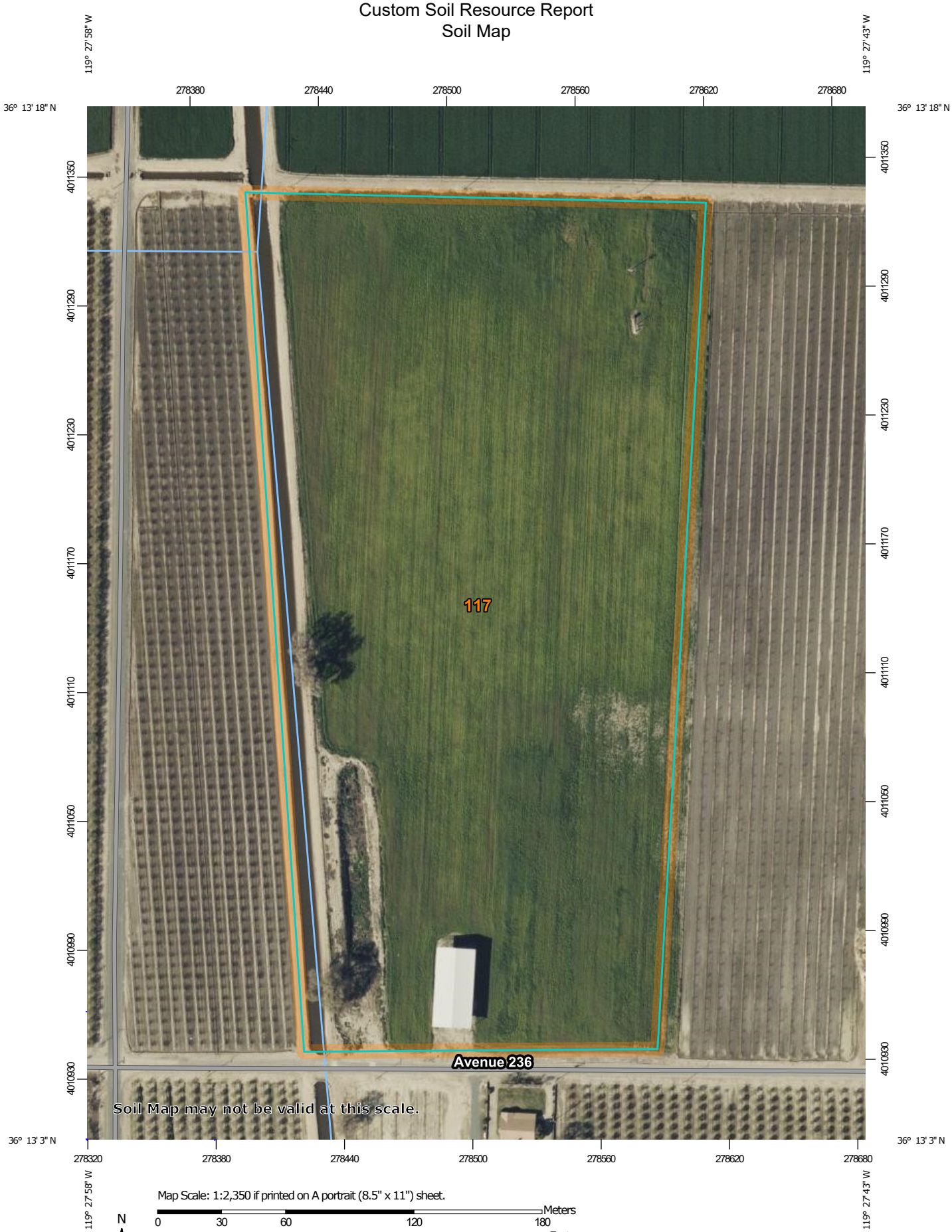
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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: 1:2,350 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 100 200 400 600

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 15, Sep 3, 2021

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

Date(s) aerial images were photographed: Mar 17, 2019—Mar 24, 2019

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 |
|---|---|---|---|
| 117 | Gambogy loam, drained, 0 to 1 percent slopes | 18.7 | 100.0% |
| **Totals for Area of Interest** | | **18.7** | **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

## 117—Gambogy loam, drained, 0 to 1 percent slopes

### Map Unit Setting

*National map unit symbol:* hp4m
*Elevation:* 190 to 270 feet
*Mean annual precipitation:* 6 to 8 inches
*Mean annual air temperature:* 63 to 66 degrees F
*Frost-free period:* 250 to 300 days
*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Gambogy and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Gambogy

#### 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

*Ap1 - 0 to 6 inches:* loam
*Ap2 - 6 to 19 inches:* stratified loam to clay loam
*Btg - 19 to 47 inches:* stratified sandy loam to clay loam
*C - 47 to 72 inches:* stratified sandy loam to loam

#### Properties and qualities

*Slope:* 0 to 1 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Poorly drained
*Runoff class:* Negligible
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* Rare
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 3 percent
*Gypsum, maximum content:* 1 percent
*Maximum salinity:* Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
*Sodium adsorption ratio, maximum:* 12.0
*Available water supply, 0 to 60 inches:* Moderate (about 8.3 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 2s
*Land capability classification (nonirrigated):* 4s
*Hydrologic Soil Group:* C
*Ecological site:* R017XY906CA - Non-Alkali San Joaquin Valley Desert
*Hydric soil rating:* No

**Minor Components**

**Hanford**

*Percent of map unit:* 3 percent
*Landform:* Alluvial fans, flood plains
*Hydric soil rating:* No

**Grangeville**

*Percent of map unit:* 3 percent
*Landform:* Alluvial fans, flood plains
*Hydric soil rating:* No

