NORTH CANAL SPREADING WORKS EXPANSION PROJECT

DRAFT INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

DECEMBER 2024

PREPARED FOR:

Arvin-Edison Water Storage District
20401 E Bear Mountain Boulevard
Arvin, CA 93203

PREPARED BY:

PROVOST&PRITCHARD
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ACRONYMS AND ABBREVIATIONS

AB ..... Assembly Bill
ACSD ..... Arvin Community Service District
AE ..... Exclusive Agriculture
AEWSD ..... Arvin-Edison Water Storage District
AFY ..... acre-feet per year
AGSA ..... Arvin Groundwater Sustainability Agency
APN ..... Assessor's Parcel Number
BMP ..... Best Management Practices
CalEEMod ..... California Emissions Estimator Modeling (software)
CARB ..... California Air Resources Board
CCAA ..... California Clean Air Act
CDFW ..... California Fish and Wildlife
CEQA ..... California Environmental Quality Act
CGS ..... California Geological Survey
CH_4 ..... Methane
CHRIS ..... California Historical Resources Information System
CNDDB ..... California Natural Diversity Database
CNPS ..... California Native Plant Society
CO ..... Carbon Monoxide
CRHR ..... California Register of Historical Resources
DOC ..... Department of Conservation
DTSC ..... Department of Toxic Substances Control
FMMP ..... Farmland Mapping and Monitoring Program
GAMAQI ..... Guide for Assessing and Mitigating Air Quality Impacts
GHG ..... Greenhouse Gas
GIS ..... Geographic Information System
GSA ..... Groundwater Sustainability Agency
GSP ..... Groundwater Sustainability Plan
GWP ..... Global Warming Pattern
IPaC ..... U.S. Fish and Wildlife Service's Information for Planning and Consultation system
IS ..... Initial Study
IS/MND ..... Initial Study/Mitigated Negative Declaration
MMRP ..... Mitigation Monitoring and Reporting Program

MND ..... Mitigated Negative Declaration
NAHC ..... Native American Heritage Commission
NCSW ..... North Canal Spreading Works
ND ..... Negative Declaration
NO_2 ..... Nitrogen Dioxide
NOx ..... Nitrogen Oxides
NRCS ..... Natural Resources Conservation Service
NRHP ..... National Register of Historic Places
O&M ..... Operations and Maintenance
$PM_{2.5}$ ..... particulate matter 2.5 microns in size
PM_{10} ..... particulate matter 10 microns in size
ppb ..... parts per billion
ppm ..... parts per million
Project ..... North Canal Spreading Works
ROG ..... Reactive Organic Gases
SB ..... Senate Bill
SGMA ..... Sustainable Groundwater Management Act
SJVAB ..... San Joaquin Valley Air Basin
SJVAPCD ..... San Joaquin Valley Air Pollution Control District
SLF ..... Sacred Lands File
SO_2 ..... Sulfur Dioxide
SOKR ..... South of Kern River
SR ..... State Route
SRA ..... State Responsibility Area
SSJVIC ..... South San Joaquin Valley Information Center
SWPPP ..... Storm Water Pollution Prevention Plan
SWRCB ..... State Water Resources Control Board
TPY ..... tons per year
USBR ..... United States Bureau of Reclamation
USDA ..... United States Department of Agriculture
USEPA ..... United States Environmental Protection Agency
USFWS ..... United States Fish and Wildlife Service
USGS ..... United States Geological Survey
UST ..... underground storage tanks

CHAPTER 1 INTRODUCTION

Provost & Pritchard Consulting Group (Provost & Pritchard) has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) on behalf of the Arvin-Edison Water Storage District (AEWSD) to address the potential environmental effects of the North Canal Spreading Works Expansion Project (Project). This document has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq. The AEWSD 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 CalEEMod Output Files, Biological Evaluation Report, and Class III Inventory/Phase 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

North Canal Spreading Works Expansion Project

2.1.2 Lead Agency Name and Address

Arvin-Edison Water Storage District
20401 E Bear Mountain Boulevard
Arvin, CA 93203

2.1.3 Contact Person and Phone Number

Lead Agency Contact
Jeevan Muhar, Engineer-Manager
(661) 854-5573
jmuhar@aewsd.org

CEQA Consultant
Provost & Pritchard Consulting Group
Briza Grace Sholars, Senior Environmental Planner, Project Manager
(559) 449-2700
bsholars@ppeng.com

2.1.4 Project Location

The Project site is located in Kern County, California, southeast of the City of Bakersfield, and approximately 1.5-miles north of the City of Arvin (see Figure 2-1 and Figure 2-2). The site is located adjacent to both the existing AEWSD North Canal Spreading Works and DiGiorgio Unit Pipeline Projects. The Project site encompasses Assessor's Parcel Numbers (APN) 189-400-01, 189-400-02, 189-400-03, 189-400-04, 189-400-05, 189-400-06, 189-400-07, and 189-400-08, and portions of 189-400-11, 189-390-01, 189-390-02, 189-390-03. which totals approximately 195 acres. The centroid of the Project site is located at 35°14'30.67"N, 118° 50'17.02"W.

2.1.5 General Plan Designation and Zoning

Project Area	General Plan Designation	Zoning District
ONSITE	Intensive Agriculture	Exclusive Agriculture
ADJACENT LANDS	Intensive Agriculture	Exclusive Agriculture

2.1.6 Description of Project

District Background

Arvin-Edison Water Storage District was formed in 1942 and is comprised of approximately 132,000 acres of prime agricultural lands which are located entirely in Kern County. Irrigated crops include vineyards, truck crops, potatoes, cotton, citrus, and orchards. In addition, AEWSD oversees infrastructure consisting of 45-miles of concrete canals, 50 pumping plants with 150 pumps/motors, 1500 acres of spreading basins, 86 groundwater extraction wells, and manages approximately 50 employees.

The AEWSD is governed by a board of nine directors. Each director represents a separate geographical division of the AEWSD, and regular board meetings are held once each month. The Board manages and maintains all policies and procedures and guides the direction of the organization.

Project Background and Purpose

The AEWSD, the CEQA lead agency, has prepared this IS/MND to address the potential environmental impacts of the proposed North Canal Spreading Works (NCSW) Expansion Project. Arvin Community Service District (ACSD) relies solely on groundwater to provide drinking water for the rural disadvantaged community in and around the City of Arvin, an overburdened and underserved census tract by the Federal Climate and Economic Justice Screening Tool.[1] AEWSD and ACSD are discussing joint development of the proposed Project. AEWSD holds Class 1 and Class 2 surface water contracts with the USBR. The proposed Project has the potential to create a dedicated groundwater recharge area, create opportunities to increase ACSD's drinking water supply sustainability with access to groundwater recharge facilities, and improve regional sustainable water management.

Furthermore, the Project would support compliance with the Sustainable Groundwater Management Act (SGMA), which AEWSD and ACSD have executed a Memorandum of Understanding to implement SGMA within the Arvin Groundwater Sustainability Agency (AGSA). This Project type is identified in the Kern County Subbasin Groundwater Sustainability Plan (GSP) and aligns with AEWSD's Drought Management Plan by increasing groundwater banking. By capturing additional water in wet years and banking that water through intentional aquifer recharge, the Project would increase the capacity of AEWSD's water portfolio and reliability of ACSD's drinking water especially during drought periods. The Project is a critical step in the continued pursuit of drought resiliency in Kern County.

Project Description

The proposed Project would construct up to 160 acres of new groundwater recharge basins and modify 35 acres of existing groundwater recharge basins to meet the goals of the Project. Soils onsite would be excavated to construct basins which would be gravity filled. The excavated material would be used to create berms between basin cells as needed. Currently, the corners on the northwest and southeast side of the Project are "emergency" buffer cells that are normally operated with low water levels, with some available capacity to be used for operational upsets. Berms would be added across the middle, so that the portion upstream of the proposed berm can then be used for spreading works instead of only for emergency spill. The recharge basins would consist of a series of embankments up to six feet high from the existing grade. Basins would be connected by interbasin structures, accessed by new berm dirt roads for operation and maintenance activities, and protected by new perimeter fencing and gates. The proposed Project would connect to the existing gravity pipeline infrastructure along the northern portion of the site and divert

[1] EPA Environmental Just Screening Tool

available surface water via proposed connections to existing pipeline tees located on the existing AEWSD DiGiorgio Unit 48-inch gravity pipeline.

The proposed Project would be located on AEWSD property and bounded by AEWSD owned property to the north and east. Currently, the Project site is vacant except one existing Ag irrigation well on site that will be operated for by the previous owner for five years and then utilized as a monitoring well , in the NE corner near Thewalt Ave. There are two additional existing recovery wells that are off site to the east and an oil well that was abandoned 10 feet below ground surface recently. The site would be enclosed by perimeter fencing and gates.

On average, the annual recharge benefit is expected to be 5,200 acre-feet per year AFY with an additional benefit of approximately 500 AFY due to the land use change from irrigated agriculture, vineyards and almond orchards, to recharge basins.

Construction Schedule

Construction of the recharge basin Project is estimated to start in spring 2025 and last approximately six months. The Project includes mobilization, site preparation, earthwork for basin cells and berms, discharge outlet connections to the existing 48-inch gravity pipeline, and interbasin structures. New berm construction would not exceed six feet, measured from the exterior toe to the top of the new berm. After construction completion, performance testing and demobilization would occur.

Construction would occur between the hours of 7am and 5pm, Monday through Friday, excluding holidays.

Although construction is not expected to generate hazardous waste, field equipment used during construction has the potential to contain various hazardous materials such as diesel fuel, hydraulic oil, grease, solvents, adhesives, paints, and other petroleum-based products.

Equipment

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

- Excavators;
- Backhoes;
- Graders;
- Skid steers;
- Loaders;
- Water trucks; and
- Tractors.

Construction would require temporary staging areas for storage of materials and supplies. Construction staging areas would be located onsite within the 195-acre area surveyed for biological and cultural resources.

Operation and Maintenance

The proposed recharge basin Project would allow the AEWSD to monitor and manage groundwater recharge levels. Operation and maintenance of the proposed Project would be performed by AEWSD's existing staff.

2.1.7 Site and Surrounding Land Uses and Setting

The Project site is bounded by AEWSD basins to the north and east, known as the North Canal Spreading Works, and agricultural lands to the south and west. The expansion recharge basin Project would be constructed on AEWSD property and existing public roads (Buena Vista Blvd. & Comanche Dr.) would be used to access the site.

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	Intensive Agriculture	Exclusive Agriculture
EAST	Agricultural	Intensive Agriculture	Exclusive Agriculture
SOUTH	Agricultural	Intensive Agriculture	Exclusive Agriculture
WEST	Agricultural	Intensive Agriculture	Exclusive Agriculture

2.1.8 Other Public Agencies Whose Approval May Be Required

Additional permits and approvals that may be required:

- State Water Resources Control Board – NPDES Construction General Permit
- San Joaquin Valley Air Pollution Control District – Rules and Regulations (Regulation VIII, Rule 9510, Rule 4641)

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.

Arvin-Edison Water Storage District has not received any written correspondence from Tribe pursuant to Public Resources Code Section 21080.3.1 requesting notification of proposed project.