**Colpien**

*Percent of map unit:* 3 percent
*Landform:* Fan remnants
*Hydric soil rating:* No

**Yettem**

*Percent of map unit:* 2 percent
*Landform:* Alluvial fans, flood plains
*Hydric soil rating:* No

**Tujunga**

*Percent of map unit:* 2 percent
*Landform:* Flood plains
*Hydric soil rating:* No

**Nord**

*Percent of map unit:* 2 percent
*Landform:* Alluvial fans, flood plains
*Hydric soil rating:* No

# 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 C: Cultural Resources Class III Inventory/Phase I Survey

# CLASS III INVENTORY/PHASE I SURVEY, TULARE IRRIGATION DISTRICT, OKIEVILLE BASIN PROJECT, TULARE COUNTY, CALIFORNIA

*Prepared for:*

Briza Sholars
Provost & Pritchard Consulting Group
206 West Cromwell Avenue
Fresno, California 93711-2715

*Prepared by:*

David S. Whitley, Ph.D., RPA

and

Robert. Azpitarte, B.A.

ASM Affiliates, Inc.
20424 West Valley Blvd., Suite A
Tehachapi, California 93561

December 2021
PN 36510.08

# TABLE OF CONTENTS

**Chapter** **Page**

# LIST OF FIGURES

**Page**



# LIST OF TABLES

**Page**

# MANAGEMENT SUMMARY

An intensive Class III cultural resources inventory/Phase I survey was conducted for the Tulare Irrigation District (TIL), Okieville Basin Project, Tulare County, California. The Project area of potential effect (APE) is located roughly 5 miles west of the City of Tulare, in Section 3, Township 20 South, Range 23 East (T20S/R23E), Mount Diablo Base and Meridian (MDBM). ASM Affiliates, Inc. (ASM) conducted this study, with David S. Whitley, Ph.D., RPA, serving as principal investigator. 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).

A records search of site files and maps was conducted on October 18, 2021, at the Southern San Joaquin Valley Archaeological Information Center (SSJVIC), California State University, Bakersfield. The results of a search of the Sacred Lands File were received from the Native American Heritage Commission (NAHC) on November 5, 2021. These searches determined that no previous studies have previously been conducted within the Project APE, and no cultural resources of any kind are known to exist within it. In addition, no previous studies are known to have been conducted within 0.5 mile of the area of potential effect (APE); however, one historic linear resource (Packwood Ditch) is documented within the records search buffer.

Tribal organizations on the list provided by the NAHC were contacted by letter to determine whether tribal cultural resources are present within the general study area, with follow-up emails one month later. The Santa Rosa Rancheria – Tachi Yokut Tribe responded that due to their tribal knowledge and history, the Tribe is requesting to have monitors on site for all ground disturbance and to be retained for a cultural presentation for all construction staff.

The Class III inventory/Phase I survey fieldwork was conducted in November 2021 with parallel transects spaced at 15-meter intervals walked throughout the Project APE. No cultural resources of any kind were encountered during the survey study. Based on the inventory results, the proposed TID Okieville Basin Project does not have the potential to result in adverse effects or significant impacts to historic properties or historical resources and a determination of no effect is recommended. In the unlikely event that cultural resources are discovered during Project construction or use, however, it is recommended that an archaeologist be contacted to evaluate the discovery.

# 1. INTRODUCTION AND REGULATORY CONTEXT

ASM Affiliates, Inc. (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), Okieville Basin Project (Project), located roughly 5 miles (mi.) west 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 APE 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.

David S. Whitley, Ph.D., RPA, served as principal investigator and ASM Associate Archaeologist/Crew Chief Robert Azpitarte, B.A., conducted the fieldwork.

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; Native American outreach; 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 TID Okieville Basin Project consists of a proposed water recharge basin located roughly 5 mi. directly west of the City of Tulare, but within the city's sphere of influence. The proposed pipeline Project will serve residents of the Community of Okieville, a census-designated place (CDP). This places the Project on the open flats of the San Joaquin Valley. The APE is located within the SW1/4 of the NE1/4 of Section 3, Township 20 South, Range 23 East (T20S/R23E), Mount Diablo Base and Meridian (MDBM) as illustrated on the USGS Paige, California 7.5-minute topographic quadrangle. The proposed basin Project APE is entirely undeveloped and consists of an inactive agricultural field. Elevation within the project area, which is flat, is approximately 245 feet (ft.) above mean sea level (amsl).

## 1.2 PROJECT DESCRIPTION AND APE

The proposed TID Okieville Basin Project will involve the construction and maintenance of a 21-acre recharge facility and supporting infrastructure, adjacent and up-gradient of the Community of

Okieville. The Project APE is currently mostly undeveloped and consists of an agricultural field surrounded by additional agricultural lands on all sides.

The horizontal APE will contain all construction, staging, and lay-down areas for the project. The proposed basin APE will total approximately 21 acres. The vertical APE, considered the maximum depth of excavation for the pipelines, is 10 ft.

# 1.3 REGULATORY CONTEXT

## 1.3.1 CEQA

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)).