2.1.10 "CEQA–Plus" Assessment

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

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

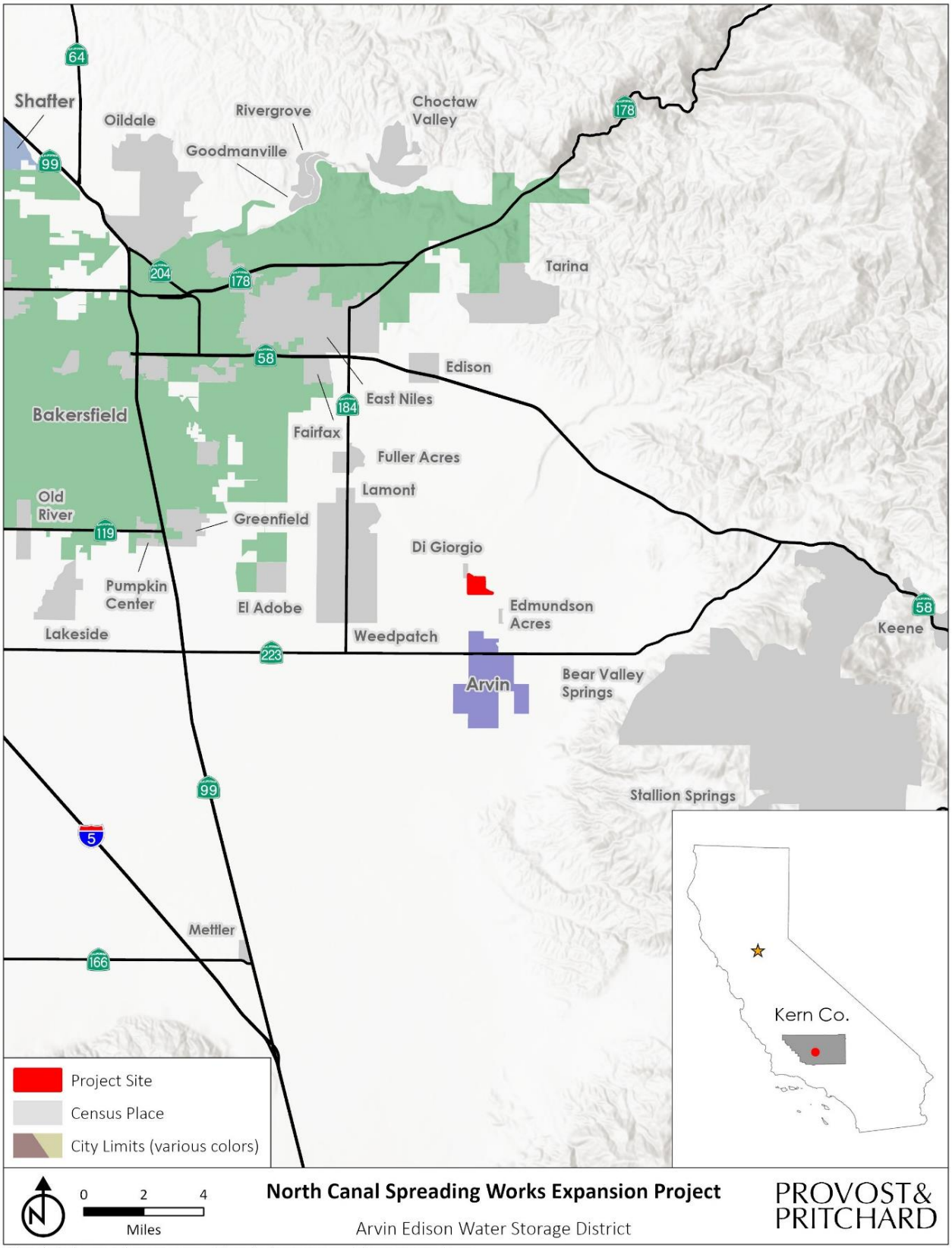

Figure 2-1: Regional Location Map

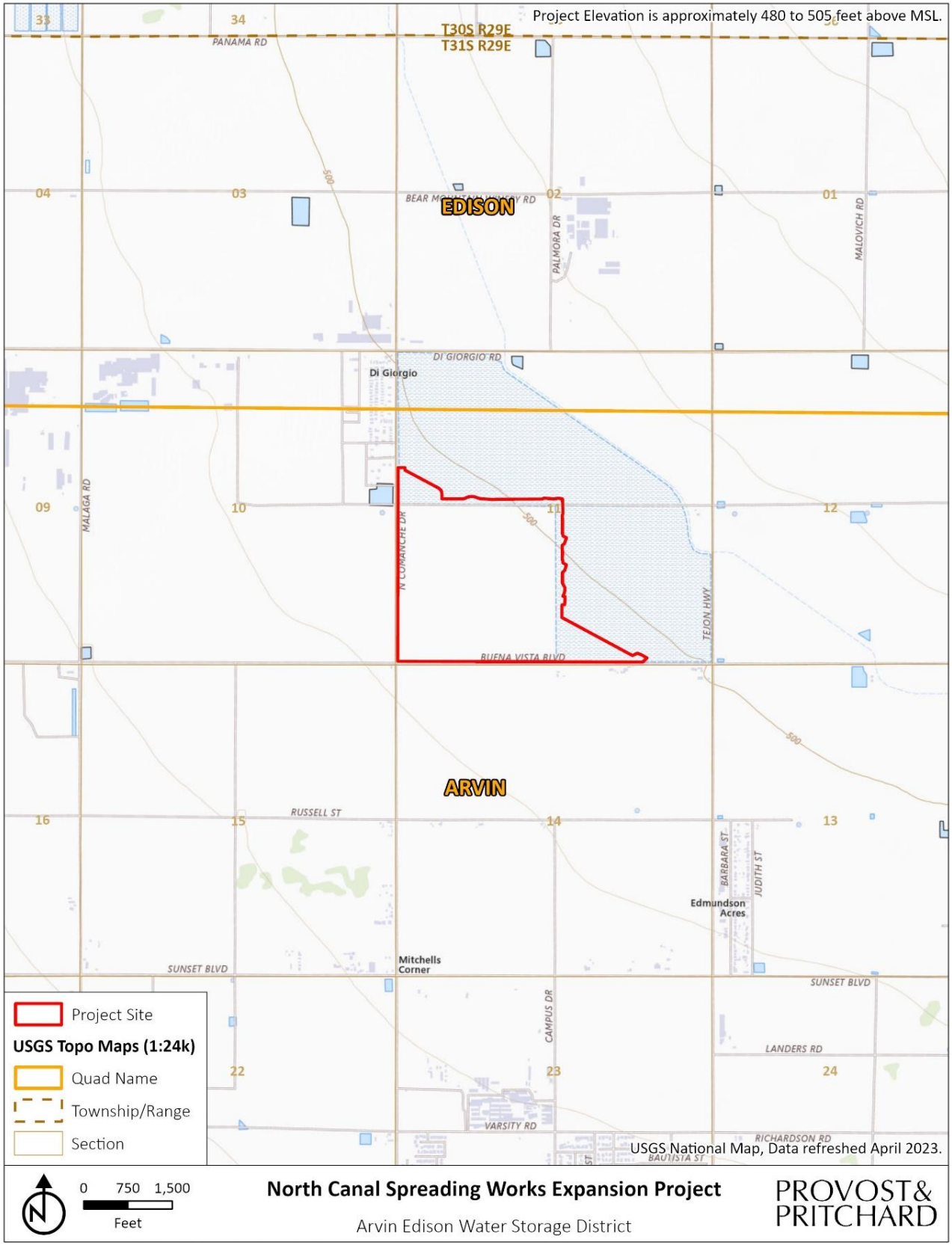

Figure 2-2: Topo Quad Map

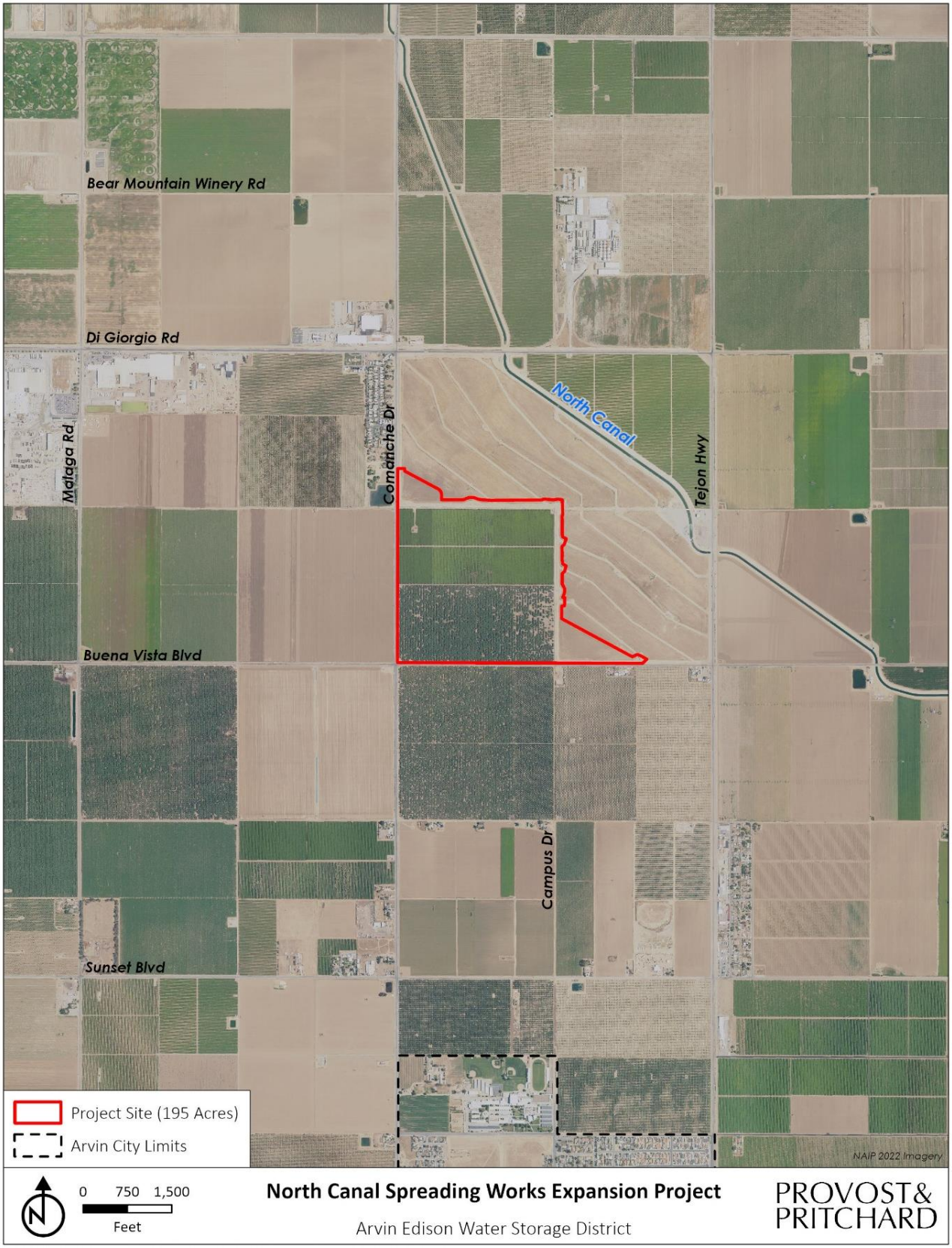

Figure 2-3: Project Area Map

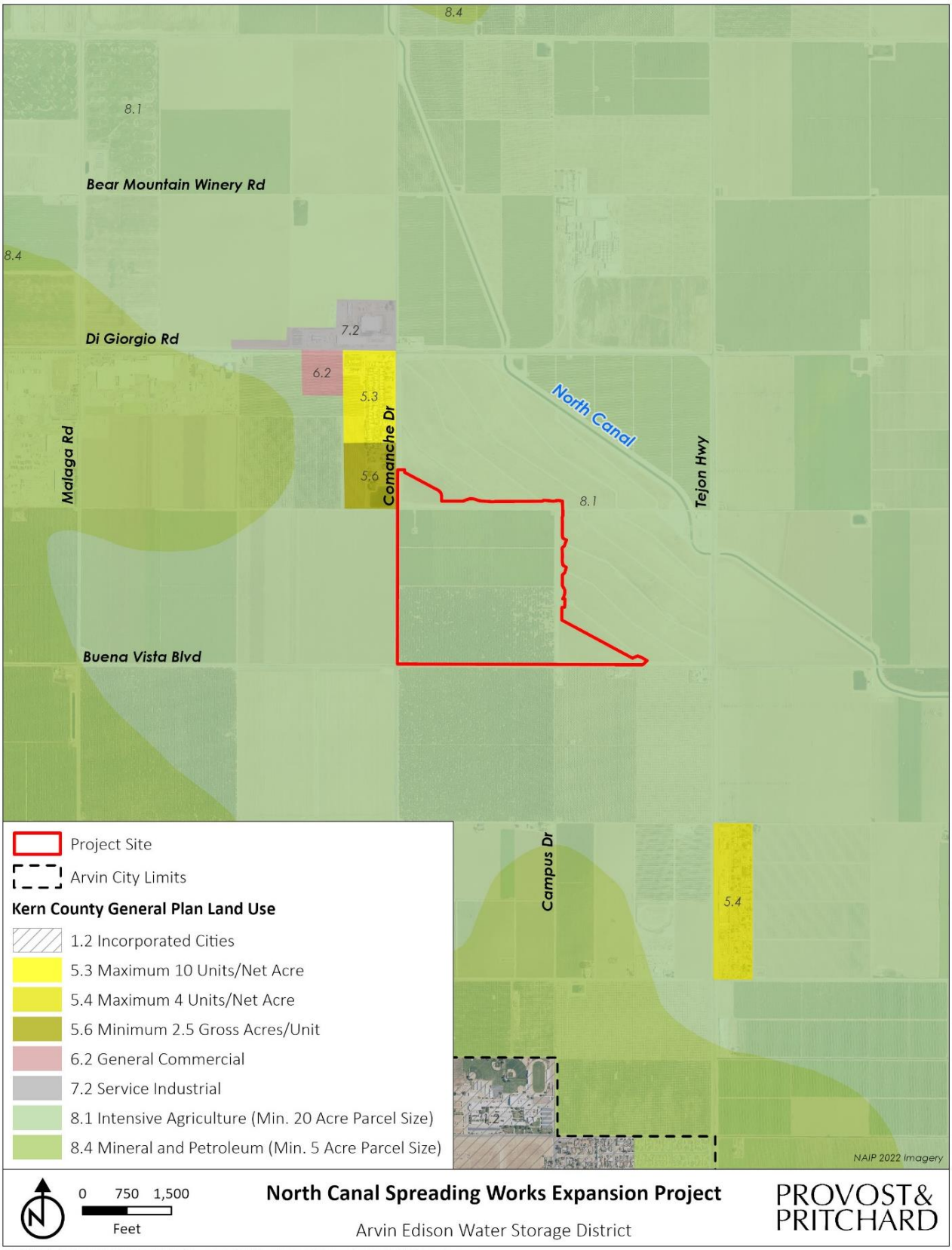

Figure 2-4: General Plan Land Use Designation Map

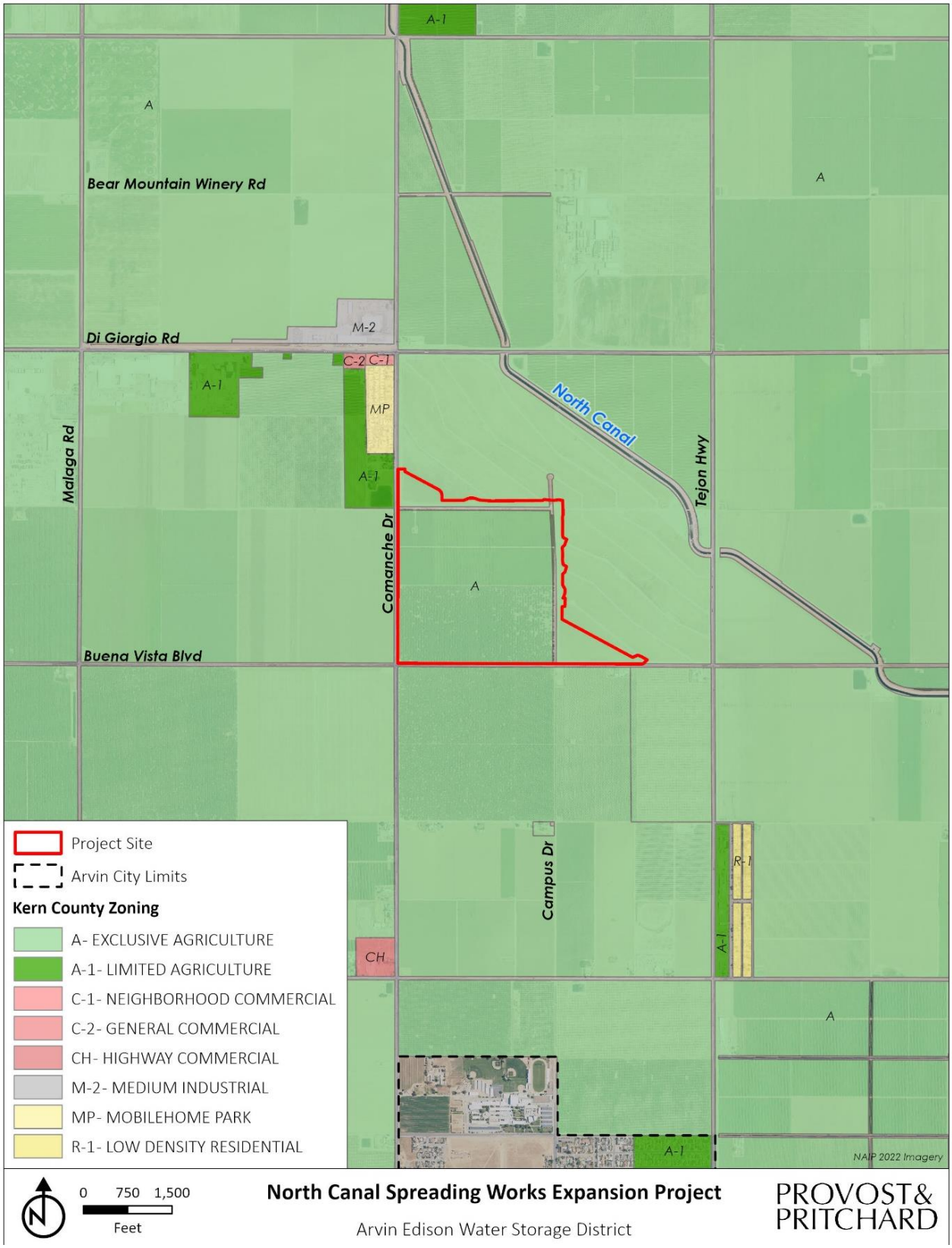

Figure 2-5: Zone District Map

CHAPTER 3 DETERMINATION

3.1 POTENTIAL ENVIRONMENTAL IMPACTS

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

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

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

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

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

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

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

3.2 DETERMINATION

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

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

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

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

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

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

Signed by:
S. Blue
19DDF39AE37429...
Signature

12/17/2024
Date

Samuel Blue Resource Manager
Printed Name/Position

CHAPTER 4 ENVIRONMENTAL IMPACT ANALYSIS

4.1 AESTHETICS

Table 4-1: Aesthetics Impacts

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

4.1.1 Baseline Conditions

The Project site is a few miles west of the Sierra-Tehachapi foothills and is located within the jurisdiction of County of Kern and the AEWSD boundary. (see Figure 2-1). There are no scenic resources or public views on the site and no new lighting or glare would be created as a part of the Project. The nearest state scenic highway is Highway 58 and is located approximately 8-miles northeast of the Project site.[2]

The existing land uses surrounding the proposed Project site are used predominantly for recharge basins and agriculture. The proposed Project would construct new recharge basins and would be consistent with the adjacent spreading works recharge basin visual characteristics of the area.

[2] (California Department of Transportation n.d.)

4.1.2 Impact Analysis

a) Have substantial adverse effect on a scenic vista?

No Impact. The proposed Project would be constructed on vacant land and would be consistent with the agricultural aesthetics of the area. The berms for the basin would not exceed six feet and would not interfere with any scenic vistas. There would be no impact.

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

No Impact. Trees, rock outcrops, and historic buildings are absent from the site. The nearest scenic highway, Highway 58, is located more than 8-miles northeast of the site. There would be no impact to aesthetic resources.

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?

No impact. The proposed Project is in a rural agricultural area and basins would be consistent with the surrounding aesthetics and existing AEWSD spreading works recharge basins adjacent to the site. There would be no impact.

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

No Impact. No new lighting is proposed as part of the Project and would not affect day or nighttime views of the area. 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

The Project site is located in the southern end of California's Central Valley within an unincorporated area in Kern County. Kern County is located within California's agricultural heartland and a vast variety of commodities are grown in the county. Commodities include milk, poultry, livestock, and other animal commodities, row crops, nuts and fruit tree crops, and vegetables.

The Project site is considered Prime Farmland by the California Department of Conservation (DOC) Map Finder 2020 (see Figure 4-1: Farmland Map). The California Department of Conservation's 2012 Farmland Mapping and Monitoring Program (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 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. The five agricultural categories are 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.

Kern County General Plan designates that the proposed Project site is zoned as Exclusive Agriculture. The proposed Project would provide supportive agricultural services. The proposed Project would not include any conversions to non-agricultural uses.

4.2.2 Impact Analysis

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

No impact. The proposed Project would construct up to 195 acres of recharge basins on vacant land to provide a dedicated supply of recharge for the AEWSD. The Kern County General Plan designates the Project site as Exclusive Agriculture and historical uses of the site including vineyard and almond crops. Construction of recharge basins for the purpose of agriculture is consistent and is an acceptable use within area designated as Exclusive Agricultural. The proposed Project would not convert Prime Farmland to non-agricultural use therefore there would be no impact.

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

Less than Significant Impact. The proposed Project site contains eight APNs under a Williamson Act Contract with two contracts adjacent to the site. Table 4-3 below details the APN's.

Table 4-3: Assessor's Parcel Number

APN	LOCATION
189-400-01	Project site
189-400-02	Project site
189-400-03	Project site
189-400-04	Project site
189-400-05	Project site
189-400-06	Project site
189-400-07	Project site
189-400-08	Project site
189-050-65	Adjacent
189-130-23	Adjacent
189-070-01	Adjacent

The Williamson Act program has three main objectives and includes protection of Agricultural Resources, preservation of Open Space Land, and Promotion of Efficient Urban Growth Patterns. The proposed Project would construct up to 195 acres of recharge basins which would be consistent with the protection of agricultural resources, therefore there would be a less than significant impact.

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

No Impact. The proposed Project site is not zoned for forestry or timberland resources. Timberland and forestry resources are absent from the site therefore the proposed Project would not have an impact.

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

No Impact. Forested land is not present on-site, nor would the Project convert forest land to non-forestry use therefore there is no impact.

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

No impact. No other changes to the existing environment would result from the proposed Project.

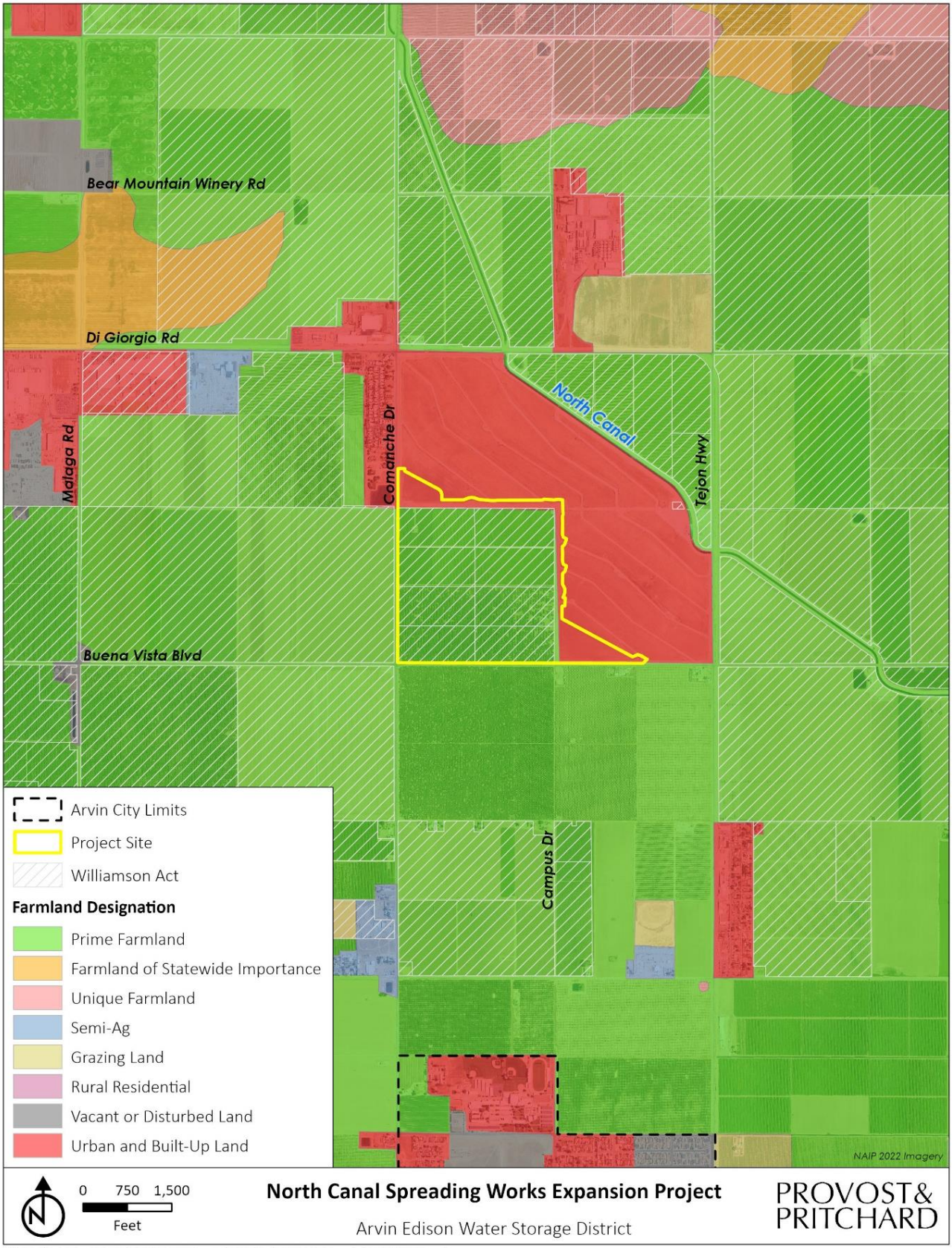

Figure 4-1: Farmland Map

4.3 AIR QUALITY

Table 4-4: 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 is located within the boundaries of the San Joaquin Valley Air Pollution Control District (SJVAPCD) and the San Joaquin Valley Air Basin (SJVAB). The SJVAB is positioned within the San Joaquin Valley of California. The San Joaquin Valley is bounded by the Sierra Nevada Mountain Range to the east and the Coastal Mountain Range to the west. Wind within the SJVAB typically channels south-southwest during the summer months, while wind flows to the north-northwest during the winter months. Wind velocity for the region is considered low for an area of such size.[3] Due to a lack of strong wind and the natural confinement of the mountain ranges surrounding the SJVAB, the region experiences some of the worst air quality in the world.

Regulatory Attainment Designations

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

The USEPA designates areas for ozone, CO, and NO_2 as "does not meet the primary standards," "cannot be classified," or "better than national standards." For SO_2, areas are designated as "does not meet the primary standards," "does not meet the secondary standards," "cannot be classified," or "better than

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

national standards." However, the CARB terminology of attainment, nonattainment, and unclassified is more frequently used. The USEPA uses the same sub-categories for nonattainment status: serious, severe, and extreme. In 1991, USEPA assigned new nonattainment designations to areas that had previously been classified as Group I, II, or III for PM_{10} based on the likelihood that they would violate national PM_{10} standards. All other areas are designated "unclassified."

According to the USEPA San Joaquin - Kern County was in non-attainment for two pollutant concentrations, with $PM_{2.5}$ (2012) being classified as in serious non-attainment and 8-hour Ozone (2015) classified as being in extreme non-attainment as of June 4, 2024.[4]

Table 4-5: 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		

[4] (United States Environmental Protection Agency 2024)

** 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 6/4/2024.*
****Secondary Standard*
Source: http://www.valleyair.org/aginfo/attainment.htm. Accessed 2024

Constructed-Generated Emissions

Construction of the Project is assumed to be completed over the course of approximately six months, starting in spring 2025. Emissions associated with the Project were calculated using CalEEMod Air Quality Model, Version 2020.4.0. The emissions modeling includes emissions generated by off-road equipment, haul trucks, and worker commute trips. All other assumptions are based upon the default parameters contained in the model. Localized air quality impacts associated with the Project would be minor and were qualitatively assessed. Modeling assumptions and output files are included in Appendix A.

Thresholds of Significance

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

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

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

The SJVAPCD adopted significance thresholds for construction-related and operational ROG, NO_X, PM, CO, and SO_X, these thresholds are included in Table 4-6.

Table 4-6: Project-Level Air Quality CEQA Thresholds of Significance

Pollutant	Significance Threshold	
	Construction Emissions (tons/year)	Operational Emissions (tons/year)
CO	100	100
NO_x	10	10
ROG	10	10
SO_x	27	27
PM_{10}	15	15
$PM_{2.5}$	15	15
Source: SJVAPCD. 2015. Guidance for Assessing and Mitigating Air Quality Impacts. Website: https://www.valleyair.org/transportation/GAMAQI-2015/FINAL-DRAFT-GAMAQI.PDF. Accessed June 4, 2024.		

4.3.2 Impact Analysis

Short-Term Construction-Generated Emissions

Estimated construction-generated emissions are summarized in Table 4-7. Due to the passive nature of basins, long-term operational emissions would be negligible and would not exceed any set threshold governing air quality emission generation within the SJVAPCD.

Table 4-7: Unmitigated Short-Term Construction Generated Emissions of Criteria Air Pollutants

Source	Annual Emissions (TPY[1])					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Maximum Annual Project Construction Emissions	0.0978	0.9234	0.8870	2.1100e-003	1.0305	0.3178
SJVAPCD Threshold	*10*	*10*	*100*	*27*	*15*	*15*
Threshold Exceeded?	No	No	No	No	No	No
[1]TPY – Tons per Year						

Maximum Daily Emissions of Criteria Air Pollutants

Daily construction emissions generated by the Project are summarized in Table 4-8.

Table 4-8: Maximum Daily Emissions of Criteria Air Pollutants

Source	Daily Emissions Maximum (in pounds)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Construction – Summer	2.9759	27.9848	27.0297	0.0643	25.1686	11.6171
Construction – Winter	2.9705	27.9908	26.8929	0.0640	25.1686	11.6171
SJVAPCD SJVAB Threshold	*100*	*100*	*100*	*100*	*100*	*100*
Threshold Exceeded?	No	No	No	No	No	No

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

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

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

Less than Significant Impact. The proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment. As shown in Table 4-7, and Table 4-8, the Project would not exceed an emissions threshold which has been set by the SJVAPCD for construction related emissions. Due to the passive nature of basins, long-term operational emissions would be negligible and would not exceed any set threshold governing air quality emission generation within the SJVAPCDSJVAB. Therefore, impacts would be less than significant.

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

Less than Significant Impact. The Project would not expose sensitive receptors to substantial pollutant concentrations. Sensitive Receptors are groups that would be more affected by air, noise, and light pollution, pesticides, and other toxic chemicals than others. This includes infants, children under 16, elderly over 65, athletes, and people with cardiovascular and respiratory diseases. High concentrations

of these groups would include daycares, residential areas, hospitals, elder care facilities, schools and parks. The proposed Project would result in the construction of new recharge basins adjacent to existing recharge basins within AEWSD in rural Kern County. The Project would be located in the vicinity of some rural residential homes in some areas. Construction of the Project would occur over a larger area than that abutting these rural residential homes. The temporary nature of construction generated emissions and the fact that construction would move throughout the site and is not concentrated next to these sensitive receptors makes it unlikely that a significant impact would result from the Project. Additionally, the Project would not result in construction or operational emissions that would result in an exceedance of a set threshold. Therefore, impacts would be less than significant.

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

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

4.4 BIOLOGICAL RESOURCES

Table 4-9: 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

A reconnaissance level field survey of the Project site was conducted in the summer of 2024 by a qualified Provost and Pritchard biologist. The survey was a combination of pedestrian surveys and driving to identify land uses, biological habitats, and communities, as well as plant and animal species within the area. Prior to the field survey, a desktop review from various sources was conducted to identify the potential for sensitive resources on and in the vicinity of the proposed Project area. Sources included DFW's California Natural Diversity Database (CNDDB; see Appendix B for the species list) and California Wildlife Habitat Relationships database; California Native Plant Society's (CNPS) Online Inventory of Rare and Endangered

Vascular Plants of California; CalFlora's online database of California native plants; Jepson Herbarium's online database (i.e., Jepson eFlora); United States Fish and Wildlife Service's (USFWS) Environmental

Conservation Online System, Information for Planning and Consultation (IPaC); see Appendix B for the species list) system, and National Wetlands Inventory; iNaturalist; NatureServe Explorer's online database; United States Department of Agriculture (USDA) Natural Resources Conservation Service's (NRCS) Web Soil Survey (see Appendix D of Appendix B for the Web Soil Survey Report); California Herps website; and various manuals, reports, and references related to plants and animals of the San Joaquin Valley region. While the survey did not include focused special status species surveys, the appropriate level of detail was used to determine the potential for significant impacts to sensitive resources.

Based on the survey, two biotic habitats were observed within the Project site and consisted of Ruderal and Basin. The majority of the Project site is comprised of the Ruderal habitat and contains bare soil previously used for agricultural purposes (see Appendix B). At the time of the survey the land was fallow. The adjacent basin habitats had a variety of water levels and vegetation cover and showed signs of being regularly being disturbed by human activity.

Based on the CNDDB and IPaC query of the proposed Project site and surrounding 8 surrounding quads presented that there is a potential for 22 special status plants and 26 special status animals to occur within the area based on historic records. Of the 26 special status animal species all are unlikely or absent from the site due to lack of habitat. Of the 28 regionally occurring special status animal species, all are considered absent from or unlikely to occur within the APE due to past or ongoing disturbance and/or the absence of suitable habitat. Since it is unlikely that these species would occur onsite, implementation of the project should have no impact on these 28 special status species through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted. The proposed Project site does contain suitable nesting and foraging habitat for protected bird species (raptors and migratory birds).

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?

No Impact. The proposed Project would not have a substantial adverse effect on special status species. Based on the results of the Biological Evaluation, Appendix B, special status species, do not currently occupy the Project site therefore there would be no impact.

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. Based on the findings of the field survey conducted in the spring of 2024, there are no sensitive riparian habitats or sensitive natural community within the Project site. Riparian habitat is absent from the Project site and surrounding areas therefore 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. There would be no disturbance to the existing AEWSD canal as part of the proposed Project. Wetlands, vernal pools, and other potentially federally protected waters are absent for the proposed Project site therefore there would be no impact.

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

Less than Significant Impact with Mitigation Incorporated. The Project site is surrounded on three sides by existing AEWSD recharge facilities. Although unlikely the Project site could contain suitable habitat for herpetofauna to use for nursery sites. The incorporation of mitigation measures would reduce the potential for impacts to less than significant.

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

No Impact. Trees are absent from the proposed Project site and the Project does not conflict with any local preservation policy or ordinance. There would be no impact.

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

No Impact. The Project site is not within the boundaries of a Habitat Conservation Plan, Natural Community Conservation Plan, or a local, regional, or state Habitat Conservation Plan therefore there would be no impact.

4.4.3 Mitigation

As the Project site contains suitable habitat for nesting and foraging habitat for protected nesting birds would be implemented in order to reduce the potential for the level of impact to less than significant.

BIO-1 Mitigation Measure BIO-1a (*Avoidance*): The project's construction activities will occur, if feasible, between September 1 and January 31 (outside of the nesting bird season) to avoid impacts to nesting birds.

BIO-2 Mitigation Measure BIO-1b (*Pre-construction Surveys*): If activities must occur within the nesting bird season (February 1 to August 31), a qualified biologist (someone who is familiar with the species in the region) will conduct a pre-construction survey for active nests within ten (10) calendar days prior to the start of construction. The survey will be completed within the APE, and up to 50 feet outside of the APE for nesting migratory birds and up to 500 feet outside of the APE in all accessible areas for nesting raptors. Raptor nests are considered "active" upon the nest-building stage. If no active nests are observed, no further mitigation is required.

BIO-3 Mitigation Measure B (*Avoidance Buffers*): On discovery of any active nests or breeding colonies near work areas, a qualified biologist will determine appropriate avoidance buffer distances based on applicable California Department of Fish and Wildlife (CDFW) and/or USFWS guidelines, the biology of the species, conditions of the nest(s), and the level of project disturbance. If necessary, avoidance buffers will be identified with flagging, fencing, or other easily visible means, and will be maintained until the biologist has determined that the nestlings have fledged.

Figure 4-2: Overview of the Proposed Project Site

Figure 4-3: Existing Fence

Figure 4-4: View of the Fallow Field and Oil Well

Figure 4-5: View of the Southern Most Basin

4.5 CULTURAL RESOURCES

Table 4-10: Cultural Resources Impacts

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to in § 15064.5?	☐	☐	☒	☐
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

The proposed Project site is located in Kern County within the San Joaquin Valley. An intensive Class III inventory survey of the Project site was completed by ASM Associates (ASM) in the spring of 2024. The survey methods consisted of pedestrian survey that utilized visual inspections of the ground for signs of cultural resources. Survey methods included scanning for evidence of archaeological sites such as artifacts, surface features (i.e., bedrock mortars/mining equipment), and archaeological indicators. The site was surveyed using parallel survey transects spaced 15 meters apart.

The results of the pedestrian survey found that no archaeological resources of any kind were identified in the Project site.

Records Search

At ASM's request, the South San Joaquin Valley Information Center (SSJVIC) of the California Historical Resources Information System (CHRIS) at California State University, Bakersfield, performed a records search on April 2, 2024, to identify previously recorded resources and prior surveys within the proposed Project site and surrounding 0.5-mile radius. SSJVIC staff completed searches of the Historic Property Data File, National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), listings of California Historical Landmarks, California Inventory of Historic Resources, and the California Points of Historical Interest database (Appendix C).

The records search showed that there were eight resources within the project area and surrounding half a mile. The eight resources include SSJVIC number:

- P-15-020588
- P-15-003545,
- P -15-007994,
- P-15- 020334,
- P-15-020341,
- P-1520538,
- P-15020545,
- P-15-020596

The only resource recorded within the Project area is P-15-020588 also termed Thewalt Avenue. The road is considered historic from records identified in Appendix C but is irrelevant as it is not part of the Project and would not be affected by the proposed Project. It was concluded that Thewalt Avenue was deemed not eligible to the NRHP/CRHR under any criteria.

The records search indicated that there were six reports prepared within and within a surrounding half mile of the Project site. The reports included SSJVIC number:

- KE-04875
- KE-00633
- KE -01025
- KE-04480
- KE-04959
- KE-05149

Cultural resources will not be impacted as part of the proposed Project.

Native American Outreach

The Native American Heritage Commission (NAHC) in Sacramento was completed on March 20, 2024. 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 (SLF) to determine if any Native American resources have been recorded in the immediate proposed Project site. The NAHC identifies, catalogs, and protects Native American cultural resources -- ancient places of special religious or social significance to Native Americans and known ancient graves and cemeteries of Native Americans on private and public lands in California. The NAHC is also charged with ensuring California Native American tribes' accessibility to ancient Native American cultural resources on public lands, overseeing the treatment and disposition of inadvertently discovered Native American human remains and burial items, and administering the California Native American Graves Protection and Repatriation Act, among many other powers and duties. NAHC provide a current list of Native American Tribal contacts to notify of the Project. The 14 representatives identified by NAHC were contacted in writing via United States Postal Service in a letter April 03, 2024, informing each Tribal contact of the Project.

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

1. Chumash Council of Bakersfield, Julio Quiar, Chairperson
2. Coastal Band of the Chumash Nation, Gabe Frausto, Chairman
3. Kern Valley Indian Community, Brandy Kendricks, Tribal Member Monitor
4. Kern Valley Indian Community, Robert Robinson, Chairperson
5. Kitanemuk & Yowlumne Tejon Indians, Delia Dominguez, Chairperson
6. Northern Chumash Tribal Council, Violet Walker, Chairperson
7. Santa Ynez Band of Chumash Indians, Sam Cohen, Government of Legal Affairs Director
8. Santa Ynez Band of Chumash Indians, Kelsie Mendoza, Elders' Council Administrative Assistant
9. Santa Ynez Band of Chumash Indians, Wendy Teeter, Cultural Resources Archaeologist
10. Santa Ynez Band of Chumash Indians, Nakia Zavalla, Tribal Historic Preservation Officer
11. Tejon Indian Tribe, Candice Garza, CRM Scheduler
12. Tule River Indian Tribe, Joey Garfield, Tribal Archeologist
13. Tule River Indian Tribe, Kerri Vera, Environmental Department
14. Tule River Indian Tribe, Neil Peryon, 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?

No Impact. Based on the records search of the NAHC Sacred Lands file the results were negative. As there are no known historical resources present on site, there would be no impact.

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

Less than Significant Impact with Mitigation Incorporated. It is unlikely that the Project has the potential to result in significant impacts or adverse effects to cultural or historical resources, such as archaeological remains, artifacts, or historic properties based on the SSJVIC records search. However, in the improbable event that cultural resources are encountered during Project construction, implementation of mitigation measure CUL-1 outlined below would reduce impacts to less than significant.

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

Less than Significant Impact with Mitigation Incorporated. There is no evidence or record that the Project has the potential to be an unknown burial site, or the site of buried human remains. In the unlikely event of such a discovery, mitigation shall be implemented. With incorporation of mitigation measure CUL-2 outlined below, impacts resulting from the discovery of remains interred on the Project site would be less than significant.

4.5.3 Mitigation

CUL-1 (Archaeological Resources) 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 AEWSD shall implement all recommendations of the archaeologist necessary to avoid or reduce to a less than significant level potential impacts to cultural resources. 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 Kern County Coroner is to be notified to arrange their 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 HAHC within 24 hours of discovery. The NAHC would then identify the Most Likely Descendent who would determine the manner in which the remains are treated.

4.6 ENERGY

Table 4-11: Energy Impacts

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

4.6.1 Baseline Conditions

The proposed Project is located in southern Kern County, southeast of Bakersfield and north of Arvin. The Project area is served by Pacific Gas and Electric Company for its electrical utility needs and Southern California Gas Company for its gas utility needs.

4.6.2 Impact Analysis

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

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

Construction is estimated to consume approximately 28,000 gallons of diesel fuel and 1,041.18 gallons of gasoline fuel (See Appendix A). California Code of Regulations Title 13, Motor Vehicles, Section 2449(d)(2), Idling, limits idling times of construction vehicles to no more than five minutes, thereby precluding unnecessary and wasteful consumption of fuel because of unproductive idling of construction equipment. In addition, the energy consumption for construction activities would not be ongoing as they would be limited to the duration of Project construction.

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

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

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

4.7 GEOLOGY AND SOILS

Table 4-12: 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

According to the USDA NRCS soil survey the Project site is comprised entirely of one soil type, Hesperia sandy loam. This soil type is considered a well-drained soil, with slopes from 0 to 2 percent.

Geology and Soils

The proposed Project is located in Kern County and the Central Valley. The proposed Project is comprised of one soil type described above.

Faults and Seismicity

The Project site is not located within the Alquist-Priolo Earthquake Fault Zone and no other named faults occur through or on the site. The nearest major fault zone is the western Garlock Section located 22.5 southeast of the Project with the Edison fault located 4.5-miles north of the Project site.

Liquefaction

Seismic ground shaking of relatively loose, granular soils that are saturated or submerged can cause the soils to liquefy and temporarily behave as a dense fluid. Liquefaction is caused by a sudden temporary increase in pore water pressure due to seismic densification or other displacement of submerged granular soils. According to the Kern County General Plan Update Environmental Impact Report, the soil formations throughout much of Kern County are comprised of thick, unconsolidated, coarse-textured alluvial sediments composed of gravel, sand and silt of granitic composition. Due to the great depth to groundwater in the desert area, liquefaction does not present a major potential hazard within the Kern County area. 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.

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. These areas are high in silt or clay content.

The Project site is comprised of one soil type and is considered well drained and comprised of sandy or fine sandy loam.

Dam and Levee Failure

Lake Isabella is located approximately 35-miles northeast of the Project area. According to the Kern County General Plan DEIR8, the area is outside of the inundation zone for Lake Isabella.

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.

No Impact. The proposed Project would be constructed on vacant AEWSD property. According to the DOC California Earthquake Hazards Zone Application mapping tool the Project site does not contain any faults or fault zones. There would be no impact.

ii. Strong seismic ground shaking?

No Impact. The proposed Project would be constructed with the accepted industry standards and methods. There would be no habitable structures built as part of the recharge basin Project. The Project would not expose people to strong seismic ground shaking therefore there would be no impact.

iii. Seismic-related ground failure, including liquefaction?

No Impact. The nearest fault, the Edison Fault, is located 4.5-miles northeast of the Project site and no habitable structures are part of the proposed Project. The proposed Project would be constructed on flat relatively stable soil that is not susceptible to landslides and is appropriate for the recharge basins.

No Impact. The proposed Project and surrounding lands are comprised of flat topography and are not located within a landslide area. There would be no impact.

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

Less than Significant Impact. The proposed Project would construct up to 195 acres of recharge basins on vacant agricultural land. All soil excavated would be used to construct the berms between basin cells and no soil would be removed from the site. Basins would be constructed in a way to minimize soil erosion; therefore, impacts 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?

No Impact. The Project site is comprised of one soil type with slopes of zero to two percent. The Project site is not located in a geologic unit that is unstable or would become unstable as a result of the Project. There would be no impact.

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?

No Impact. There would be no habitable structures constructed as part of the Proposed project and basins would be constructed in accordance with industry standards.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No impact. The proposed Project does not include the use of septic tanks or other wastewater disposal systems. 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. The proposed Project site has been historically used for agricultural crops and unique paleontological resources, sites, and geological features have not been identified. Therefore, there would be no impact.

4.8 GREENHOUSE GAS EMISSIONS

Table 4-13: 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 greenhouse gas (GHG) emissions and sources include the following:

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

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

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

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

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

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

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

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

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

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

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

Emissions of GHGs contributing to global climate change are largely attributable to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. About three-quarters of human emissions of CO_2 to the global atmosphere during the past 20 years are due to fossil fuel burning. Atmospheric concentrations of CO_2, CH_4, and N_2O have increased by at least 40 percent, 150 percent, and 20 percent respectively since the year 1750. GHG emissions are typically expressed in carbon dioxide-equivalents (CO_2e), based on the GHG's Global Warming Potential (GWP). The GWP is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, one ton of CH_4 has the same contribution to the greenhouse effect as approximately 25 tons of CO_2. Therefore, CH_4 is a much more potent GHG than CO_2. In accordance with SJVAPCD's *CEQA Greenhouse Gas Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects*, proposed projects complying with Best Performance Standards (BPS) would be determined to have a less-than-significant impact.[5] Projects not complying with BPS would be considered less than significant if operational GHG emissions would be reduced or mitigated by a minimum of 29 percent, in comparison to business-as-usual (year 2004) conditions. In addition, project-generated emissions complying with an approved plan or mitigation program would also be determined to have a less-than-significant impact.

4.8.2 Impact Analysis

Project Related Emissions

Construction of the Project is assumed to be completed over the course of approximately six months, starting in October spring of 2025. Emissions associated with the Project were calculated using CalEEMod Air Quality Model, Version 2020.4.0. The emissions modeling includes emissions generated by off-road equipment, haul trucks, and worker commute trips. All other assumptions are based upon the default parameters contained in the model. Localized air quality impacts associated with the Project would be minor and were qualitatively assessed. Modeling assumptions and output files are included in Appendix A.

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

Estimated construction-generated emissions are summarized in Table 4-14. GHGs impact the environment over time as they increase and contribute to climate change.

Table 4-14: Short Term Construction Related GHG Emissions

	Emissions (MT CO2e) in TPY
Maximum Annual Construction CO2e Emissions	187.3306
AB 32 Consistency Threshold for Land-Use Development Projects*	1,100
AB 32 Consistency Threshold for Stationary Source Projects*	10,000
Threshold Exceeded?	No

* As published in the Bay Area Air Quality Management District's CEQA Air Quality Guidelines. Available online at http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed 6/4/2024.

Construction related generation of GHGs would be a maximum of 187.3306 Metric Tons of Carbon Dioxide Equivalent (MTCO2e) per year, while operational are expected to be negligible due to the nature of the proposed use. The Project would not exceed the AB 32 consistency threshold for land use projects for both short-term construction emissions and long-term operational emissions as a result.

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

Less than Significant Impact. The Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. As shown in Table 4-14, the Project is not expected to result in the generation of GHG emissions that would exceed the AB 32 consistency threshold of 1,100 MT CO2e annually during construction activities. Due to the nature of the proposed use, the Project is expected to result in the generation of negligible quantities of emissions during operational activities. Therefore, impacts would be less than significant.

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

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

4.9 HAZARDS AND HAZARDOUS MATERIALS

Table 4-15: 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

The Project site is vacant and bounded on two sides by the AEWSD North Canal Spreading Works recharge basins. The adjacent basins provide regional sustainable water management.

According to the State Water Resources Control Board's GeoTracker database and the Department of Toxic Substance's EnviroStor database, there are no active hazardous waste sites on or in the vicinity of the proposed Project site.[6]

(California Department of Toxic Substances Control 2020)

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 sites, and Land Disposal program.

A search of the DTSC EnviroStor database and the SWRCB GeoTracker performed in March 2024 determined that there are no known active hazardous waste generators or hazardous material spill sites within the proposed Project site or adjacent properties.

Airports

The nearest airport is Creekside Airport which is located 6.8-miles southwest of the Project site. The nearest commercial Airport is located 77-miles southeast of the Project site. The Project site is not located within an Airport Land Use Compatibility Plan for either of the airports mentioned.

Emergency Response Plan

The Kern County Office of Emergency Services is located within the Department of Public Health and provides safeguards to save lives, minimize injury to persons and damage to property, and to protect the environment through planning, preparedness measures, and training. Knowledgeable and well-trained personnel will carry out sound emergency plans in order to prevent and minimize losses if in the event a disaster occurs.

Sensitive Receptors

Sensitive Receptors are groups that would be more affected by air, noise, and light pollution, pesticides, and other toxic chemicals than others. This includes infants, children under 16, elderly over 65, athletes, and people with cardiovascular and respiratory diseases. High concentrations of these groups would include daycares, residential areas, hospitals, elder care facilities, schools, and parks. The Project site is located within an agricultural setting and the nearest school is located 1.5-miles from the site. No habitable structures are on or within the close vicinity of the Project site.