Significant cultural resources are those archaeological resources and historical properties that:

(A) Are associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(B) Are associated with the lives of persons important in our past;

(C) Embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values; or

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

Unique resources under CEQA, in slight contrast, 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 NHPA 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. (http://www.achp.gov/nrcriteria.html)

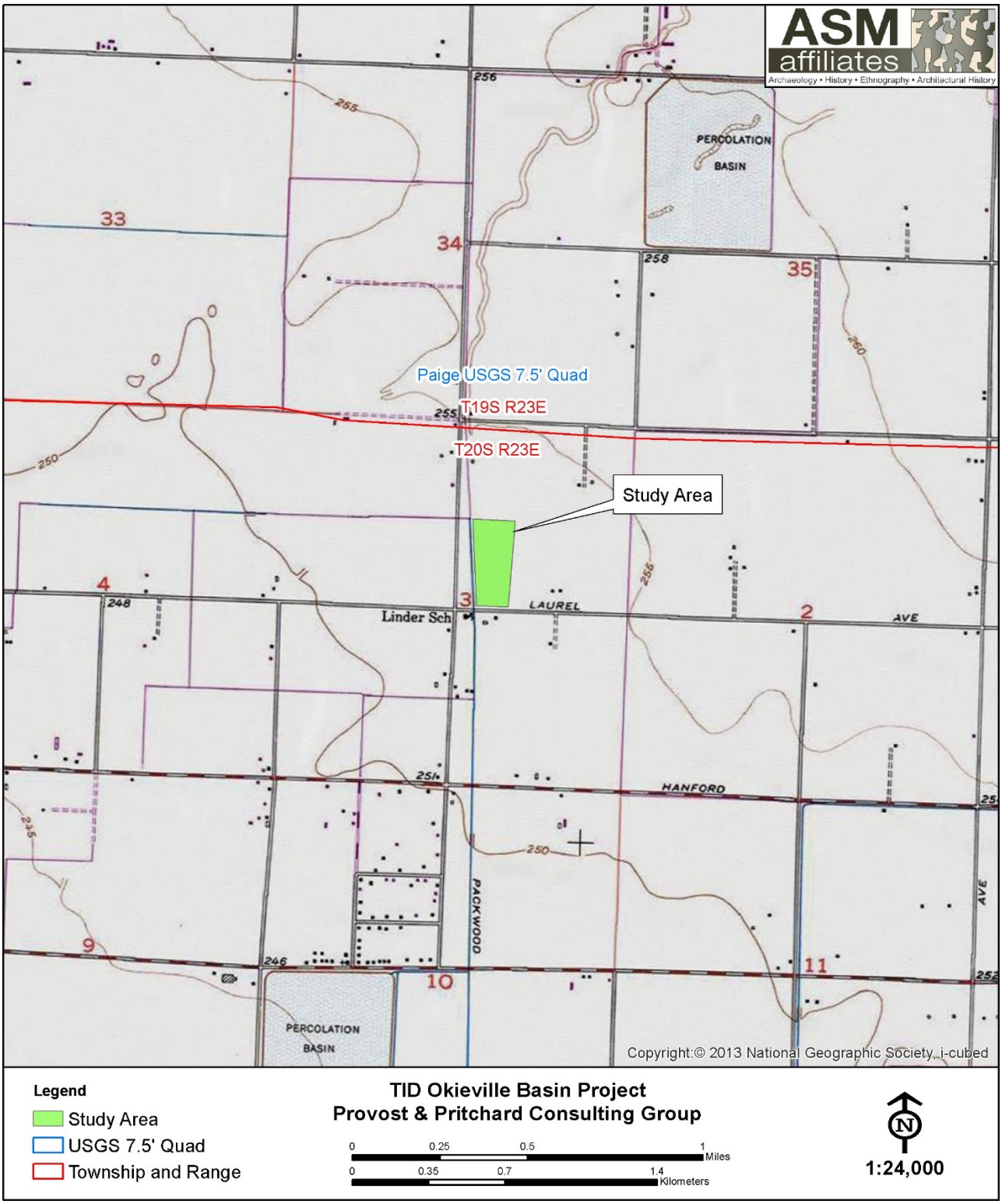



**Figure 1. Location of the TID Okieville Basin Project, Tulare County, California.**

# 2. ENVIRONMENTAL AND CULTURAL BACKGROUND

## 2.1 ENVIRONMENTAL BACKGROUND AND GEOARCHAEOLOGICAL SENSITIVITY

As noted above, the TID Okieville Basin Project is located at an elevation of approximately 245 ft. amsl, just west 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 of suburban development. Perennial bunchgrasses such as purple needlegrass and nodding needlegrass most likely would have been the dominant plant cover in the study region prior to cultivation.

The general study area falls within the far southern extent of the Kaweah Delta. According to the geoarchaeological model developed by Meyer et al. (2010), the area has a very low potential for buried archaeological deposits. Buried sites and cultural resources are therefore considered to be 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), Latta (1977) 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. 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.

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 west of the Project APE, along

the Tulare Lake, the Choinok to the south, Wolasi to the north along Cameron Creek, and the Telamni further north, near Visalia. Latta (1977:195) in slight contrast, also has the Chunut to the west, and the Choinok to the southeast, but with the Talumne (Krober's Telamni) closest to the Project. No historic villages are recorded in the immediate Project area by Kroeber (1925) or by Latta (1977).

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 located 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 assisted 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 based on 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 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 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. Over 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 proposed Project, demonstrating the importance of this early occupation in the San Joaquin Valley specifically (see Fenenga 1993). Additional finds consist of a Clovis-like projectile point discovered in a flash-flood 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 tool-kits 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 years ago. 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 study area, 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 towards 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 then clear is that Middle Period villages and settlements were widely dispersed across the south-central California landscape, including in the Sierras and the Mojave Desert. Many of these sites are found at locations that lack existing or known historical 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 northwest of the current study area, 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 life-ways 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 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 1991). Prior to that time, this area had relatively few settlers due to the lack of surface water, with most Euro-Americans settling either further north and east, closer to the main branches of the Kaweah and Kings Rivers, or to the south, 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 1991).