4.9.2 Impact Analysis

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

Less than Significant Impact. The proposed Project would construct recharge basins. Construction activities could include the use and transport of hazardous materials such as fuels, oils, and mechanical fluids. All federal, state, and local regulations would be followed during the transportation, use, storage, and disposal of hazards materials.

Although construction is not expected to generate hazardous waste, field equipment used during construction has the potential to contain various hazardous materials such as diesel fuel, hydraulic oil, grease, solvents, adhesives, paints, and other petroleum-based products. If in the event of a spill during construction the spill would be remediated in accordance with industry Best Management Practices (BMPs) and State and County regulations.

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?

Less than Significant Impact. The proposed Project would be constructed in an unincorporated part of Kern County on vacant agricultural land. There are no residences or public structures located near the vicinity of the Project site. Compliance with measures stated in section a) during construction of the proposed Project would ensure public safety.

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. Field equipment used during construction has the potential to contain various hazardous materials such as diesel fuel, hydraulic oil, grease, solvents, adhesives, paints, and other petroleum-based products. The nearest school, Arvin High School, is located 1.5-miles south of the site and construction is not expected to generate hazardous waste. There would be no impact.

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

No Impact. The proposed Project is not located on a site that is included on a list of hazardous materials pursuant to Government Code Section 65962.5 and is not included on a list compiled by the Department of Toxic Substances Control. There would be no impact.

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

No Impact. The closest airport is located over 6-miles southwest of the Project site. The proposed Project site is not located within an airport land use plan therefore 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 proposed Project would not impair implementation or physically interfere with the Kern County's Emergency Response 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?

No Impact. The proposed Project is not located on or near wildlands. There would be no habitable structures constructed as part of the proposed Project. In the event of a fire, the recharge basins would provide a water source to fight the fire which is a positive net benefit of the Project. There would be no impact.

4.10 HYDROLOGY AND WATER QUALITY

Table 4-16: 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

Water resources within Kern County include rivers and streams, groundwater, and man-made structures. The Project is located in Central Valley Region 5 of the State Water Resources Board. The United States Geological Survey (USGS) classification system identifies the proposed Project site as in the Middle Kern-Upper Tehachapi-Grapevine watershed; Hydrologic Unit Code: 18030003 and is within the Lake Paulina sub-watershed (180300030604).[7]

The AEWSD is a part of the South of Kern (SOKR) Groundwater Sustainability Plan of the San Joaquin Valley Groundwater Basin. Kern County subbasin is jointly formed by the Arvin Groundwater Sustainability

(California Department of Conservation - California Geological Survey 2020)

Agency, Wheeler Ridge-Maricopa GSA, Tejon-Castac Water District GSA, and Arvin Community Service District. The SOKR aims to implement compliance with the Sustainable Groundwater Management Act (SGMA) and the proposed Project seeks to pursue drought resiliency within Kern County by increasing the capacity of AEWSD's water portfolio and reliability of ACSD's drinking water.

The Proposed project site is located within the 100-year flood zone (see Figure 4-6: FEMA Flood Map).

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?

No Impact. The proposed Project would construct recharge basins and would require that a Storm Water Pollution Prevention Plan (SWPPP) be prepared. A SWPPP involves site planning and scheduling, limiting disturbed soil areas, and determining best management practices (BMPs) to minimize the risk of pollution and sediments being discharged from construction sites.

All measures and BMPs would be followed and implemented during construction of the basins. No discharge to surface water sources, violations of water quality standards, or impacts to waste discharge requirements are proposed as part of the Project. There would be no impact.

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?

No Impact. The proposed Project would construct recharge basins in order to increase the capacity of AEWSD water supplies and improve the reliability of ACSD's drinking water supply during times of drought. The water supply benefits of the proposed Project would include 5,700-acre feet per year of recharge and contribute to the goals of Kern County's Drought Management Plan. The proposed Project would have a positive benefit on groundwater supplies therefore there would be no impact.

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;

No Impact. The proposed Project would be engineered to work with the existing drainage pattern of the site and adjacent AEWSD North Canal Spreading Works recharge basins. The Project would not alter existing drainage patterns of rivers or streams as both are absent from the site. The proposed recharge basins are designed to capture excess water and keep the water in the basins therefore preventing erosion or siltation on- and off-site. There would be no addition of impervious surfaces on the site. There would be no impact.

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

No Impact. The proposed Project is designed to capture excess water and store it. The basins would decrease the rate and amount of runoff and lower the risk of flooding to the surrounding area. There would be no impact.

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

No Impact. The proposed Project would not create or contribute runoff water or sources of polluted water. Therefore, there would be no impact.

iv. impede or redirect flood flows?

No Impact. The proposed Project is located within a 100-year flood plain, but drainage patterns would remain the same as existing. The proposed Project would allow for improvement surface water management by the AEWSD. The Project would not impede or redirect flood flows in a negative manner therefore there would be no impact.

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

No Impact. The proposed Project is not located in a tsunami or seiche zone. The site is located within a 100-year flood plain, but the basins would contain water which is not considered a pollutant. There would be no impact.

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

No Impact. The proposed Project aligns with the goals of the SGMA and would supply a dedicated water supply for the AEWSD. The SOKR has adopted and amended GSP from 2022. The installation and construction of recharge basins would contribute to the goals of the SGMA by providing an increase in reliable water sources for the area. There would be no conflict with GSP therefore there would be no impact.

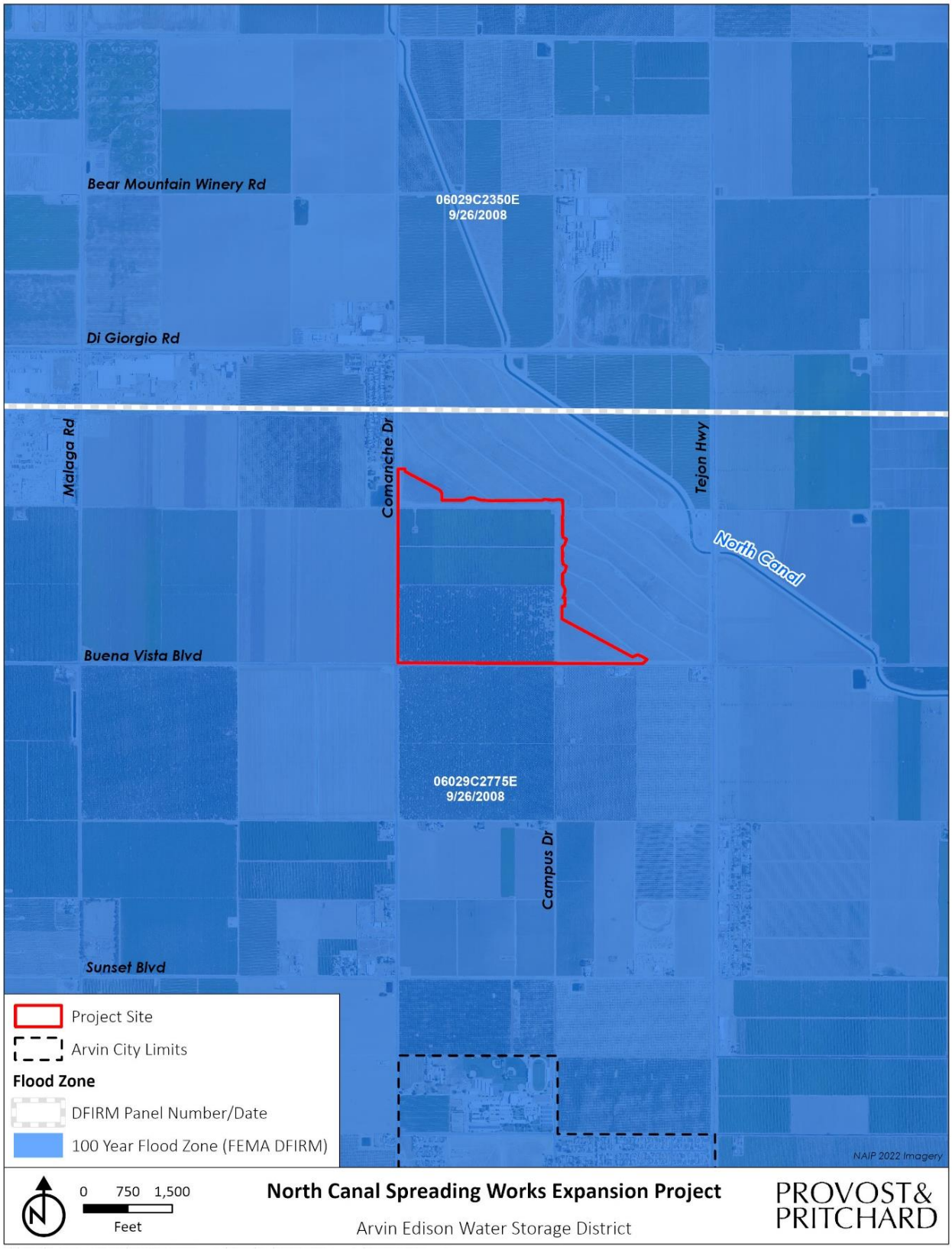

Figure 4-6: FEMA Flood Map

4.11 LAND USE AND PLANNING

Table 4-17: Land Use and Planning Impacts

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

4.11.1 Baseline Conditions

The Project site is located in an unincorporated area of Kern County and is approximately 1.5-miles north of the City of Arvin (see Figure 2-1). The site is bounded to the north and east by the existing AEWSD North Canal Spreading Works recharge basins.

The Kern County General Plan designates the proposed Project site area as Agriculture and is zoned as AE-20 (Exclusive Agriculture). The proposed Project site is surrounded by the same General Plan Land Use Map designations. Parcels adjacent to the site are zoned as Exclusive Agricultural except for a small section to the northwest of the proposed Project site which is zoned as Limited Agriculture.

4.11.2 Impact Analysis

a) Would the project physically divide an established community?

No Impact. The surrounding land uses agricultural, and the proposed Project would construct recharge basins on vacant AEWSD property. There would be no division of an established community as the site is vacant of habitable structures. The closest community is the City of Arvin, approximately 1.5-miles away. There would be no impact due to the recharge Project

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 proposed Project would construct recharge basins which is consistent with the existing agricultural land uses surrounding the site. There are no changes to Land Use or Zoning Designations as part of proposed Project, therefore there would be no impact.

4.12 MINERAL RESOURCES

Table 4-18: 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 extraction and use of Mineral Resources within Kern County provides a valuable resource for the economy. Kern County produces more oil than any other County in California with major sources of important economic resources such as borax, cement production, and other construction aggregates.[8]

The proposed Project is not zoned or designated for mineral resources. The site contains one active oil well that would not be impacted by the proposed Project and would remain active during and after construction of the recharge basins.

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?

No Impact. The proposed Project site does not contain mineral resources considered to be of value to the region or state. The existing well, owned by Bennett Petroleum Inc., is not considered to be a significant mineral resource to the region or state. During and following construction of the basins the well would remain active and undisturbed by the Project. There would be no impact.

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

No Impact. The proposed Project would construct recharge basins and would not impact the current oil well on site. No important mineral resources are present nor is the Project site zoned for mineral resources. There would be no impact.

[8] (County 2009)

4.13 NOISE

Table 4-19: 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 is in an unincorporated area of Kern County, dominated by agricultural production. There are no sensitive receptors or residents in the vicinity of the proposed Project as it is surrounded on three sides by AEWSD owned property. Construction would take place between the hours of 7am and 5pm, Monday through Friday, excluding holidays and would be consistent with the agricultural noises already present in the area.

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. Construction of the Project will involve temporary noise sources, originating from construction equipment, such as excavators, backhoes, graders, skid steers, loaders, and hauling trucks. Construction would last approximately six months. Following construction, no additional noise sources from operation and maintenance of the basins would occur. The Project is located on agricultural lands, accustomed to similar noises associated with farm equipment thus impacts 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 proposed Project would result in temporary ground disturbance and a temporary increase in noise levels during the construction of the recharge basins. Following construction

of the basins no additional ground vibrations or increase in noise levels would occur therefore 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 nearest airport to the proposed Project site is located more than 6-miles southwest and is not located within an airport land use plan. There would be no impact.

4.14 POPULATION AND HOUSING

Table 4-20: Population and Housing Impacts

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

4.14.1 Baseline Conditions

The proposed Project site is in an unincorporated area in Kern County and the area is predominantly used for agricultural purposes. The Project would be constructed entirely on AEWSD property and there are no residents or businesses adjacent to the site.

4.14.2 Impact Analysis

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

No Impact. The proposed Project would construct recharge basins. The Project would not induce population growth in the area as no new homes or businesses are proposed as part of the Project. 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. There are no residences located on site or located in the vicinity of the Proposed Project site. The construction of recharge basins would not have impacts to people or houses. There would be no impact.

4.15 PUBLIC SERVICES

Table 4-21: Public Services

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

4.15.1 Baseline Conditions

Fire Protection: The nearest fire stations to the Project area are Kern County Fire Department, Station 54 Arvin, which is located 2.5-miles south of the Project site.

Police Protection: Kern County Sheriff's Office provide the nearest public safety services. The Sheriff's nearest substation is located approximately 4-miles west of the Project site.

Schools: The closet school to the Proposed Project site is Arin High school located 1.5-miles south of the site.

Parks: The closet park to the site is Kovacevich Park, which is located 1.75-miles south of the Project site.

Landfills: The nearest landfill to the Project area is the Arvin Sanitary Landfill which is 5-miles southwest of the Project site.

4.15.2 Impact Analysis

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

i. Fire Protection:

No impact. The proposed Project would construct recharge basins and would not require the need for new or altered fire protection services as no habitable structures would be built. There would be minimal need for additional public services. If services were to be required, existing agencies would be able to

provide relief to the Project site. The recharge Project would also serve as an additional water source to combat fires if needed.

ii. Police Protection:

No Impact. The proposed recharge basin Project would not require the need for new or additional police protection services as no habitable structures are proposed as part of the Project. There would be no impact.

iii. Schools:

No Impact. The proposed Project would not impact the nearest school located 1.5-miles south of the site. There would be no impact.

iv. Parks:

No Impact. The nearest park is located 1.75-miles from the site and would not be impacted by the construction of approximately 195-acres of recharge basins. There would be no impact.

v. Other public facilities:

No Impact The proposed Project would construct recharge basins and would not require the need for new or additional public services during construction or operation of the recharge basins. There would be no impact.

4.16 RECREATION

Table 4-22: 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

Kern County has several regional parks, as well as State and national parks, national forest, wilderness areas, and other recreational resources. The nearest park, Kovacevich Park, is located 1.75-miles south of the Project site.

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 nearest park is located 1.75-miles from the site. The proposed recharge basin Project on vacant land would not increase the use of the existing parks within the area. 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 proposed Project does not include the construction or expansion of recreational facilities therefore there would be no impact.

4.17 TRANSPORTATION

Table 4-23: 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 located in an unincorporated area in Kern County and the area is comprised of agricultural uses. The proposed basins would be installed on AEWSD property and no improvements to public facilities or transportation facilities are proposed as part of the Project.

Construction Traffic generated to the site would be solely from construction staff to complete the proposed Project. Following completion of the Project, only AEWSD staff would travel to and from the site in order to complete standard operation and maintenance for the basins. Access to the site is from Buena Vista Blvd. or Comanche Road.

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 proposed Project would construct recharge basins. No transit, roadway, bicycle, or pedestrian facilities are proposed or required as part of the Project. There would be no impact.

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

No Impact. The proposed Project would not cause or increase the number of drivers or users for existing roadways in the area. Construction traffic would be temporary and only occur over the course of six months. Construction would occur on AEWSD property and would not cause impacts to vehicle or equipment traveling in and through the area. There would be no impact.

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

No Impact. The proposed Project would construct recharge basin on AEWSD property. There would be no transportation or circulation design features that are part of the Project. There would be no impact.

d) Would the project result in inadequate emergency access?

No Impact. The construction of recharge basins would not alter or interfere with existing emergency routines or access. No new roadways are proposed as part of the Project and road closures during construction are not anticipated. Operation and Maintenance (O&M) for the recharge basins would not interfere with public roadways or emergency access. Internal berms may be constructed between recharge cells for O&M by AEWSD. There would be no impact.

4.18 TRIBAL CULTURAL RESOURCES

Table 4-24: 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

The proposed Project site is within Kern County located in the San Joaquin Valley. The AEWSD, as the lead agency, does not have AB 52 Tribal letters on file from interested tribes.

Records Search

At ASM's request, the SSJVIC of the CHRIS at California State University, Bakersfield, performed a records search on April 2, 2024, to identify previously recorded resources and prior surveys within the Project site and surrounding 0.5-mile radius. The SSJVIC completed searches of the Historic Property Data File, NRHP, CRHR, listings of California Historical Landmarks, California Inventory of Historic Resources, and the California Points of Historical Interest database (Appendix C). The records search showed that there were eight resources within the project area and surrounding half a mile. One resource was recorded on the Project site and is discussed below.

The only resource recorded within the Project area is P-15-020588 also termed Thewalt Avenue. This resource would not be affected by the construction of the basins or the operation of the basin following completion of construction.

Native American Outreach

The NAHC SLF search was completed on March 20, 2024, and the results were negative. They were provided with a brief description of the Project and a map showing its location and requested a search of the SLF to determine if any Native American resources have been recorded in the immediate Project site. The NAHC identifies, catalogs, and protects Native American cultural resources -- ancient places of special religious or social significance to Native Americans and known ancient graves and cemeteries of Native Americans on private and public lands in California. The NAHC is also charged with ensuring California Native American tribes' accessibility to ancient Native American cultural resources on public lands, overseeing the treatment and disposition of inadvertently discovered Native American human remains and burial items, and administering the California Native American Graves Protection and Repatriation Act, among many other powers and duties. The NAHC provide a current list of Native American Tribal contacts to notify of the Project. Refer to the Cultural section for further details.

4.18.2 Impact Assessment

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

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

Less than Significant Impact with Mitigation Incorporated. The proposed Project site does not contain or is known to contain a site, feature, place, or cultural landscape that is listed or eligible for listing in the CRHP. In the unlikely event of a discovery, mitigation will be implemented. See CUL-1 and CUL-2.

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

Less than Significant Impact with Mitigation Incorporated. The AEWSD, as the lead agency, has not received a request for formal consultation pursuant to Public Resources Code Section 21080.3.1, et seq. (AB 52). A records search and pedestrian survey of the Project site indicated that there were no known tribal cultural resources on-site. In the unlikely event of a discovery, mitigation will be implemented as described in **CUL-1** and **CUL-2**.

4.19 UTILITIES AND SERVICE SYSTEMS

Table 4-25: 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 vacant site lies completely within the Middle Kern-Upper Tehachapi-Grapevine watershed. The AEWSD has identified the need for improvement in regional sustainable water management. The proposed Project site is bare except for one existing Ag water well and is surrounded on three sides for existing North Canal spreading works.

Water Supply

The California Department of Water Resources Groundwater Bulletin 118 Update, published in 2020, defines Kern County Basins as subject to critical overdrafts.[9] The construction of up to 195 acres of recharge basins would contribute to goals and objectives in the SWGA.

Wastewater

The nearest wastewater collection plant is located 16.8-miles north of the site and is run by the City of Bakersfield. No wastewater or wastewater facilities are a part of the proposed Project.

[9] (Resources 2020)

Landfills

Landfills: The nearest landfill to the Project area is the Arvin Sanitary Landfill located 5-miles southwest of the Project site. The proposed Project would not generate solid waste or impair the local landfill.

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 proposed Project would not construct wastewater or storm water drainage facilities. Following construction, Project operation would not generate any wastewater. 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 water stored in the basins would increase the capacity of AEWSD's water portfolio and reliability of ACSD's drinking water especially during drought periods. The Project would supply compliance with the Sustainable SGMA and have a positive impact of water availability. Therefore, there would be no impact.

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

No Impact. The nearest wastewater facility is located in the City of Bakersfield north of the Project site. No wastewater will be generated as part of the proposed recharge basin Project and therefore would not impact nearby wastewater facilities. 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 proposed Project would not generate solid waste. Without generation of solid waste there would be no impairment of waste reduction goals or violation of State and local standards. 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 proposed Project would not generate solid waste, however all federal, State, and location regulations would be complied with as part of the Project.

4.20 WILDFIRE

Table 4-26: 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 vacant site is located on unincorporated land in Kern County and is surrounded by existing recharge basins and lands used for agricultural purposes. According to CALFIRE, the Project site is located outside a State Responsibility Area (SRA). The nearest Fire Hazard Severity Zone is located 5-miles east of the Project site and is considered Very High.[10]

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 proposed recharge basin Project site is not located in a SRA. The nearest SRA is located 5-miles east of the site and the proposed Project would not impair an adopted emergency response plan or emergency evaluation plan. The recharge basins would provide a source of water to fight fires in the event of wildfire. Therefore, 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

[10] (CALFIRE 2024)

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

No Impact. The Project site is surrounded by flat lands used for agricultural purposes and located outside of a SRA. The recharge basin Project would not increase the wildfire risks 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 construction of the recharge basins is not located or classified as a very high fire hazard zone. 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 proposed recharge basin Project does not incorporate habitable structures. The Project site is surrounded by agricultural land and other basins and is not located on or near an SRA. There would be no impact.

4.21 CEQA MANDATORY FINDINGS OF SIGNIFICANCE

Table 4-27: CEQA Mandatory Findings of Significance

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

4.21.1 Statement of Findings

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

Less than Significant Impact with Mitigation Incorporated. The proposed recharge basin Project would not cause significant impacts, degrade the habitat of fish and wildlife species, or cause populations to drop below self-sustaining levels. The Project would be constructed on vacant land previously used for agricultural and would not reduce or restrict the range of threatened or endangered plant and animal species. The potential for impacts to biological resources, and cultural resources from the construction of the proposed Project would be less than significant by following and adhering to all mitigation measures included in Chapter 5 Mitigation, Monitoring, and Reporting Program.

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

Less than Significant Impact. 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 proposed recharge basin Project would not be considered growth or population inducing. No new roads would be constructed as part of the Project and no additional public services would be required during or following completion of the recharge basins.

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 proposed Project could have temporary impacts during construction such as dust and noise but would be considered less than significant. All BMPs and mitigation measures would be followed. Following completion of construction, operation and maintenance of the basins would not have a substantial or adverse effect on human beings as the Project is passive in nature and is surrounded by agricultural lands. The proposed Project would instead provide a positive benefit to the surrounding growers and community by providing recharge benefits to AEWSD and water savings and reliable source of drinking water for ACSD.

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 North Canal Spreading Works Expansion Project within the Arvin Community Service District and Arvin-Edison Water Storage District in Kern 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-1a	**(*Avoidance*):** The project's construction activities will occur, if feasible, between September 1 and January 31 (outside of the nesting bird season) to avoid impacts to nesting birds.					
BIO-1B	**(Pre-construction Surveys):** If activities must occur within the nesting bird season (February 1 to August 31), a qualified biologist (someone who is familiar with the species in the region) will conduct a pre-construction survey for active nests within ten (10) calendar days prior to the start of construction. The survey will be completed within the APE, and up to 50 feet outside of the APE for nesting migratory birds and up to 500 feet outside of the APE in all accessible areas for nesting raptors. Raptor nests are considered "active" upon the nest-building stage. If no active nests are observed, no further mitigation is required.	Prior to construction if not between September and February	Once	AEWSD		
BIO-1C	**(*Avoidance Buffers*):** On discovery of any active nests or breeding colonies near work areas, a qualified biologist will determine appropriate avoidance buffer distances based on applicable CDFW and/or USFWS guidelines, the biology of the species, conditions of the nest(s), and the level of project disturbance. If necessary, avoidance buffers will be identified with flagging, fencing, or other easily visible means, and will be maintained until the biologist has determined that the nestlings have fledged.	Prior to construction	Daily during ground disturbance	AEWSD		
Cultural Resources						
CUL-1	**(Archaeological Remains)** 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	During Construction and ground disturbing activities	Daily	AEWSD		

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
	can assess the discovery. The AEWSD 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	**(Human Remains)** In the event human remains are uncovered, or in any other case when human remains are discovered during construction, the Kern County Coroner is to be notified to arrange their 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 Construction and ground disturbing activities	Daily	AEWSD		

CHAPTER 6 REFERENCES

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Appendix A: CalEEMod Output Files

Arvin Edision NCSW - Kern-San Joaquin County, Annual

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

Arvin Edision NCSW

Kern-San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	195.00	Acre	195.00	8,494,200.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	3			**Operational Year**	2026
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 195 acre basin

Construction Phase - Construction schedule

Grading - Acres graded

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	310.00	99.00
tblConstructionPhase	NumDays	120.00	33.00
tblConstructionPhase	PhaseEndDate	2/29/2028	4/2/2026
tblConstructionPhase	PhaseEndDate	12/22/2026	11/14/2025
tblConstructionPhase	PhaseStartDate	12/23/2026	11/15/2025

Arvin Edision NCSW - Kern-San Joaquin County, Annual

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

tblConstructionPhase	PhaseStartDate	7/8/2026	10/1/2025
tblGrading	AcresOfGrading	297.00	930.00
tblGrading	AcresOfGrading	49.50	180.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

Arvin Edision NCSW - Kern-San Joaquin County, Annual

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

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2025	0.0907	0.8788	0.7483	1.7200e-003	0.9939	0.0366	1.0305	0.2841	0.0337	0.3178	0.0000	151.0161	151.0161	0.0471	1.4000e-004	152.2338
2026	0.0978	0.9234	0.8870	2.1100e-003	0.7001	0.0374	0.7375	0.1647	0.0344	0.1991	0.0000	185.8329	185.8329	0.0583	1.4000e-004	187.3306
Maximum	**0.0978**	**0.9234**	**0.8870**	**2.1100e-003**	**0.9939**	**0.0374**	**1.0305**	**0.2841**	**0.0344**	**0.3178**	**0.0000**	**185.8329**	**185.8329**	**0.0583**	**1.4000e-004**	**187.3306**

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					
2025	0.0907	0.8788	0.7483	1.7200e-003	0.3924	0.0366	0.4290	0.1121	0.0337	0.1458	0.0000	151.0159	151.0159	0.0471	1.4000e-004	152.2336
2026	0.0978	0.9234	0.8870	2.1100e-003	0.2781	0.0374	0.3155	0.0656	0.0344	0.0999	0.0000	185.8327	185.8327	0.0583	1.4000e-004	187.3304
Maximum	**0.0978**	**0.9234**	**0.8870**	**2.1100e-003**	**0.3924**	**0.0374**	**0.4290**	**0.1121**	**0.0344**	**0.1458**	**0.0000**	**185.8327**	**185.8327**	**0.0583**	**1.4000e-004**	**187.3304**

Arvin Edision NCSW - Kern-San Joaquin County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**60.42**	**0.00**	**57.89**	**60.42**	**0.00**	**52.46**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**10-1-2025**	**12-31-2025**	0.9667	0.9667
2	**1-1-2026**	**3-31-2026**	0.9949	0.9949
3	**4-1-2026**	**6-30-2026**	0.0221	0.0221
		Highest	0.9949	0.9949

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	0.7264	2.0000e-005	1.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.4800e-003	3.4800e-003	1.0000e-005	0.0000	3.7100e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.7264**	**2.0000e-005**	**1.7900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.4800e-003**	**3.4800e-003**	**1.0000e-005**	**0.0000**	**3.7100e-003**

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

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7264	2.0000e-005	1.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.4800e-003	3.4800e-003	1.0000e-005	0.0000	3.7100e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.7264**	**2.0000e-005**	**1.7900e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.4800e-003**	**3.4800e-003**	**1.0000e-005**	**0.0000**	**3.7100e-003**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/1/2025	11/14/2025	5	33	
2	Grading	Grading	11/15/2025	4/2/2026	5	99	

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

Acres of Grading (Site Preparation Phase): 180

Acres of Grading (Grading Phase): 930

Acres of Paving: 195

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	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

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

3.2 Site Preparation - 2025

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					0.3935	0.0000	0.3935	0.1742	0.0000	0.1742	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0408	0.4164	0.2955	6.3000e-004		0.0179	0.0179		0.0165	0.0165	0.0000	55.2205	55.2205	0.0179	0.0000	55.6670
Total	**0.0408**	**0.4164**	**0.2955**	**6.3000e-004**	**0.3935**	**0.0179**	**0.4115**	**0.1742**	**0.0165**	**0.1907**	**0.0000**	**55.2205**	**55.2205**	**0.0179**	**0.0000**	**55.6670**

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	9.7000e-004	6.7000e-004	8.6800e-003	3.0000e-005	3.7200e-003	2.0000e-005	3.7400e-003	9.9000e-004	2.0000e-005	1.0000e-003	0.0000	2.7759	2.7759	6.0000e-005	7.0000e-005	2.7968
Total	**9.7000e-004**	**6.7000e-004**	**8.6800e-003**	**3.0000e-005**	**3.7200e-003**	**2.0000e-005**	**3.7400e-003**	**9.9000e-004**	**2.0000e-005**	**1.0000e-003**	**0.0000**	**2.7759**	**2.7759**	**6.0000e-005**	**7.0000e-005**	**2.7968**

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

3.2 Site Preparation - 2025

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					0.1535	0.0000	0.1535	0.0679	0.0000	0.0679	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0408	0.4164	0.2955	6.3000e-004		0.0179	0.0179		0.0165	0.0165	0.0000	55.2205	55.2205	0.0179	0.0000	55.6670
Total	**0.0408**	**0.4164**	**0.2955**	**6.3000e-004**	**0.1535**	**0.0179**	**0.1714**	**0.0679**	**0.0165**	**0.0844**	**0.0000**	**55.2205**	**55.2205**	**0.0179**	**0.0000**	**55.6670**

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	9.7000e-004	6.7000e-004	8.6800e-003	3.0000e-005	3.7200e-003	2.0000e-005	3.7400e-003	9.9000e-004	2.0000e-005	1.0000e-003	0.0000	2.7759	2.7759	6.0000e-005	7.0000e-005	2.7968
Total	**9.7000e-004**	**6.7000e-004**	**8.6800e-003**	**3.0000e-005**	**3.7200e-003**	**2.0000e-005**	**3.7400e-003**	**9.9000e-004**	**2.0000e-005**	**1.0000e-003**	**0.0000**	**2.7759**	**2.7759**	**6.0000e-005**	**7.0000e-005**	**2.7968**

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

3.3 Grading - 2025

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					0.5925	0.0000	0.5925	0.1079	0.0000	0.1079	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0479	0.4611	0.4345	1.0200e-003		0.0187	0.0187		0.0172	0.0172	0.0000	89.9353	89.9353	0.0291	0.0000	90.6624
Total	**0.0479**	**0.4611**	**0.4345**	**1.0200e-003**	**0.5925**	**0.0187**	**0.6112**	**0.1079**	**0.0172**	**0.1250**	**0.0000**	**89.9353**	**89.9353**	**0.0291**	**0.0000**	**90.6624**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0800e-003	7.4000e-004	9.6500e-003	3.0000e-005	4.1300e-003	2.0000e-005	4.1500e-003	1.1000e-003	2.0000e-005	1.1200e-003	0.0000	3.0844	3.0844	6.0000e-005	7.0000e-005	3.1075
Total	**1.0800e-003**	**7.4000e-004**	**9.6500e-003**	**3.0000e-005**	**4.1300e-003**	**2.0000e-005**	**4.1500e-003**	**1.1000e-003**	**2.0000e-005**	**1.1200e-003**	**0.0000**	**3.0844**	**3.0844**	**6.0000e-005**	**7.0000e-005**	**3.1075**

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

3.3 Grading - 2025

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					0.2311	0.0000	0.2311	0.0421	0.0000	0.0421	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0479	0.4611	0.4345	1.0200e-003		0.0187	0.0187		0.0172	0.0172	0.0000	89.9351	89.9351	0.0291	0.0000	90.6623
Total	**0.0479**	**0.4611**	**0.4345**	**1.0200e-003**	**0.2311**	**0.0187**	**0.2497**	**0.0421**	**0.0172**	**0.0592**	**0.0000**	**89.9351**	**89.9351**	**0.0291**	**0.0000**	**90.6623**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0800e-003	7.4000e-004	9.6500e-003	3.0000e-005	4.1300e-003	2.0000e-005	4.1500e-003	1.1000e-003	2.0000e-005	1.1200e-003	0.0000	3.0844	3.0844	6.0000e-005	7.0000e-005	3.1075
Total	**1.0800e-003**	**7.4000e-004**	**9.6500e-003**	**3.0000e-005**	**4.1300e-003**	**2.0000e-005**	**4.1500e-003**	**1.1000e-003**	**2.0000e-005**	**1.1200e-003**	**0.0000**	**3.0844**	**3.0844**	**6.0000e-005**	**7.0000e-005**	**3.1075**

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

3.3 Grading - 2026

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					0.6919	0.0000	0.6919	0.1625	0.0000	0.1625	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0957	0.9221	0.8689	2.0500e-003		0.0373	0.0373		0.0343	0.0343	0.0000	179.8705	179.8705	0.0582	0.0000	181.3248
Total	**0.0957**	**0.9221**	**0.8689**	**2.0500e-003**	**0.6919**	**0.0373**	**0.7292**	**0.1625**	**0.0343**	**0.1968**	**0.0000**	**179.8705**	**179.8705**	**0.0582**	**0.0000**	**181.3248**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0200e-003	1.3300e-003	0.0180	7.0000e-005	8.2700e-003	4.0000e-005	8.3100e-003	2.2000e-003	3.0000e-005	2.2300e-003	0.0000	5.9624	5.9624	1.1000e-004	1.4000e-004	6.0058
Total	**2.0200e-003**	**1.3300e-003**	**0.0180**	**7.0000e-005**	**8.2700e-003**	**4.0000e-005**	**8.3100e-003**	**2.2000e-003**	**3.0000e-005**	**2.2300e-003**	**0.0000**	**5.9624**	**5.9624**	**1.1000e-004**	**1.4000e-004**	**6.0058**

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

3.3 Grading - 2026

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					0.2698	0.0000	0.2698	0.0634	0.0000	0.0634	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0957	0.9221	0.8689	2.0500e-003		0.0373	0.0373		0.0343	0.0343	0.0000	179.8703	179.8703	0.0582	0.0000	181.3246
Total	**0.0957**	**0.9221**	**0.8689**	**2.0500e-003**	**0.2698**	**0.0373**	**0.3072**	**0.0634**	**0.0343**	**0.0977**	**0.0000**	**179.8703**	**179.8703**	**0.0582**	**0.0000**	**181.3246**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0200e-003	1.3300e-003	0.0180	7.0000e-005	8.2700e-003	4.0000e-005	8.3100e-003	2.2000e-003	3.0000e-005	2.2300e-003	0.0000	5.9624	5.9624	1.1000e-004	1.4000e-004	6.0058
Total	**2.0200e-003**	**1.3300e-003**	**0.0180**	**7.0000e-005**	**8.2700e-003**	**4.0000e-005**	**8.3100e-003**	**2.2000e-003**	**3.0000e-005**	**2.2300e-003**	**0.0000**	**5.9624**	**5.9624**	**1.1000e-004**	**1.4000e-004**	**6.0058**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other 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	0.488129	0.054374	0.179646	0.157061	0.028618	0.008866	0.014149	0.038412	0.000576	0.000233	0.024457	0.001405	0.004073

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

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

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

Arvin Edision NCSW - Kern-San Joaquin County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7264	2.0000e-005	1.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.4800e-003	3.4800e-003	1.0000e-005	0.0000	3.7100e-003
Unmitigated	0.7264	2.0000e-005	1.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.4800e-003	3.4800e-003	1.0000e-005	0.0000	3.7100e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1772					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5491					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6000e-004	2.0000e-005	1.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.4800e-003	3.4800e-003	1.0000e-005	0.0000	3.7100e-003
Total	**0.7264**	**2.0000e-005**	**1.7900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.4800e-003**	**3.4800e-003**	**1.0000e-005**	**0.0000**	**3.7100e-003**

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1772					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5491					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6000e-004	2.0000e-005	1.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.4800e-003	3.4800e-003	1.0000e-005	0.0000	3.7100e-003
Total	**0.7264**	**2.0000e-005**	**1.7900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.4800e-003**	**3.4800e-003**	**1.0000e-005**	**0.0000**	**3.7100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

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

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other 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 Not 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 Not Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Arvin Edision NCSW - Kern-San Joaquin County, Summer

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

Arvin Edision NCSW

Kern-San Joaquin County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	195.00	Acre	195.00	8,494,200.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	3			**Operational Year**	2026
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 195 acre basin

Construction Phase - Construction schedule

Grading - Acres graded

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	310.00	99.00
tblConstructionPhase	NumDays	120.00	33.00
tblConstructionPhase	PhaseEndDate	2/29/2028	4/2/2026
tblConstructionPhase	PhaseEndDate	12/22/2026	11/14/2025
tblConstructionPhase	PhaseStartDate	12/23/2026	11/15/2025

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

tblConstructionPhase	PhaseStartDate	7/8/2026	10/1/2025
tblGrading	AcresOfGrading	297.00	930.00
tblGrading	AcresOfGrading	49.50	180.00
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 Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2025	2.9759	27.9848	27.0297	0.0643	24.0807	1.1321	25.1686	10.6163	1.0415	11.6171	0.0000	6,233.7333	6,233.7333	1.9474	4.6400e-003	6,283.8013
2026	2.9708	27.9805	26.9836	0.0642	16.2398	1.1320	17.3718	4.4537	1.0414	5.4951	0.0000	6,226.1542	6,226.1542	1.9470	4.3500e-003	6,276.1251
Maximum	**2.9759**	**27.9848**	**27.0297**	**0.0643**	**24.0807**	**1.1321**	**25.1686**	**10.6163**	**1.0415**	**11.6171**	**0.0000**	**6,233.7333**	**6,233.7333**	**1.9474**	**4.6400e-003**	**6,283.8013**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2025	2.9759	27.9848	27.0297	0.0643	9.5317	1.1321	10.6196	4.1775	1.0415	5.1784	0.0000	6,233.7333	6,233.7333	1.9474	4.6400e-003	6,283.8013
2026	2.9708	27.9805	26.9836	0.0642	6.4894	1.1320	7.6214	1.7783	1.0414	2.8197	0.0000	6,226.1542	6,226.1542	1.9470	4.3500e-003	6,276.1251
Maximum	**2.9759**	**27.9848**	**27.0297**	**0.0643**	**9.5317**	**1.1321**	**10.6196**	**4.1775**	**1.0415**	**5.1784**	**0.0000**	**6,233.7333**	**6,233.7333**	**1.9474**	**4.6400e-003**	**6,283.8013**

Arvin Edision NCSW - Kern-San Joaquin County, Summer

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	60.27	0.00	57.12	60.48	0.00	53.26	0.00	0.00	0.00	0.00	0.00	0.00

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9813	1.8000e-004	0.0199	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0427	0.0427	1.1000e-004		0.0455
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.9813**	**1.8000e-004**	**0.0199**	**0.0000**	**0.0000**	**7.0000e-005**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**7.0000e-005**		**0.0427**	**0.0427**	**1.1000e-004**	**0.0000**	**0.0455**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9813	1.8000e-004	0.0199	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0427	0.0427	1.1000e-004		0.0455
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.9813**	**1.8000e-004**	**0.0199**	**0.0000**	**0.0000**	**7.0000e-005**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**7.0000e-005**		**0.0427**	**0.0427**	**1.1000e-004**	**0.0000**	**0.0455**

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

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/1/2025	11/14/2025	5	33	
2	Grading	Grading	11/15/2025	4/2/2026	5	99	

Acres of Grading (Site Preparation Phase): 180

Acres of Grading (Grading Phase): 930

Acres of Paving: 195

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	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

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

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					23.8508	0.0000	23.8508	10.5553	0.0000	10.5553			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999		3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**23.8508**	**1.0868**	**24.9376**	**10.5553**	**0.9999**	**11.5551**		**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

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

3.2 Site Preparation - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0672	0.0377	0.6288	2.0100e-003	0.2299	1.0600e-003	0.2310	0.0610	9.8000e-004	0.0620		202.9067	202.9067	3.7900e-003	4.1800e-003	204.2459
Total	**0.0672**	**0.0377**	**0.6288**	**2.0100e-003**	**0.2299**	**1.0600e-003**	**0.2310**	**0.0610**	**9.8000e-004**	**0.0620**		**202.9067**	**202.9067**	**3.7900e-003**	**4.1800e-003**	**204.2459**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.3018	0.0000	9.3018	4.1166	0.0000	4.1166			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999	0.0000	3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**9.3018**	**1.0868**	**10.3886**	**4.1166**	**0.9999**	**5.1164**	**0.0000**	**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

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

3.2 Site Preparation - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0672	0.0377	0.6288	2.0100e-003	0.2299	1.0600e-003	0.2310	0.0610	9.8000e-004	0.0620		202.9067	202.9067	3.7900e-003	4.1800e-003	204.2459
Total	**0.0672**	**0.0377**	**0.6288**	**2.0100e-003**	**0.2299**	**1.0600e-003**	**0.2310**	**0.0610**	**9.8000e-004**	**0.0620**		**202.9067**	**202.9067**	**3.7900e-003**	**4.1800e-003**	**204.2459**