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 miles. 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, over 100 miles 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 proscribed the creation of irrigation districts comprised of local landowners. The first two such districts in Tulare County were the Alta Irrigation District, on the Kings River, and the Tulare Irrigation District (TID), which includes the Project APE (Preston 1991). The TID was organized September 21, 1889. The original proposal for the formation of an irrigation district covered 219,000 acres. It extended from the Sierra Nevada foothills to Tulare Lake. This was eventually reduced to 32,500 acres. In January 1948, the so-called "Kaweah Lands" (approximately 11,000 acres) were annexed. In October 1948, approximately 31,000 acres previously served by the Packwood Canal Company were annexed to the District (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. The financial difficulties of early 1890s caused a setback, 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 District 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 ebb (TID n.d.).

After negations 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). The TID today has no bonded indebtedness. For many years after the retirement of the bonds, the District operated on a system of water tolls, but the annual levying of assessments was resumed in 1918 (TID n.d.).

A contract with the U.S. Bureau of Reclamation was signed in 1950, providing an annual supply of 30,000 acre-feet of Class 1 water, and up to 141,000 acre-feet 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 shops 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 acres surrounding, but not including, the city itself. 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.).

# 2.5 RESEARCH DESIGN

## 2.5.1 Pre-Contact Archaeology

Previous research and the nature of the pre-contact archaeological record suggest two significant NRHP themes, both of which fall under the general Pre-Contact Archaeology area of significance. These are the Expansion of Pre-Contact Populations and Their Adaptation to New Environments; and Adaptation to Changing Environmental Conditions.

The Expansion of Pre-Contact Populations and Their Adaptation to New Environments theme primarily concerns the Middle Horizon/Holocene Maximum. Its period of significance runs from about 4000 to 1500 YBP. It involves a period during which the prehistoric population appears to have expanded into a variety of new regions, developing new adaptive strategies in the process.

The Adaptation to Changing Environmental Conditions theme is partly related to the Holocene Maximum, but especially to the Medieval Climatic Anomaly. The period of significance for this theme, accordingly, extends from about 4000 to 800 YBP. This theme involves the apparent collapse of many inland populations, presumably with population movements to better environments such as the coast. It is not yet known whether the southern San Joaquin Valley, with its system of lakes, sloughs and swamps, experienced population decline or, more likely, population increase due to the relatively favorable conditions of this region during this period of environmental stress.

The range of site types that are present in this region include:

- Villages, primarily located on or near permanent water sources, occupied by large groups during the winter aggregation season;
- Seasonal camps, again typically located at water sources, occupied during other parts of the year tied to locally and seasonally available food sources;
- Special activity areas, especially plant processing locations containing bedrock mortars (BRMs), commonly (though not exclusively) near existing oak woodlands, and invariably at bedrock outcrops or exposed boulders;
- Stone quarries and tool workshops, occurring in two general contexts: at or below naturally occurring chert exposures on the eastern front of the Temblor Range; and at quartzite cobble exposures, often on hills or ridges;
- Ritual sites, most commonly pictographs (rock art) found at rockshelters or large exposed boulders, and cemeteries, both commonly associated with villages; and
- A variety of small lithic scatters (low density surface scatters of stone tools).

The first requisites in any research design are the definition of site age/chronology and site function. The ability to determine either of these basic kinds of information may vary between survey and test excavation projects, and due to the nature of the sites themselves. BRM sites without associated artifacts, for example, may not be datable beyond the assumption that they post-date the Early Horizon and are thus less than roughly 4,000 years old.

A second fundamental issue involves the place of sites in the settlement system, especially with respect to water sources. Because the locations of the water sources have sometimes changed over time, villages and camps are not exclusively associated with existing (or known historical) water sources (W&S Consultants 2006). The size and locations of the region's lakes, sloughs and delta channels, to cite the most obvious example, changed significantly during the last 12,000 years due to major paleoclimatic shifts. This altered the area's hydrology and thus prehistoric settlement patterns. The western shoreline of Tulare Lake was relatively stable, because it abutted the Kettleman Hills. But the northern, southern and eastern shorelines comprised the near-flat valley floor. Relatively minor fluctuations up or down in the lake level resulted in very significant

changes in the areal expression of the lake on these three sides, and therefore the locations of villages and camps. Although perhaps not as systematic, similar changes occurred with respect to stream channels and sloughs, and potential site locations associated with them. This circumstance has implications for predicting site locations and archaeological sensitivity. Site sensitivity is then hardest to predict in the open valley floor, where changes in stream courses and lake levels occurred on numerous occasions.

Nonetheless, the position of southern San Joaquin Valley prehistory relative to the changing settlement and demographic patterns seen in surrounding areas is still somewhat unknown (cf. Siefkin 1999), including to the two NRHP themes identified above. The presence of large lake systems in the valley bottoms can be expected to have mediated some of the effects of 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 and settlement pattern changes for the southern San Joaquin Valley, and determining how these trends (if present) correlate with those seen elsewhere, is another primary regional research objective.

Archaeological sites would primarily be evaluated for NRHP eligibility under Criterion D, research potential.

## 2.5.2 Historical Archaeology: Native American

Less research has been conducted on the regional historical archaeological record, both Native American and Euro-American. For Native American historical sites, the ethnographic and ethnohistoric periods in the southern San Joaquin Valley extended from first Euro-American contact, in AD 1772, to circa 1900, when tribal populations were first consolidated on reservations. The major significant historic NRHP themes during this period of significance involve the related topics of Historic-Aboriginal Archaeology, and Native American Ethnic Heritage. More specifically, these concern the Adaptation of the Indigenous Population to Euro-American Encroachment and Settlement, and their Acculturation to Western Society. These processes included the impact of missionization on the San Joaquin Valley (circa 1800 to about 1845); the introduction of the horse and the development of a San Joaquin Valley "horse culture," including raiding onto the coast and Los Angeles Basin (after about 1810); the use of the region as a refuge for mission neophyte escapees (after 1820); responses to epidemics from introduced diseases (especially in the 1830s); armed resistance to Euro-American encroachment (in the 1840s and early 1850s); the origins of the reservation system and the development of new tribal organizations and ethnic identities; and, ultimately, the adoption of the Euro-American society's economic system and subsistence practices, and acculturation into that society.