3.3 Grading - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					15.9844	0.0000	15.9844	4.3859	0.0000	4.3859			0.0000			0.0000
Off-Road	2.9012	27.9429	26.3311	0.0621		1.1309	1.1309		1.0404	1.0404		6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**2.9012**	**27.9429**	**26.3311**	**0.0621**	**15.9844**	**1.1309**	**17.1153**	**4.3859**	**1.0404**	**5.4263**		**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

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

3.3 Grading - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0746	0.0419	0.6987	2.2300e-003	0.2555	1.1800e-003	0.2566	0.0678	1.0800e-003	0.0688		225.4519	225.4519	4.2100e-003	4.6400e-003	226.9399
Total	**0.0746**	**0.0419**	**0.6987**	**2.2300e-003**	**0.2555**	**1.1800e-003**	**0.2566**	**0.0678**	**1.0800e-003**	**0.0688**		**225.4519**	**225.4519**	**4.2100e-003**	**4.6400e-003**	**226.9399**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2339	0.0000	6.2339	1.7105	0.0000	1.7105			0.0000			0.0000
Off-Road	2.9012	27.9429	26.3311	0.0621		1.1309	1.1309		1.0404	1.0404	0.0000	6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**2.9012**	**27.9429**	**26.3311**	**0.0621**	**6.2339**	**1.1309**	**7.3648**	**1.7105**	**1.0404**	**2.7509**	**0.0000**	**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

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

3.3 Grading - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0746	0.0419	0.6987	2.2300e-003	0.2555	1.1800e-003	0.2566	0.0678	1.0800e-003	0.0688		225.4519	225.4519	4.2100e-003	4.6400e-003	226.9399
Total	**0.0746**	**0.0419**	**0.6987**	**2.2300e-003**	**0.2555**	**1.1800e-003**	**0.2566**	**0.0678**	**1.0800e-003**	**0.0688**		**225.4519**	**225.4519**	**4.2100e-003**	**4.6400e-003**	**226.9399**

3.3 Grading - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					15.9844	0.0000	15.9844	4.3859	0.0000	4.3859			0.0000			0.0000
Off-Road	2.9012	27.9429	26.3311	0.0621		1.1309	1.1309		1.0404	1.0404		6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**2.9012**	**27.9429**	**26.3311**	**0.0621**	**15.9844**	**1.1309**	**17.1153**	**4.3859**	**1.0404**	**5.4263**		**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

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

3.3 Grading - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0695	0.0376	0.6525	2.1600e-003	0.2555	1.1100e-003	0.2566	0.0678	1.0200e-003	0.0688		217.8727	217.8727	3.7800e-003	4.3500e-003	219.2637
Total	**0.0695**	**0.0376**	**0.6525**	**2.1600e-003**	**0.2555**	**1.1100e-003**	**0.2566**	**0.0678**	**1.0200e-003**	**0.0688**		**217.8727**	**217.8727**	**3.7800e-003**	**4.3500e-003**	**219.2637**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2339	0.0000	6.2339	1.7105	0.0000	1.7105			0.0000			0.0000
Off-Road	2.9012	27.9429	26.3311	0.0621		1.1309	1.1309		1.0404	1.0404	0.0000	6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**2.9012**	**27.9429**	**26.3311**	**0.0621**	**6.2339**	**1.1309**	**7.3648**	**1.7105**	**1.0404**	**2.7509**	**0.0000**	**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

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

3.3 Grading - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0695	0.0376	0.6525	2.1600e-003	0.2555	1.1100e-003	0.2566	0.0678	1.0200e-003	0.0688		217.8727	217.8727	3.7800e-003	4.3500e-003	219.2637
Total	**0.0695**	**0.0376**	**0.6525**	**2.1600e-003**	**0.2555**	**1.1100e-003**	**0.2566**	**0.0678**	**1.0200e-003**	**0.0688**		**217.8727**	**217.8727**	**3.7800e-003**	**4.3500e-003**	**219.2637**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other 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	0.488129	0.054374	0.179646	0.157061	0.028618	0.008866	0.014149	0.038412	0.000576	0.000233	0.024457	0.001405	0.004073

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

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.9813	1.8000e-004	0.0199	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0427	0.0427	1.1000e-004		0.0455
Unmitigated	3.9813	1.8000e-004	0.0199	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0427	0.0427	1.1000e-004		0.0455

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

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.9708					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.0087					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8300e-003	1.8000e-004	0.0199	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0427	0.0427	1.1000e-004		0.0455
Total	**3.9813**	**1.8000e-004**	**0.0199**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**		**0.0427**	**0.0427**	**1.1000e-004**		**0.0455**

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.9708					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.0087					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8300e-003	1.8000e-004	0.0199	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0427	0.0427	1.1000e-004		0.0455
Total	**3.9813**	**1.8000e-004**	**0.0199**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**		**0.0427**	**0.0427**	**1.1000e-004**		**0.0455**

7.0 Water Detail

7.1 Mitigation Measures Water

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Arvin Edision NCSW - Kern-San Joaquin County, Winter

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

Arvin Edision NCSW

Kern-San Joaquin County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	195.00	Acre	195.00	8,494,200.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	3			**Operational Year**	2026
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 195 acre basin

Construction Phase - Construction schedule

Grading - Acres graded

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	310.00	99.00
tblConstructionPhase	NumDays	120.00	33.00
tblConstructionPhase	PhaseEndDate	2/29/2028	4/2/2026
tblConstructionPhase	PhaseEndDate	12/22/2026	11/14/2025
tblConstructionPhase	PhaseStartDate	12/23/2026	11/15/2025

Arvin Edision NCSW - Kern-San Joaquin County, Winter

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

tblConstructionPhase	PhaseStartDate	7/8/2026	10/1/2025
tblGrading	AcresOfGrading	297.00	930.00
tblGrading	AcresOfGrading	49.50	180.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

Arvin Edision NCSW - Kern-San Joaquin County, Winter

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

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2025	2.9705	27.9908	26.8929	0.0640	24.0807	1.1321	25.1686	10.6163	1.0415	11.6171	0.0000	6,207.0838	6,207.0838	1.9476	5.0600e-003	6,257.2810
2026	2.9660	27.9858	26.8567	0.0640	16.2398	1.1320	17.3718	4.4537	1.0414	5.4951	0.0000	6,200.4497	6,200.4497	1.9472	4.7400e-003	6,250.5417
Maximum	**2.9705**	**27.9908**	**26.8929**	**0.0640**	**24.0807**	**1.1321**	**25.1686**	**10.6163**	**1.0415**	**11.6171**	**0.0000**	**6,207.0838**	**6,207.0838**	**1.9476**	**5.0600e-003**	**6,257.2810**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2025	2.9705	27.9908	26.8929	0.0640	9.5317	1.1321	10.6196	4.1775	1.0415	5.1784	0.0000	6,207.0838	6,207.0838	1.9476	5.0600e-003	6,257.2810
2026	2.9660	27.9858	26.8567	0.0640	6.4894	1.1320	7.6214	1.7783	1.0414	2.8197	0.0000	6,200.4497	6,200.4497	1.9472	4.7400e-003	6,250.5417
Maximum	**2.9705**	**27.9908**	**26.8929**	**0.0640**	**9.5317**	**1.1321**	**10.6196**	**4.1775**	**1.0415**	**5.1784**	**0.0000**	**6,207.0838**	**6,207.0838**	**1.9476**	**5.0600e-003**	**6,257.2810**

Arvin Edision NCSW - Kern-San Joaquin County, Winter

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	60.27	0.00	57.12	60.48	0.00	53.26	0.00	0.00	0.00	0.00	0.00	0.00

Arvin Edision NCSW - Kern-San Joaquin County, Winter

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9813	1.8000e-004	0.0199	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0427	0.0427	1.1000e-004		0.0455
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.9813**	**1.8000e-004**	**0.0199**	**0.0000**	**0.0000**	**7.0000e-005**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**7.0000e-005**		**0.0427**	**0.0427**	**1.1000e-004**	**0.0000**	**0.0455**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.9813	1.8000e-004	0.0199	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0427	0.0427	1.1000e-004		0.0455
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.9813**	**1.8000e-004**	**0.0199**	**0.0000**	**0.0000**	**7.0000e-005**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**7.0000e-005**		**0.0427**	**0.0427**	**1.1000e-004**	**0.0000**	**0.0455**

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

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/1/2025	11/14/2025	5	33	
2	Grading	Grading	11/15/2025	4/2/2026	5	99	

Acres of Grading (Site Preparation Phase): 180

Acres of Grading (Grading Phase): 930

Acres of Paving: 195

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	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Arvin Edision NCSW - Kern-San Joaquin County, Winter

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

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					23.8508	0.0000	23.8508	10.5553	0.0000	10.5553			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999		3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**23.8508**	**1.0868**	**24.9376**	**10.5553**	**0.9999**	**11.5551**		**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

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

3.2 Site Preparation - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0623	0.0431	0.5057	1.7700e-003	0.2299	1.0600e-003	0.2310	0.0610	9.8000e-004	0.0620		178.9221	178.9221	3.9300e-003	4.5500e-003	180.3776
Total	**0.0623**	**0.0431**	**0.5057**	**1.7700e-003**	**0.2299**	**1.0600e-003**	**0.2310**	**0.0610**	**9.8000e-004**	**0.0620**		**178.9221**	**178.9221**	**3.9300e-003**	**4.5500e-003**	**180.3776**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.3018	0.0000	9.3018	4.1166	0.0000	4.1166			0.0000			0.0000
Off-Road	2.4727	25.2339	17.9118	0.0381		1.0868	1.0868		0.9999	0.9999	0.0000	3,689.1037	3,689.1037	1.1931		3,718.9320
Total	**2.4727**	**25.2339**	**17.9118**	**0.0381**	**9.3018**	**1.0868**	**10.3886**	**4.1166**	**0.9999**	**5.1164**	**0.0000**	**3,689.1037**	**3,689.1037**	**1.1931**		**3,718.9320**

Arvin Edision NCSW - Kern-San Joaquin County, Winter

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

3.2 Site Preparation - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0623	0.0431	0.5057	1.7700e-003	0.2299	1.0600e-003	0.2310	0.0610	9.8000e-004	0.0620		178.9221	178.9221	3.9300e-003	4.5500e-003	180.3776
Total	**0.0623**	**0.0431**	**0.5057**	**1.7700e-003**	**0.2299**	**1.0600e-003**	**0.2310**	**0.0610**	**9.8000e-004**	**0.0620**		**178.9221**	**178.9221**	**3.9300e-003**	**4.5500e-003**	**180.3776**

3.3 Grading - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					15.9844	0.0000	15.9844	4.3859	0.0000	4.3859			0.0000			0.0000
Off-Road	2.9012	27.9429	26.3311	0.0621		1.1309	1.1309		1.0404	1.0404		6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**2.9012**	**27.9429**	**26.3311**	**0.0621**	**15.9844**	**1.1309**	**17.1153**	**4.3859**	**1.0404**	**5.4263**		**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

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

3.3 Grading - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0692	0.0479	0.5619	1.9700e-003	0.2555	1.1800e-003	0.2566	0.0678	1.0800e-003	0.0688		198.8024	198.8024	4.3700e-003	5.0600e-003	200.4196
Total	**0.0692**	**0.0479**	**0.5619**	**1.9700e-003**	**0.2555**	**1.1800e-003**	**0.2566**	**0.0678**	**1.0800e-003**	**0.0688**		**198.8024**	**198.8024**	**4.3700e-003**	**5.0600e-003**	**200.4196**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2339	0.0000	6.2339	1.7105	0.0000	1.7105			0.0000			0.0000
Off-Road	2.9012	27.9429	26.3311	0.0621		1.1309	1.1309		1.0404	1.0404	0.0000	6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**2.9012**	**27.9429**	**26.3311**	**0.0621**	**6.2339**	**1.1309**	**7.3648**	**1.7105**	**1.0404**	**2.7509**	**0.0000**	**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

Arvin Edision NCSW - Kern-San Joaquin County, Winter

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

3.3 Grading - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0692	0.0479	0.5619	1.9700e-003	0.2555	1.1800e-003	0.2566	0.0678	1.0800e-003	0.0688		198.8024	198.8024	4.3700e-003	5.0600e-003	200.4196
Total	**0.0692**	**0.0479**	**0.5619**	**1.9700e-003**	**0.2555**	**1.1800e-003**	**0.2566**	**0.0678**	**1.0800e-003**	**0.0688**		**198.8024**	**198.8024**	**4.3700e-003**	**5.0600e-003**	**200.4196**

3.3 Grading - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					15.9844	0.0000	15.9844	4.3859	0.0000	4.3859			0.0000			0.0000
Off-Road	2.9012	27.9429	26.3311	0.0621		1.1309	1.1309		1.0404	1.0404		6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**2.9012**	**27.9429**	**26.3311**	**0.0621**	**15.9844**	**1.1309**	**17.1153**	**4.3859**	**1.0404**	**5.4263**		**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

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

3.3 Grading - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0648	0.0429	0.5256	1.9000e-003	0.2555	1.1100e-003	0.2566	0.0678	1.0200e-003	0.0688		192.1683	192.1683	3.9500e-003	4.7400e-003	193.6802
Total	**0.0648**	**0.0429**	**0.5256**	**1.9000e-003**	**0.2555**	**1.1100e-003**	**0.2566**	**0.0678**	**1.0200e-003**	**0.0688**		**192.1683**	**192.1683**	**3.9500e-003**	**4.7400e-003**	**193.6802**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2339	0.0000	6.2339	1.7105	0.0000	1.7105			0.0000			0.0000
Off-Road	2.9012	27.9429	26.3311	0.0621		1.1309	1.1309		1.0404	1.0404	0.0000	6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**2.9012**	**27.9429**	**26.3311**	**0.0621**	**6.2339**	**1.1309**	**7.3648**	**1.7105**	**1.0404**	**2.7509**	**0.0000**	**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

Arvin Edision NCSW - Kern-San Joaquin County, Winter

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

3.3 Grading - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0648	0.0429	0.5256	1.9000e-003	0.2555	1.1100e-003	0.2566	0.0678	1.0200e-003	0.0688		192.1683	192.1683	3.9500e-003	4.7400e-003	193.6802
Total	**0.0648**	**0.0429**	**0.5256**	**1.9000e-003**	**0.2555**	**1.1100e-003**	**0.2566**	**0.0678**	**1.0200e-003**	**0.0688**		**192.1683**	**192.1683**	**3.9500e-003**	**4.7400e-003**	**193.6802**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other 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	0.488129	0.054374	0.179646	0.157061	0.028618	0.008866	0.014149	0.038412	0.000576	0.000233	0.024457	0.001405	0.004073

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

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.9813	1.8000e-004	0.0199	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0427	0.0427	1.1000e-004		0.0455
Unmitigated	3.9813	1.8000e-004	0.0199	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0427	0.0427	1.1000e-004		0.0455

Arvin Edision NCSW - Kern-San Joaquin County, Winter

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

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.9708					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.0087					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8300e-003	1.8000e-004	0.0199	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0427	0.0427	1.1000e-004		0.0455
Total	**3.9813**	**1.8000e-004**	**0.0199**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**		**0.0427**	**0.0427**	**1.1000e-004**		**0.0455**

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.9708					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.0087					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.8300e-003	1.8000e-004	0.0199	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0427	0.0427	1.1000e-004		0.0455
Total	**3.9813**	**1.8000e-004**	**0.0199**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**		**0.0427**	**0.0427**	**1.1000e-004**		**0.0455**

7.0 Water Detail

7.1 Mitigation Measures Water

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B: Biological Evaluation Report

ARVIN-EDISON WATER STORAGE DISTRICT

NORTH CANAL SPREADING WORKS EXPANSION PROJECT BIOLOGICAL EVALUATION

KERN COUNTY
JULY 2024

PREPARED FOR:
Arvin-Edison Water Storage District

PREPARED BY:
PROVOST & PRITCHARD CONSULTING GROUP
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ACRONYMS AND ABBREVIATIONS

APE ..... Area of Potential Effect
BMP ..... Best Management Practices
CDFW ..... California Department of Fish and Wildlife
CEQA ..... California Environmental Quality Act
CNDDB ..... California Natural Diversity Database
CNPS ..... California Native Plant Society
County ..... Tulare County
District ..... Arvin-Edison Water Storage District
ECOS ..... United States Fish and Wildlife Service's Environmental Conservation Online System
EPA ..... Environmental Protection Agency
°F ..... degrees Fahrenheit
HUC ..... Hydrologic Unit Code
IPaC ..... United States Fish and Wildlife Service's Information for Planning and Consultation system
MBTA ..... Migratory Bird Treaty Act
NEPA ..... National Environmental Policy Act
NRCS ..... Natural Resources Conservation Service
Provost & Pritchard ..... Provost & Pritchard Consulting Group
RWQCB ..... Regional Water Quality Control Board
SWPPP ..... Storm Water Pollution Prevention Plan
SWRCB ..... State Water Resources Control Board
USACE ..... United States Army Corps of Engineers
USC ..... United States Code
USDA ..... United States Department of Agriculture
USFWS ..... United States Fish and Wildlife Service
USGS ..... United States Geological Survey

1 INTRODUCTION

This Biological Evaluation, prepared by Provost & Pritchard Consulting Group (Provost & Pritchard) in compliance with the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA), includes descriptions of the biological resources present or with potential to occur within the proposed North Canal Spreading Works (NCSW) Project (or "project") and surrounding areas, potential project-related impacts or effects to those resources, and mitigation measures to reduce these impacts and effects to a less-than-significant level under CEQA and NEPA.

1.1 PROJECT DESCRIPTION

The project site (or "site") is located in the San Joaquin Valley, near the center of Kern County, southeast of the City of Bakersfield and 1.5 miles north of the City of Arvin. (see Figure 1). The project's Area of Potential Effect (APE) is located inside the Arvin-Edison Water Storage District (AEWSD) service area and includes approximately 195 acres with an additional 50-foot buffer surrounding the project site. The APE includes fallow fields, existing basins, an oil well with associated pump-jack, two agricultural wells, and compact dirt roads (see Figure 2).

The proposed project would construct approximately 195 acres of groundwater recharge basins and install powerline extensions on vacant land to meet the goals of the project. Soils onsite would be excavated to construct basins which would be gravity filled. The excavated material would be used to create levees between basin cells as needed. The recharge basins would consist of embankments up to six feet high from the existing grade. Basins would be connected by precast inter-basin structures, accessed by new levee drive roads, and protected by new perimeter fencing and gates. The proposed project would connect to the existing gravity pipeline infrastructure at the northeast corner of the site and divert available surface water via a proposed 48-inch butterfly valve, metered pipeline, and outfall structure. The existing wells (two agricultural, one oil) would not be disturbed as part of the proposed project.

1.2 REPORT OBJECTIVES

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

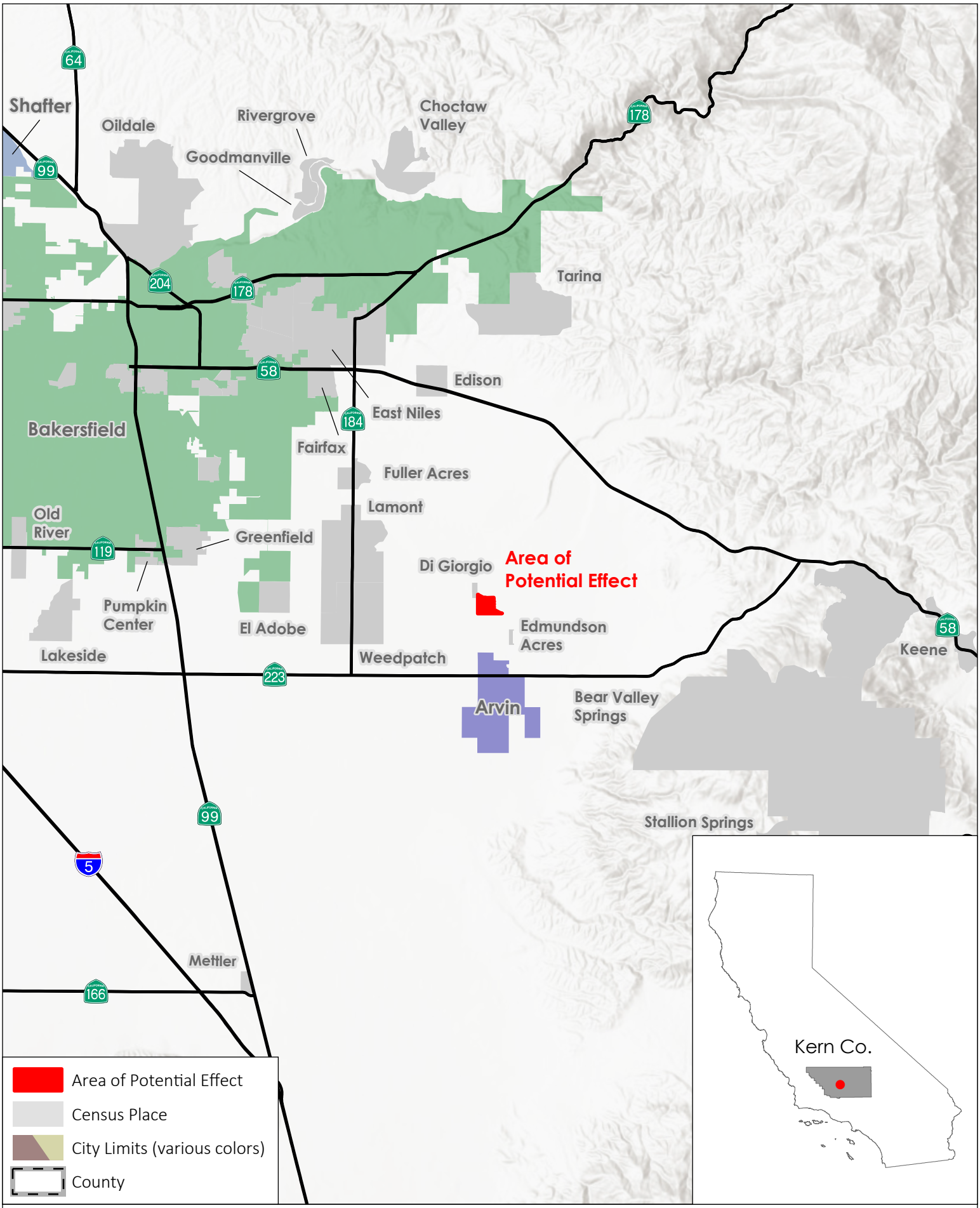
This report addresses issues related to the following:

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

Therefore, the objectives of this report are to:

- Summarize all APE-specific information related to existing biological resources.
- Make reasonable inferences about the biological resources that could occur on the APE based on habitat suitability and the proximity of the APE to a species' known range.
- Summarize all state and federal natural resource protection laws that may be relevant to implementation of the project.
- Identify and discuss project impacts and effects to biological resources likely to occur onsite within the context of CEQA, NEPA, and/or state or federal laws.