Site types that have been identified in the region dating to the ethnographic/ethnohistoric period of significance primarily include villages and habitations, some of which contain cemeteries and rock art (including pictographs and cupules). Dispersed farmsteads, dating specifically from the reservation period or post-1853, would also be expected. The different social processes associated with this historical theme may be manifest in the material cultural record in terms of changing settlement patterns and village organization (from traditional nucleated villages to single family dispersed farmsteads); the breakdown of traditional trading networks with their replacement by

new economic relationships; changing subsistence practices, especially the introduction of agriculture initially via escaped mission neophytes; the use of Euro-American artifacts and materials rather than traditional tools and materials; and, possibly, changing mortuary practices.

Inasmuch as culture change is a primary intellectual interest in archaeology, ethnographic villages and habitations may be NRHP eligible under Criterion D, research potential. Rock art sites, especially pictographs, may be eligible under Criterion C as examples of artistic mastery. They may also be eligible under Criterion A, association with events contributing to broad patterns of history. Ethnographic sites, further, may be NRHP eligible as Traditional Cultural Properties due to potential continued connections to tribal descendants, and their resulting importance in traditional practices and beliefs, including their significance for historical memory, tribal- and self-identity formation, and tribal education.

For Criteria A, C and D, eligibility requires site integrity (including the ability to convey historical association for Criterion A). These may include intact archaeological deposits for Criterion D, as well as setting and feel for Criteria C and A. Historical properties may lack physical integrity, as normally understood in heritage management, but still retain their significance to Native American tribes as Traditional Cultural Properties if they retain their tribal associations and uses.

### 2.5.3 Historical Archaeology: Euro-American

Approaches to historical Euro-American archaeological research relevant to the region have been summarized by Caltrans (1999, 2000, 2007, 2008). These concern the general topics of historical landscapes, agriculture and farming, irrigation (water conveyance systems), and mining. Caltrans has also identified a practical evaluation matrix aiding determinations of NRHP/CRHR eligibility. The identified research issues include site structure and land-use (lay-out, land use, feature function); economics (self-sufficiency, consumer behavior, wealth indicators); technology and science (innovations, methods); ethnicity and cultural diversity (religion, race); household composition and lifeways (gender, children); and labor relations. Principles useful for determining the research potential of an individual site or feature are conceptualized in terms of the mnemonic AIMS-R, as follows (Caltrans 2007:209):

> 1. *Association* refers to the ability to link an assemblage of artifacts, ecofacts, and other cultural remains with an individual household, an ethnic or socioeconomic group, or a specific activity or property use.
>
> 2. *Integrit*y addresses the physical condition of the deposit, referring to the intact nature of the archaeological remains. In order for a feature to be most useful, it should be in much the same state as when it was deposited. However, even disturbed deposits can yield important information (e.g., a tightly dated deposit with an unequivocal association).
>
> 3. *Materials* refers to the number and variety of artifacts present. Large assemblages provide more secure interpretations as there are more datable items to determine when the deposit was made, and the collection will be more representative of the household, or activity. Likewise, the interpretive potential of a deposit is generally increased with the

diversity of its contents, although the lack of diversity in certain assemblages also may signal important behavioral or consumer patterns.

4. *Stratigraphy* refers to the vertically or horizontally discrete depositional units that are distinguishable. Remains from an archaeological feature with a complex stratigraphic sequence representative of several events over time can have the added advantage of providing an independent chronological check on artifact diagnosis and the interpretation of the sequence of environmental or sociocultural events.

5. *Rarity* refers to remains linked to household types or activities that are uncommon. Because they are scarce, they may have importance even in cases where they otherwise fail to meet other thresholds of importance.

For agricultural sites, Caltrans (2007) has identified six themes to guide research: Site Structure and Land Use Pattern; Economic Strategies; Ethnicity and Cultural Adaptation; Agricultural Technology and Science; Household Composition and Lifeways; and Labor History. Expected site types would include farm and ranch homesteads and facilities, line camps, and refuse dumps. In general terms, historical Euro-American archaeological sites would be evaluated for NRHP eligibility under Criterion D, research potential. However, they also potentially could be eligible under Criteria A and B for their associate values with major historical trends or individuals. Historical landscapes might also be considered.

Historical farming structures, which are potentially pertinent to the current study area, are typically evaluated for NRHP eligibility under Criteria A and/or B, for their associated values with major historical trends or individuals, and C for potential design or engineering importance.

In addition, Caltrans (2000) has identified two significant historical themes for San Joaquin Valley irrigation districts:

*Theme 1: Development of Irrigated Agriculture in the San Joaquin Valley, 1852-1964*

As identified by Caltrans in the *Water Conveyance Systems in California Historic Context Development and Evaluation Procedures,* the "Development of Irrigated Agriculture" is a historically significant theme or event in the history of California and the Central Valley region. In the years following California's statehood and the gold rush, increasing population created an increasing market for agricultural products. The total irrigated acreage in the state grew from 60,000 acres in 1860 to nearly 400,000 acres by 1880, an increase of more than 650 percent, and the San Joaquin Valley contained the highest percentage of that land (approximately 47 percent) (Caltrans 2000). Private water companies, land colonies, mutual water companies, and irrigation districts were established in the mid- to late nineteenth century to build irrigation systems to further develop the state's agriculture industry. Irrigation districts became the most influential of these organizations, especially after state legislation—the Wright Act of 1887—causing irrigation districts to grow in number, power, as well as the actual amount of irrigated land throughout the state. Forty-nine irrigation districts were organized between 1887 and 1896, most of them located between Stockton and Bakersfield. However, by the late 1920s, only seven of the original districts were still in existence, among them the Modesto, Turlock, and Tulare irrigation districts (Caltrans

2000). Under the impetus of increased demand during World War I, agricultural production reached a new peak in 1920. Companies like Pacific Gas & Electric and San Joaquin Valley Light and Power helped finance large irrigation reservoirs to feed district canals in return for the power generated. By 1930, there were 94 active districts in California, and the land watered by these agencies mushroomed to 1.6 million acres (Caltrans 2000). Irrigation districts provided more than 90 percent of the surface water used for irrigation in the San Joaquin Valley before the Central Valley Project came on line in the 1940s (Caltrans 2000). Most were located in the San Joaquin Valley, with the most successful in Modesto, Turlock, Merced, and Fresno.

The period of significance for this theme begins with the earliest developments of irrigated agriculture in the San Joaquin Valley, with the construction of the earliest earthen ditches in Visalia in 1852. Irrigated agriculture continues to be an important industry and influence in the Valley. The period of significance ends in 1968 following recommended guidance for closing a period of significance 50 years ago when activities continued to have importance, but no more specific date can be defined to end the historic period, and there is no justification for exceptional significance to extend the period of significance to an end date within the last 50 years (National Register of Historic Places 1997).

Associated Property Types:

*Water Conveyance Systems*

Following the framework established by Caltrans in *Water Conveyance Systems in California Historic Context Development and Evaluation Procedures*, the water conveyance system is the property type that has the potential to reflect this theme and period. Components and features of water conveyance systems include diversion structures, conduits, flow control devices, cleansing devices, and associated resources and settings. Water Conveyance Systems that are associated with Development of Irrigated Agriculture in the San Joaquin Valley, 1852-1968 would be eligible under NRHP Criterion A/CRHR Criterion 1 for their association with this significant theme if:

- the association with the theme is important–simply because a water conveyance existed during the period of significance is not enough for that system to be eligible
- the resource retains high overall integrity because of the high number of comparable examples, and the property should retain most of the seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association
- Due to the nature of this type of resource, repairs and modifications are acceptable but not if those modifications substantially modified the resource.

A Water Conveyance System that is associated with Development of Irrigated Agriculture in the San Joaquin Valley, 1852-1964 will be eligible under NRHP Criterion B/CRHR Criterion 2 for their association with this significant theme if:

- it is associated with an important person's productive life ***and*** is the property that is most closely associated with that person
- the resource retains high overall integrity because of the high number of comparable examples, and the property should retain most of the seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association

- due to the nature of this type of resource, repairs and modifications are acceptable but not if those modifications substantially modified the resource.

Water Conveyance Systems will rarely be found eligible under Criterion B. In California notable names for which there might be associations with water planning, construction, or engineering include: Anthony Chabot, George Chaffey, Frederick Eaton, William Mulholland, George Maxwell, Robert Marshall, Elwood Mead and C.E. Grunsky (Caltrans 2000).

*Theme 2: Technological Innovation in Irrigated Agriculture in California, 1852-1964*

Caltrans clearly defines the historic context for this theme in the "Legacy of Irrigation Canals" section of the context, while ASM has defined a period of significance based on the Caltrans context (Caltrans 2000). The below is a direct excerpt from the context:

> The earliest irrigation water conveyances in California were roughly made, earthen ditches to divert water. Techniques used to construct irrigation canals have varied widely during the various periods of California's history, from the relatively short, hand-dug, early masonry and tile ditches, to horse-scraped and hand-dug earthen irrigation ditches, to the large concrete-lined, machine-formed irrigation canals of the middle decades of the twentieth century. Evidence of these changes in scale, methods of construction, and knowledge of engineering are reflected in the remaining physical resources found on the landscape today. Substantial regional variation exists with respect to the adoption and dissemination of the new technologies, such as where and when concrete replaced wood in the engineering works of major irrigation canals. These regional differences can be explained in part by cultural traditions with respect to water management, ownership of water rights, and environmental factors, but economics, politics, and the formation of particular types of irrigation institutions also played a significant role.
>
> Older canals were often subject to substantial change over time. A common change was to expand the system in order to serve more acreage. Unless pumps are used, irrigation canals rely on gravity to move water, and they can provide service only to land lying below the canal's water level. As irrigated acreage expanded, water companies frequently consolidated smaller ditch systems, moved the point of diversion upstream, and built a high-line canal to service new acreage. In this manner, pioneer canals were often absorbed into larger systems, frequently by irrigation districts, to pull in more potentially irrigable lands. Segments of earlier irrigation systems might remain largely intact within the larger framework of a new irrigation system, or the changes could be such that the old separate irrigation system would become, in essence, a typical component of a new 1920s irrigation district canal.
>
> Another important factor is that water is notoriously difficult to control; it can be, and frequently is, an engine of destruction. Flood waters, for example, repeatedly overwhelmed the flimsy wooden control structures built on nineteenth and early-twentieth century irrigation systems in the San Joaquin Valley. Canals required periodic maintenance and were also often altered as a result of improvements designed to counteract the normal erosion that occurs from water moving through earth-lined canals. Improvements to stabilize canals ranged from realigning segments of the channel, to lining ditches or putting them in pipe, to replacement of

checks, drops, culverts, or other regulation structures. These improvements were sometimes carried out system-wide, sometimes on a piecemeal basis. In light of the proclivity for change and the wide diversity of canal materials and modes of construction, adequate documentary research is essential to understand the evolution of an important irrigation canal and to assess its integrity [Caltrans 2000].