- Identify and prescribe a set of avoidance and minimization measures that would reduce impacts to a less-than-significant level (as identified by CEQA) or avoid and minimize effects (as identified by NEPA) and are generally consistent with recommendations of the resource agencies for affected biological resources.



Regional Vicinity Map

Arvin Edison Water Storage District -
North Canal Spreading Works Expansion Project

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Fig. 1 *Page* 1-3

Aerial Map

Arvin Edison Water Storage District -
North Canal Spreading Works Expansion Project

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Fig. 2 *Page* 1-4

1.3 STUDY METHODOLOGY

A reconnaissance-level field survey of the APE was conducted on June 21, 2024, by Provost & Pritchard biologist, Mary Beth Bourne. The survey consisted of walking and driving throughout the APE while identifying and noting land uses, biological habitats and communities, and plant and animal species encountered. Habitats were also assessed to help with determining if they could be suitable for various rare or protected plant and animal species. Representative photographs of the site were taken and are presented in Appendix A.

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

The field survey did not include focused surveys for special status species. The field survey conducted included the appropriate level of detail to assess the significance of potential impacts to sensitive biological resources resulting from implementing the project. Furthermore, the field survey was sufficient to generally describe 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), California Department of Fish and Wildlife (CDFW), Regional Water Quality Control Board (RWQCB) and the State Water Resources Control Board (SWRCB).

2 EXISTING CONDITIONS

2.1 REGIONAL SETTINGS

2.1.1 TOPOGRAPHY

The APE is located within the *Arvin* U.S. Geological Survey (USGS) 7.5-minute quadrangle in the southwestern portion of Section 11, Township 31 South, Range 29 East. The topography of the APE is relatively flat with elevations ranging from approximately 485 to 500 feet above mean sea level (see Figure 3).

2.1.2 CLIMATE

Like most of California, the APE experiences a Mediterranean climate. Warm, dry summers are followed by cool, moist winters. In the summer, average high temperatures range between 81- and 99-degrees Fahrenheit (°F), but often exceed 105 °F, and the humidity is generally low. Winter temperatures are often below 60 °F during the day and rarely exceed 75 °F. On average, the City of Arvin receives approximately 8 inches of precipitation in the form of rain yearly, most of which occurs between October and April, and the APE would be expected to receive similar amounts of precipitation.

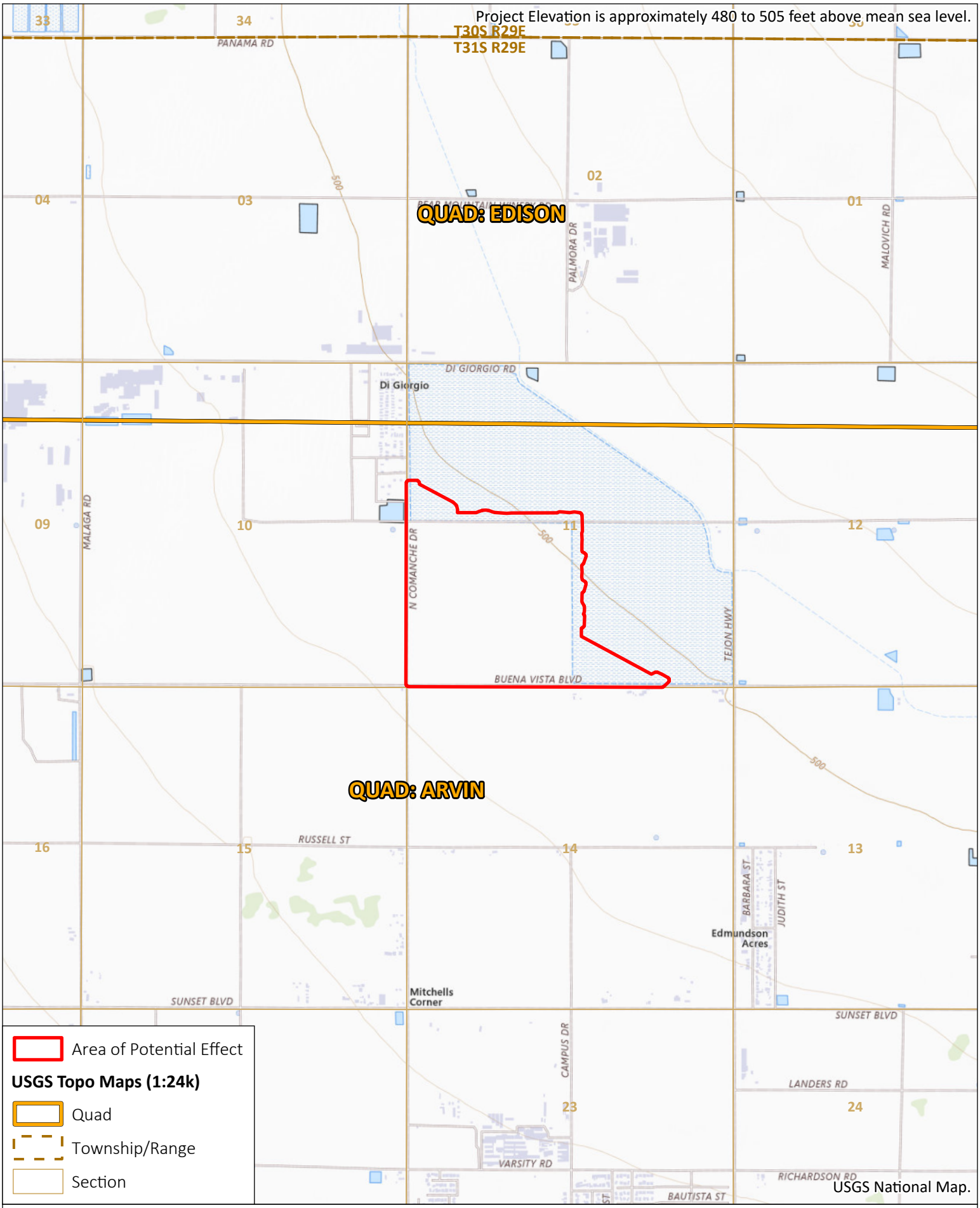
2.1.3 HYDROLOGY

The nearest surface water features to the APE includes the recharge basins along the northern and eastern boundaries of the APE. These basins are filled by water from the North canal which is located less than 0.4 miles north-northeast of the APE.

2.1.4 SOILS

One soil mapping unit representing one soil type was identified within the APE; Hesperia sandy loam, 0 to 2 percent slopes (see Appendix D for the Web Soil Survey Report). Hesperia soils have moderate to rapid permeability, are well drained, and have low to negligible runoff. Hesperia is primarily found in desert ranges and is often used for the production of irrigated agriculture.

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. This soil is predominantly nonhydric with only one minor soil component identified as hydric.



Topographic Map

Arvin Edison Water Storage District -
North Canal Spreading Works Expansion Project

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2.2 BIOTIC HABITATS

Two biotic habitats were observed within the APE which included ruderal and basin (see Figure 4). These habitats and their constituent plant and animal species are described in more detail in the following sections.

2.2.1 RUDERAL

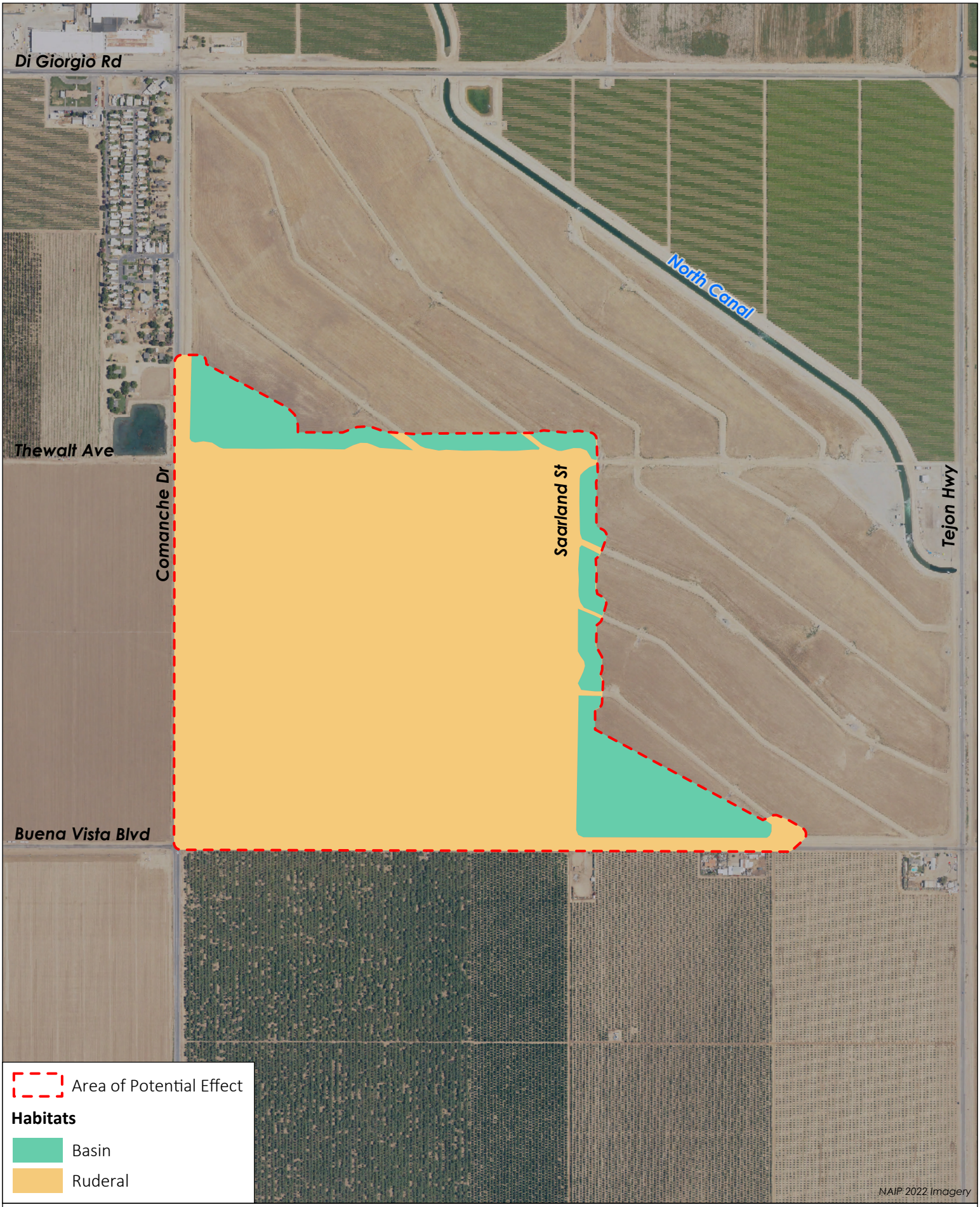
The APE primarily consists of ruderal habitat. The majority of the APE was composed of bare land which was previously used for agricultural production and has since been fallowed. Soils within the field had been recently disced and were very fine and soft. The margins of the field contained sparse, weedy vegetation, including Bermuda grass (*Cynodon dactylon*) and flax leaf fleabane (*Erigeron bonariensis*). Wildlife observed within the ruderal habitat included foraging common ravens (*Corvus corax*), western kingbird (*Tyrannus verticalis*), house finch (*Haemorhous mexicanus*), horned lark (*Eremophila alpestris*), and northern mockingbird (*Mimus polyglottos*). Additionally, California ground squirrels (*Otospermophilus beecheyi*) were observed running between the field and the almond orchard to the south. The field contained an oil well with associated infrastructure on the northwest side of the APE. The soil surrounding the pumpjack was saturated with oil. A tall chain-link fence separated the field from the existing AEWSD recharge basins. Gaps in the fencing were observed, as well as areas where animals had tunneled under the fence. Small mammal burrows were also present along the fence line, but most were degraded and appeared to be inactive. Soils adjacent to the basins were highly compacted and appeared to be used as dirt roads to navigate the site. Utility poles were located in this area adjacent to the basins and an active red-tailed hawk (*Buteo jamaicensis*) nest with two chicks was observed on a pole at the north end of the APE. An adult red-tailed hawk was observed interacting with the nest and alarm calling when the pole was approached. Several small mammal and western toad (*Anaxyrus boreas*) carcasses and bones were identified under the nest.

The ruderal habitat within the site is highly disturbed by anthropogenic activities. However, this habitat potentially serves foraging birds, including raptors, during the day, as well as bats, coyotes, and other nocturnal animals at night.

2.2.2 BASIN

The basin habitats onsite were variable in vegetation cover and water level. The southern most basin was not inundated at the time of the survey, but was almost entirely covered by herbaceous vegetation, including Russian thistle (*Salsola tragus*), rabbits foot grass (*Polypogon monspeliensis*), horse weed (*Erigeron canadensis*), prickly lettuce (*Lactuca serriola*), goathead (*Tribulus terrestris*), jungle rice (*Echinochloa colona*), curly dock (*Rumex crispus*), purslane (*Portulaca oleracea*), and black mustard (*Brassica nigra*). These species were also present in other basins, though some basins were entirely devoid of vegetation, and some were entirely or partially inundated with water. Several bird species were identified foraging in and around the basins, including mourning dove (*Zenaida macroura*), black phoebe (*Sayornis nigricans*), black neck stilt (*Himantopus mexicanus*), white face ibis (*Plegadis chihi*), house sparrow (*Passer domesticus*), great tailed grackle (*Quiscalus mexicanus*), great blue heron (*Ardea herodias*), black-crowned night heron (*Nycticorax nycticorax*), cliff swallow (*Petrochelidon pyrrhonota*), pied-billed grebe (*Podilymbus podiceps*), and avocet (*Recurvirostra americana*). Raccoon (*Procyon lotor*) tracks were identified along the edges of multiple basins. California ground squirrels were observed in the western most basin, though no burrows were present within this area of the APE. A dead, adult red-tailed hawk was observed in the basin directly north of the previously mentioned nest pole. Amphibian tracks were observed around several basins, and western toad carcasses were identified under the hawk nest.

The basins are regularly disturbed by human activity; however, wildlife was observed actively using the basins as foraging habitat. Ground nesting birds such as killdeer could nest in and around the basins, and



Habitats Map

Arvin Edison Water Storage District -
North Canal Spreading Works Expansion Project

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*Fig.*4 *Page* 2-4

the inundated basins likely serve as a water source to wildlife in the region. Small mammals foraging in the basins also likely attract predators such as great-horned owls (*Bubo virginianus*).

2.3 NATURAL COMMUNITIES OF SPECIAL CONCERN AND RIPARIAN HABITAT

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

Riparian habitat is composed of plant communities that occur along the banks, and sometimes over the banks, of most waterways and is an important habitat for numerous wildlife species. CDFW has jurisdiction over most riparian habitat in California. No waterways or riparian habitat were observed within or adjacent to the APE during the field survey.

2.4 DESIGNATED CRITICAL HABITAT

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

2.5 WILDLIFE MOVEMENT CORRIDORS AND NATIVE WILDLIFE NURSERY SITES

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

Native wildlife nursery sites are areas where a species or group of similar species raise their young in a concentrated place, such as maternity bat roosts. Given the abundance of western toads observed within the basins, these areas could be considered wildlife nursery sites for amphibians, including western toad.

2.6 SPECIAL STATUS PLANTS AND ANIMALS

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

A query of the CNDDB for occurrences of special status plant and animal species was conducted for the *Arvin* USGS 7.5-minute quadrangle that contains the APE, and for the 8 surrounding USGS quadrangles: *Tejon Hills, Mettler, Weed Patch, Lamont, Edison, Bena, Bear Mountain,* and *Tejon Ranch*. A query of the IPaC was also completed for the APE. These species, and their potential to occur within the APE, are listed in Table 1 and Table 2, below. Other special status species that did not show up in the CNDDB query, but

have the potential to occur in the vicinity, are also included in Table 2. Species lists obtained from CNDDB and IPaC are available in Appendix B and Appendix C, respectively. All relevant sources of information, as discussed in the Study Methodology section of this report, as well as field observations, were used to determine if any special status species have the potential to occur within the APE.

Table 1: List of Special Status Plants with Potential to Occur on the APE and/or in the Vicinity

Species	Status*	Habitat	Occurrence within the APE
Alkali mariposa-lily (*Calochortus striatus*)	CNPS 1B	Found in the Sierra Nevada foothills, the Desert Mountains, and the Mojave Desert in alkaline meadows, ephemeral washes, and moist creosote-bush scrub in chaparral, alkali scrub communities, meadows, and seeps. Found at elevations between 200 and 500 feet. Sometimes associated with vernal pools. Blooms April – June.	**Absent.** Soils and habitats onsite were unsuitable for this species.
Bakersfield cactus (*Opuntia basilaris var. treleasei*)	FE, CE, CNPS 1B	Found in chenopod scrublands, valley and foothill grasslands, cismontane woodlands where the Transverse range, Coastal range, Sierra Nevada range, and Mojave Desert meet. This species grows in coarse or cobbly well-drained granitic sand at elevations between 394 feet and 492 feet. Blooms March – April.	**Absent.** Suitable habitat was not observed within the APEs and surrounding areas.
Bakersfield smallscale (*Atriplex tularensis*)	CE, CNPS 1A	Historically found in the southernmost portion of the San Joaquin Valley in valley sink scrub habitat and associated with saltgrass. Grows at elevations between 295 and 655 feet. Blooms June – October.	**Absent.** Suitable habitat was absent from the APEs.
Calico monkeyflower *(Diplacus pictus / Mimulus pictus / Eunanus pictus)*	CNPS 1B	Found in the Sierra Nevada foothills and the Tehachapi mountains in bare, sunny, shrubby areas, and around granite outcrops within foothill woodland communities at elevations between 450 feet and 4,100 feet. Blooms March – May.	**Absent.** The APE is outside the current known range of this species.
California alkali grass (*Puccinellia simplex*)	CNPS 1B	Found in the San Joaquin Valley and other parts of California in saline flats and mineral springs within valley grassland and wetland-riparian communities at elevations below 3,000 feet. Blooms March – May.	**Absent.** Soils and habitats onsite were unsuitable for this species.