The period of significance for this theme begins with the earliest developments of irrigated agriculture in the San Joaquin Valley, with the construction of the earliest earthen ditches in Visalia in 1852. Technological innovations in agricultural irrigation are ongoing, but the period of significance ends in 1968 following recommended guidance for closing a period of significance 50 years ago when activities continued to have importance, but no more specific date can be defined to end the historic period, and there is no justification for exceptional significance to extend the period of significance to an end date within the last 50 years (National Register of Historic Places 1997).

Associated Property Types:

*Water Conveyance Systems*

Following the framework established by Caltrans in *Water Conveyance Systems in California Historic Context Development and Evaluation Procedures*, the water conveyance system is the property type that has the potential to reflect this theme and period. Components and features of water conveyance systems include diversion structures, conduits, flow control devices, cleansing devices, and associated resources and settings. Water Conveyance Systems that are associated with Technological Innovation in Irrigated Agriculture in California, 1852-1968 will be eligible under NRHP Criterion C/CRHR Criterion 3 for their association with this significant theme if they are/have:

- unique values;
- the best or good example of the property type as one that possess distinctive characteristics of the type and through those characteristics clearly illustrates at least one of the following;
    - the pattern of features common to a particular class of resources
    - the individuality or variation of features that occurs within the class;
    - the evolution of that class; or
    - the transition between classes of resources
- the earliest, best preserved, largest, or sole surviving example of particular types of water conveyance systems;
- a design innovation of evolutionary trends in engineering
- designed by a figure of acknowledged greatness in the field or by someone unknown whose workmanship is distinguishable from others by its style and quality ***and*** be a good example of that designer's work;
- the resource retains high overall integrity because of the high number of comparable examples. The property should retain most of the seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association.

A large water conveyance system with multiple components will often be evaluated as a district rather than as a single property. An eligible historic district must possess a significant concentration or linkage of resources that are united historically or aesthetically by plan or physical development. It should be a significant and distinguishable entity, although its components need not possess individual distinction (Caltrans 2000).

# 3. ARCHIVAL RECORDS SEARCH

## 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 October 18, 2021. The records search was completed to determine: (i) if prehistoric or historical archaeological sites had previously been recorded within the Project APE; (ii) if the APE had been systematically surveyed by archaeologists prior to the initiation of this field study; and/or (iii) whether the area surrounding the proposed Project was known to contain archaeological sites and to thereby be archaeologically 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, no previous studies have previously been conducted within the Project APE, and no cultural resources of any kind are known to exist within it. In addition, no previous studies are known to have been conducted within the 0.5-mi. search radius around the APE; however, one historic linear resource (Packwood Ditch) is known to exist within that outer search radius (Table 1).

**Table 1. Resources within the 0.5-mi. Search Radius**

| Primary # | Type | Description |
|---|---|---|
| P-54-004620 | Structure | Packwood Ditch |

Historical maps that included the Project APE were consulted to identify potential historical structures or resources. According to USGS topographic quadrangles, historical aerials, and Google Earth imagery, the area has undergone minimal development since at least the early twentieth century. The 1927 USGS Paige 1:31,680 quadrangle shows no development within the Project APE. The same quadrangle shows unknown structures within Section 3 as well as Linder School and Packwood Ditch in place by that time. The 1950 (HTMC, 1958 ed.) USGS Paige 1:24,000 quadrangle shows additional structures within Section 3 and outside of the Project APE. The same quadrangle suggests that Laurel Avenue was charted by 1950. No additional structural development has occurred within the Project APE.

## 3.2 TRIBAL COORDINATION

A search of the Native American Heritage Commission (NAHC) Sacred Lands File was also requested. According to the NAHC records, no sacred sites or tribal cultural resources are known in or near the Project APE. Letters requesting information on any tribal cultural resources were sent to organizations and individuals on the NAHC contact list on November 8, 2021. Follow-up emails were made to the contacted tribes/tribal organizations on November 22 and December 2, 2021 (Confidential Appendix A). A response was received from the Santa Rosa Rancheria – Tachi

Yokut Tribe who responded that due to their tribal knowledge and history, the Tribe is requesting to have monitors on site for all ground disturbance and to be retained for a cultural presentation for all construction staff.

# 4. METHODS AND RESULTS

## 4.1 FIELD METHODS

An intensive Class III inventory/Phase I survey of the TID Okieville Basin Project APE was conducted by ASM Associate Archaeologist/Crew Chief Robert Azpitarte, B.A., on November 9, 2021. The field methods employed 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 Instructions for Recording Historic Resources and the BLM 8100 Manual, using DPR 523 forms. Parallel survey transects spaced at 15-m apart were employed for pedestrian survey of the 20.7-acre Project APE.

## 4.2 SURVEY RESULTS

The proposed Project APE is mostly undeveloped and consists of a currently inactive agricultural field (Figures 2a and 2b). It is bounded by Laurel Avenue (paved) on the south, Packwood Ditch on the west, and dirt roads on the east and north. Surrounding the APE are irrigation ditches, dirt roads, and active agricultural fields and orchards. Surface visibility within the APE was excellent for Class III inventory/Phase I survey. A light deposit of modern refuse (e.g., plastics, glass, paper, aluminum, clothing) was noted on the ground surface.

No cultural resources of any kind were identified within the proposed TID Okieville Basin Project APE.

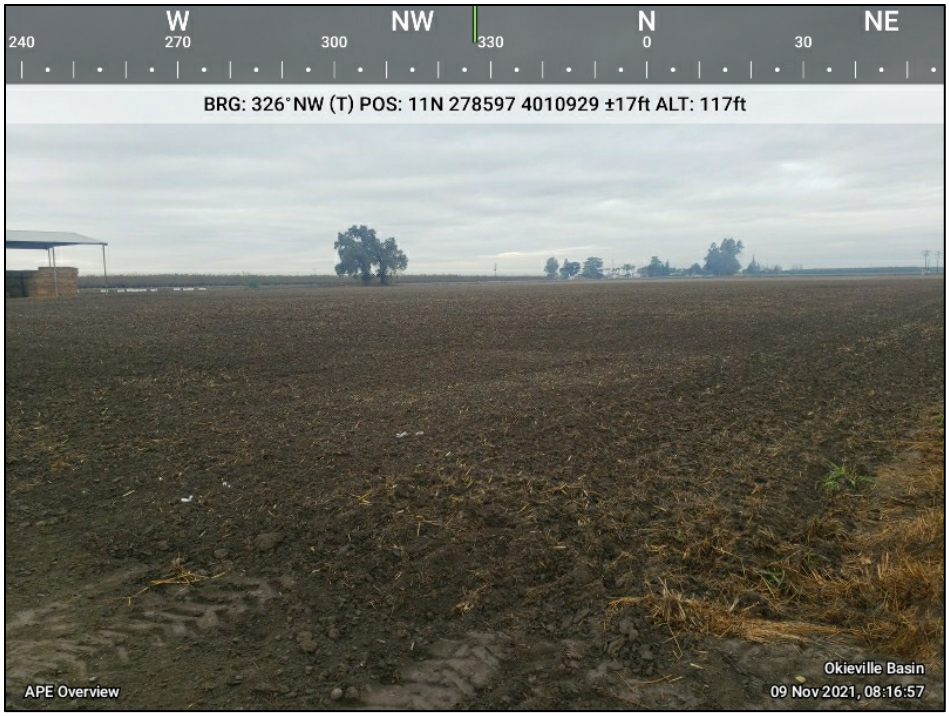



**Figure 2a. Overview of TID Okieville Basin Project APE, looking northwest.**


**Figure 2b. Overview of TID Okieville Basin Project APE, looking southeast.**

# 5. SUMMARY AND RECOMMENDATIONS

An intensive Class III inventory/Phase I survey was conducted for the TID Okieville Basin Project, Tulare County, California. A records search was conducted at the Southern San Joaquin Valley Archaeological Information Center, California State University, Bakersfield. This search indicated that the Project APE had not been previously surveyed and that no cultural resources were known to exist within it. The NAHC Sacred Lands File was consulted and no tribal cultural resources are known within the APE. Tribal organizations on the list provided by the NAHC were contacted by ASM to request information on any tribal cultural resources of which they may be aware that may be present within the Project APE. The Santa Rosa Rancheria – Tachi Yokut Tribe responded that due to their tribal knowledge and history, the Tribe is requesting to have monitors on site for all ground disturbance and to be retained for a cultural presentation for all construction.

The Class III inventory/Phase I survey fieldwork was conducted in November 2021 with parallel transects spaced at 15-m intervals walked throughout the Project APE. No cultural resources of any kind were identified within the proposed TID Okieville Basin Project APE.

## 5.1 RECOMMENDATIONS

No cultural resources of any kind were identified within the proposed TID Okieville Basin Project APE. Based on the inventory results, the proposed TID Okieville Basin Project does not have the potential to result in adverse effects or significant impacts to historic properties or historical resources, and a determination of no effect is recommended. The Tachi-Yokut Tribe however has recommended that, due to tribal sensitivity, Native American monitoring be conducted for all ground surface disturbance during the Project. In the unlikely event that cultural resources are discovered during construction or use of the Project, further, it is recommended that an archaeologist be contacted to evaluate the discovery.

# REFERENCES

Bailey, James
2010 National Register of Historic Places Multiple Property Documentation Form Central Valley Project: Planning and Construction of the First Four Divisions, 1935-1956. Prepared by the historian at the U.S. Bureau of Reclamation, February 2010.

Boyd, W.H.
1997 *Lower Kern River Country 1850-1950: Wilderness to Empire*. Kings River Press, Lemoore.

Caltrans
1999 *General Guidelines for Identifying and Evaluating Historic Landscapes*. Sacramento: Caltrans.
2000 Water Conveyance Systems in California: Historic Context Development and Evaluation Procedures. Sacramento: Caltrans.
2007 *A Historical Context and Archaeological Research Design for Agricultural Properties in California*. Sacramento: Caltrans.
2008 *A Historical Context and Archaeological Research Design for Mining Properties in California*. Sacramento: Caltrans.

Christian, D., compiler
2009 Tulare County Historical Archives workbook. Manuscript.

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.

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.

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.

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.

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 (JRP)
2003 *Historic Context Statement: Roadway Bridges of California: 1936 to 1959.* Prepared for the State of California Department of Transportation Environmental Program, Sacramento, California, January 2003.

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.

Latta, F.F.
1977 *Handbook of the Yokuts Indians*. Bear State Books, Santa Cruz.

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, 2021.

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.

Moratto, M.
1984 *California Archaeology*. New York: Academic Press.

National Register of Historic Places
2007 Multiple Property Documentation Form: *California's Central Valley Project: Historic Engineering Features to 1956.* U.S. Department of the Interior, Bureau of Reclamation, June 2007.

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.

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.

TID (Tulare Irrigation District)
n.d. Tulare Irrigation District History. Available online at http://tulareid.org/district-profile; accessed November 8, 2021.

W&S Consultants
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.