Species	Status*	Habitat	Occurrence within the APE
California jewelflower *(Caulanthus californicus)*	FE, CE, CNPS 1B	Found in the San Joaquin Valley and western Transverse Ranges in sandy soils. Occurs on flats and slopes, generally in non-alkaline grassland at elevations between 230 and 6,100 feet. Blooms February–April.	**Absent.** Soils and habitats onsite were unsuitable for this species.
Comanche Point layia (Layia leucopappa)	CNPS 1B	Occurs in the southernmost portion of the San Joaquin Valley as well as the Mojave Desert in in scrubland and valley-foothill grasslands. Grows on dry hills in white-gray soils at elevations between 325 and 1,145 feet. Blooms March – April. Does not reliably germinate every year.	**Absent.** Suitable habitat was absent from the APE.
Coulter's goldfields *(Lasthenia glabrata ssp. coulteri)*	CNPS 1B	Found on alkaline or saline soils in vernal pools and playas in grassland at elevations below 4,500 feet. Blooms April–May.	**Absent.** Soils and habitats required by this species were absent from the APE.
Hispid salty bird's-beak (*Chloropyron molle ssp. hispidum*)	CNPS 1B	Grows in the damp, alkali soils of meadows, playas, and sinks in the San Joaquin Valley and Delta-Bay region of California. Found at elevations below 430 feet. Blooms June – July.	**Absent**. Alkali soils are absent from the APE.
Horn's milk-vetch *(Astralagus hornii var. hornii)*	CNPS 1B	This facultative species is most frequently found in the San Joaquin Valley and Sierra Nevada foothills in the alkali soils of lake margins, meadows, seeps, and playas at elevations between approximately 190 and 990 feet. Blooms May – September.	**Absent**. Soils and habitats required by this species were absent from the APE.
Kern Mallow *(Eremalche parryi ssp. kernensis)*	CNPS 1B, FE	Occurs in the San Joaquin Valley and the Inner South Coast Ranges in eroded hillsides and alkali flats; often on dry, open, sandy to clay soils and within alkali scrub communities. Occurs at elevations between approx. 200 and 4,250 feet. Blooms March–May.	**Absent.** Soils and habitats required by this species were absent from the APE.
Lemmon's jewelflower (*Caulanthus lemmonii*)	CNPS 1B	Grows in the Pacific Coast Ranges and grasslands at elevations between 260 and 3,610 feet. Often associated with pinyon pines and junipers. Blooms March – May.	**Absent**. Soils and habitats required by this species were absent from the APE.

Species	Status*	Habitat	Occurrence within the APE
Madera leptosiphon (*Leptosiphon serrulatus*)	CNPS 1B	Found within openings of foothill woodland, often yellow-pine forest, and chaparral at elevations between 1,000 and 4,300 feet. Blooms April – May.	**Absent.** The APE is outside the current known range of this species.
Munz's tidy-tips (*Layia munzii*)	CNPS 1B	Found in the San Joaquin Valley in alkaline clay soils; often along hillsides in alkali scrub and sometimes valley and foothill grassland at elevations between 100 and 2,700 feet. Blooms March – April.	**Absent.** Soils and habitats required by this species were absent from the APE.
Piute Mountains navarretia (*Navarretia setiloba*)	CNPS 1B	Occurs in the Sierra Nevada foothills, San Joaquin Valley, and the western Transverse Ranges in woodlands at grasslands at elevations between 1,640 and 6,890 feet. Grows in red clay soils or gravelly loam. Blooms April – July.	**Absent.** The APE is outside the current known range of this species.
Palmer's mariposa-lily (*Calochortus palmeri* var. *Palmeri*)	CNPS 1B	Found throughout southwestern California, primarily in wetland habitats, but occasionally in non-wetland habitats, including woodlands and shrublands. Grows at elevations between 3,900 and 7,300 feet. Blooms May – July.	**Absent.** The APE is outside the current known range of this species.
San Joaquin adobe sunburst (*Pseudobahia peirsonii*)	FT, CE, CNPS 1B	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 300 and 3,000 feet. Blooms March – May.	**Absent.** Soils and habitats required by this species were absent from the APE.
San Joaquin woollythreads (*Monolopia congdonii*)	FE, CNPS 1B	Occurs in the San Joaquin Valley in sandy soils on alkaline or loamy plains in valley and foothill grassland and alkali scrub communities at elevations between 150 and 2,800 feet. Blooms February – May.	**Absent.** Soils and habitats required by this species were absent from the APE.
Spiny-sepaled button-celery (*Eryngium spinosepalum*)	CNPS 1B	Found in the Sierra Nevada foothills and the San Joaquin Valley in vernal pools, swales, and roadside ditches. Often associated with clay soils in vernal pools within grassland communities. Occurs at elevations between 50 and 4,200 feet. Blooms April – July.	**Absent.** Soils and habitats required by this species were absent from the APE.

Species	Status*	Habitat	Occurrence within the APE
Striped adobe-lily (*Fritillaria striata*)	CT, CNPS 1B	Found in the Sierra Nevada foothills in adobe soil within valley grassland and foothill woodland communities at elevations below 3,300 feet. Blooms February – April.	**Absent.** The APE is outside the current known range of this species.
Tejon poppy *(Eschscholzia lemmonii ssp. Kernensis)*	CNPS 1B	Occurs in the grasslands of the southern portion of the San Joaquin valley and the foothills of the Transverse Ranges. Found in elevations between 650 and 3,280 feet. Blooms March – April.	**Absent.** The APE is outside the current known range of this species.
Vasek's clarkia (*Clarkia temblorensis ssp. calientensis*)	CNPS 1B	Endemic to the southern Sierra Nevada foothills, this species can be found in grasslands on north facing slopes at elevations between 885 and 1,640 feet. Blooms April – May.	**Absent.** The APE is outside the current known range of this species.

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

Species	Status*	Habitat	Occurrence within the APE
American badger (*Taxidea taxus*)	CSSC	Prefers drier open stages of shrub, forest, and herbaceous habitats with friable soils to burrow, but can be found within numerous habitats throughout California, including the margins of agricultural lands. Needs a sufficient prey base of burrowing rodents.	**Unlikely.** The APE includes a fallow field which is regularly disced and recharge basins which are subject to frequent human activity. The surrounding areas include frequently cultivated agricultural lands that are unsuitable for this species. An American Badger could potentially pass through the APE, but it is unlikely they would forage or live within the APE. The nearest recorded observation of this species occurred approximately 6.2 miles southeast of the APE within the Tejon Ranch Conservancy.
Bakersfield legless lizard (*Anniella grinnelli*)	CSSC	Can be found burrowing in moist, sandy soil within grassland, sand/dune, or chaparral habitats. Fallen logs, woody debris, and leaf litter under trees and bushes in sunny areas often indicate suitable habitat. The current known range is restricted to the east side of the Carrizo Plain and within the city limits of Bakersfield.	**Absent.** Soils and habitats required by this species were absent from the APE.
Blunt-nosed leopard lizard (*Gambelia sila*)	FE, CE, CFP	Occurs in the San Joaquin Valley region in expansive, arid areas with scattered vegetation. Today they inhabit non-native	**Absent.** Suitable habitats were absent from the APE.

Species	Status*	Habitat	Occurrence within the APE
		grassland and alkali sink scrub communities of the valley floor marked by poorly drained, alkaline, and saline soils. They can be found at elevations ranging from approx. 100 to 2,600 feet. They are absent from areas with steep slopes and dense vegetation, and areas subject to seasonal flooding. Adults may excavate shallow burrows but rely on deeper pre-existing rodent burrows for hibernation and reproduction.	
Burrowing owl (*Athene cunicularia*)	CSSC	Resides in open, dry grasslands, deserts, scrublands, and other areas with low growing vegetation. Nests and roosts underground in existing burrows created by mammals, most often by ground squirrels, and human-made structures.	**Unlikely.** While small mammal burrows were present within the APE, disturbance from previous agricultural production and absence of suitable grassland habitats makes the APE less than marginal for this species. The nearest recorded observation of this species occurred approximately 4.2 miles southeast of the APE in grassland habitat.
California condor (*Gymnogyps californianus*)	FE, CE, CFP	Typically nests in cavities in canyon or cliff faces but has also been recorded nesting in giant sequoias in Tulare County. Requires vast expanses of open savannah, grassland, and/or foothill chaparral in mountain ranges of moderate altitude. Forages for carrion up to 100 miles from their roost/nest sites.	**Absent.** Suitable nesting habitat was absent within the APE.
California glossy snake (*Arizona elegans occidentalis*)	CSSC	Inhabits arid scrub, rocky washes, grasslands, and chaparral. Prefers open areas with loose soil for easy burrowing. This species occurs from the eastern part of the San Francisco Bay Area south to northwestern Baja California but is absent along the central coast.	**Absent.** Suitable habitats were absent from the APE.
California legless lizard (*Anniella* sp.)	CSSC	Inhabits a variety of habitats which contain moist, loose soils and plant cover. Often can be found under objects such as rocks, boards, driftwood, and logs.	**Absent.** Soils and habitats required by this species were absent from the APE.
Coast horned lizard (*Phrynosoma blainvillii*)	CSSC	Found in grasslands, coniferous forests, woodlands, and chaparral, primarily in open areas with patches of loose,	**Absent.** Suitable habitats were absent from the APE.

Species	Status*	Habitat	Occurrence within the APE
		sandy soil and low-lying vegetation in valleys, foothills, and semi-arid mountains. Frequently found near ant hills and along dirt roads in lowlands along sandy washes with scattered shrubs.	
Crotch's bumble bee (*Bombus crotchii*)	CCE	Occurs throughout coastal California, as well as east to the Sierra Nevada-Cascade crest, and south into Mexico. Food plant genera include snapdragons, scorpionweeds, primroses, poppies, and buckwheats.	**Absent.** Suitable habitats and forage were absent from the APE.
Fisher- Southern Sierra Nevada-ESU (*Pekania pannanti*)	FE, CT	Can be found in intermediate to large-tree stages of coniferous forests with high percent canopy closure, generally within the low-medium elevational areas of the southern Sierra Nevada.	**Absent.** The APE is outside the current known range of this species.
Foothill yellow-legged frog – south Sierra DPS (*Rana boylii* pop. 5)	FC, CE	Frequents rocky streams and rivers with rocky substrate and open, sunny banks in forests, chaparral, and woodlands. Occasionally found in isolated pools, vegetated backwaters, and deep, shaded, spring-fed pools.	**Absent**. Suitable habitats were absent from the APE.
Least Bell's vireo (*Vireo bellii pusillus*)	FE, CE	This migratory species breeds in southern California. Breeding habitat consists of dense, low, shrubby, riparian vegetation in the vicinity of water or dry river bottoms. By the early 1980s, this species was extirpated from most of its historic range in California, including the Central Valley. This species now occurs exclusively along the coast of southern California (USFWS, 1998).	**Absent**. Suitable habitat was absent from the APE.
Long-eared owl (*Asio otus*)	CSSC	Occurs in riparian forests and woodlands, as well as scrublands. Requires adjacent open land for hunting mice, and the nests of crows, hawks, or magpies are required for breeding.	**Absent.** Suitable habitats were absent from the APE.
Monarch butterfly (*Danaus plexippus*)	FC	Roosts in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby. Larval	**Absent**. Suitable habitat was absent from the APE.

Species	Status*	Habitat	Occurrence within the APE
		host plants consist of milkweeds. Winter roost sites extend along the Pacific coast from northern Mendocino to Baja California, Mexico.	
Pallid bat (*Antrozous pallidus*)	CSSC	Found in grasslands, chaparral, and woodlands, where it feeds on ground- and vegetation-dwelling arthropods, and occasionally takes insects in flight. Prefers to roost in rock crevices, but may also use tree cavities, caves, bridges, and other man-made structures.	**Absent.** Suitable roosting habitat was absent from the APE.
Purple martin (*Progne subis*)	CSSC	Inhabits woodlands, low elevation coniferous forest of Douglas-fir, ponderosa pine, and Monterey pine. Nests in old woodpecker cavities as well as in human-made structures. Nest often located in tall, isolated trees and snags.	**Absent.** Suitable nesting habitat was absent from the APE.
San Joaquin coachwhip (*Masticophis flagellum ruddocki*)	CSSC	Found in open dry habitats with little or no tree cover in valley grassland and saltbush scrub communities in the San Joaquin Valley. Relies on mammal burrows for refuge and oviposition sites.	**Absent.** Suitable habitats were absent from the APE.
San Joaquin kit fox (*Vulpes macrotis mutica*)	FE, CT	Opportunistically forages in a variety of habitats. Dens in burrows within alkali sink, valley grassland, and woodland habitats in valleys and adjacent foothills and in human-made structures in cities, rangeland, and agricultural areas.	**Absent.** Soils and habitats required by this species were absent from the APE. Soils within and surrounding the basin were highly compact while soils in the fallow field were extremely fine and not suitable for burrows.
Southern California legless lizard (*Anniella stebbinsi*)	CSSC	Found in broadleaved upland forests, chaparral coastal dunes, and coastal scrub. They prefer soils with a high moisture content.	**Absent.** Soils and habitats required by this species were absent from 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.	**Absent.** Suitable nesting habitat was absent from the APE and the surrounding area.
Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*)	FE, CE	Inhabits saltbush scrub and sink scrub communities in the Tulare Lake Basin of the southern San Joaquin Valley. This species needs soft friable soils to burrow.	**Absent.** Soils and habitats required by this species were absent from the APE.

Species	Status*	Habitat	Occurrence within the APE
Tricolored blackbird (*Agelaius tricolor*)	CT, CSSC	Nests colonially near fresh water in dense cattails or tules, or in thickets of riparian shrubs. Forages in grassland and cropland. Large colonies are often found foraging in dairy farm feed fields.	**Absent.** Nesting and forging vegetation were absent from the APE.
Tulare grasshopper mouse (*Onychomys torridus tularensis*)	CSSC	Typically inhabits arid shrubland communities in hot, arid grassland and shrubland associations.	**Absent.** Suitable habitat was absent from the APE.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT	Lives in mature elderberry shrubs in the Central Valley and adjacent foothills from Tehama County south through Merced and Mariposa Counties with two scattered populations in Madera and Fresno Counties. Adults are active from March to June.	**Absent.** The APE is outside the current known range of this species and host plants were absent from the APE.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	Occupies vernal and seasonal pools, with clear to tea-colored water, in grass or mud-bottomed swales, and basalt depression pools.	**Absent.** Habitats required by this species are absent from the APE.
Western mastiff bat (*Eumops perotis californicus*)	CSSC	Found in open, arid to semi-arid habitats, including dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas, where it feeds on insects in flight. Roosts most commonly in crevices in cliff faces but may also use high buildings and tunnels.	**Absent.** Suitable roosting habitat was absent from the APE.
Western pond turtle (*Emys marmorata*)	CSSC	An aquatic turtle of ponds, marshes, slow-moving rivers, streams, and irrigation ditches with riparian vegetation. Requires adequate basking sites and sandy banks or grassy open fields to deposit eggs.	**Absent.** Suitable habitat was absent from the APE.
Western spadefoot (*Spea hammondii*)	FPT, CSSC	The majority of the time this species is terrestrial and occurs in small mammal burrows and soil cracks, sometimes in the bottom of dried pools. Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas,	**Unlikely.** While herpetofauna appeared to be using the basins for breeding, suitable upland habitat was less than marginal for this species. The abundance of western toads at the site as well as waterfowl would likely deter this species from occupying the basins. The five nearest recorded observations of this species all occurred in grassland habitat or the Sierra Nevada foothills and were

Species	Status*	Habitat	Occurrence within the APE
		alkali flats, foothills, and mountains. Vernal or seasonal pools, that hold water for a minimum of three weeks, are necessary for breeding.	located more than 6 miles away from the APE.

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

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

STATUS CODES

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

CNPS LISTING

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

3 IMPACTS AND MITIGATION

3.1 SIGNIFICANCE CRITERIA

3.1.1 CEQA

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

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

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

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

3.1.2 NEPA

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

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

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

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

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

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

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

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

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

3.2 RELEVANT GOALS, POLICIES, AND LAWS

3.2.1 KERN COUNTY GENERAL PLAN

The Kern County General Plan Policy Document contain the following goals and policies related to the project:

3.2.1.1.1 THREATENED AND ENDANGERED SPECIES

Policy 27: Threatened or endangered plant and wildlife species should be protected in accordance with State and federal laws.

Policy 28: The County should work closely with State and federal agencies to assure that discretionary projects avoid or minimize impacts to fish, wildlife, and botanical resources.

Policy 29: The County will seek cooperative efforts with local, State, and federal agencies to protect listed threatened and endangered plant and wildlife species through the use of conservation plans and other methods promoting management and conservation of habitat lands.

3.2.2 THREATENED AND ENDANGERED SPECIES

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

3.2.3 DESIGNATED CRITICAL HABITAT

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

3.2.4 MIGRATORY BIRDS

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

3.2.5 BIRDS OF PREY

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

3.2.6 NESTING BIRDS

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

3.2.7 WETLANDS AND OTHER "JURISDICTIONAL WATERS"

The definition of "waters of the United States" (WOTUS) often changes from one presidential administration to the next and can also be affected by the outcomes of court cases involving federal

jurisdiction of waters. The current definition (i.e. "Conforming Rule") was adopted under the Biden Administration in early 2023 and was subsequently revised in September 2023 to incorporate the U.S. Supreme Court's May 25, 2023, decision in the case of *Sackett* v. *Environmental Protection Agency* (EPA). The Conforming Rule has adopted much of the same WOTUS designations as the pre-2015 rules but has incorporated the most recent science and court case rulings. The extent of jurisdiction has been defined in the Code of Federal Regulations (CFR) but is also subject to interpretation by the federal courts. Jurisdictional waters generally include the following categories:

1) *Traditional Navigable Waters, the territorial seas, or interstate waters (not including interstate wetlands);*
2) *Impoundments of waters of the United States;*
3) *Tributaries of:*
    a. *Traditional Navigable Waters, territorial seas, or interstate waters (not including interstate wetlands); or*
    b. *Impoundments of water of the United States when the tributaries meet the relatively permanent standard.*
4) *Wetlands:*
    a. *Adjacent to Traditional Navigable Waters, the territorial seas, or interstate waters;*
    b. *Adjacent to and with a continuous surface connection to relatively permanent impoundments of waters of the United States*
    c. *Adjacent to and with a continuous surface connection to relatively permanent jurisdictional tributaries.*
5) *Intrastate lakes and ponds not identified in items 1 through 4 of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in items 1 or 3 above.*

Exclusions under the new definition include the following:

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

The Conforming Rule has incorporated the best available science, relevant supreme court cases, public comment, technical expertise, and experience gained from more than 45 years of implementing the pre-2015 "waters of the United States" framework to inform jurisdictional limits. One significant court case involves the U.S. Supreme Court in its *2001 Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers (SWANCC)* decision. It was determined that 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 United States Supreme Court ruled that a significant nexus between a wetland and other navigable waters must exist for the wetland itself to be considered a jurisdictional water. The Supreme Court heard *Sackett* v. *United States EPA* in May 2023, to determine governing standards of a significant nexus between waters of the United States and adjacent wetlands. The court decided that adjacent wetlands would be protected under the CWA only if it maintained a continuous surface water connection with a federal water body. This decision has limited protection for networks of wetlands connected to navigable waters through subsurface flow. The final decision was enacted in September 2023.

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

Under the Porter-Cologne Water Quality Control Act of 1969, the SWRCB has regulatory authority to protect the water quality of all surface water and groundwater in 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 WOTUS 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 WOTUS, require waste discharge requirements (WDRs), or waivers of WDRs, from the RWQCB. The RWQCB also administers the Construction Storm Water Program and the federal National 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 WOTUS may require an NPDES permit.

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

3.3 POTENTIALLY SIGNIFICANT PROJECT-RELATED IMPACTS AND MITIGATION

Species protected by California Fish and Game Code, CDFW, USFWS, CEQA, or NEPA that have the potential to be impacted by project activities include nesting migratory birds and raptors. Other sensitive resources that have the potential to be impacted by the project include native wildlife nursery sites. Corresponding mitigation measures can be found below.

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

The APE contains suitable nesting and foraging habitat for a variety of protected bird species, such as migratory birds and raptors. Protected birds located within or adjacent to the APE during construction have the potential to be injured or killed by project-related activities. In addition to the direct "take" of protected birds within the APE or adjacent areas, these birds nesting in these areas could be disturbed by project-related activities resulting in nest abandonment. Projects that adversely affect the nesting success of protected birds or result in the mortality of these birds would be a violation of state and federal laws and considered a significant impact under CEQA and NEPA.

While foraging habitat for protected birds is present on the APE, suitable foraging habitat is located adjacent to the APE and within the vicinity of the APE. Loss of the foraging habitat from implementation of the project is not considered a significant impact.

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

> Mitigation Measure BIO-1a (*Avoidance*): The project's construction activities will occur, if feasible, between September 1 and January 31 (outside of the nesting bird season) to avoid impacts to nesting birds.
>
> Mitigation Measure BIO-1b (*Pre-construction Surveys*): If activities must occur within the nesting bird season (February 1 to August 31), a qualified biologist (someone who is familiar with the species in the region) will conduct a pre-construction survey for active nests within ten (10) calendar days prior to the start of construction. The survey will be completed within the APE, and up to 50 feet outside of the APE for nesting migratory birds and up to 500 feet outside of the APE in all accessible areas for nesting raptors. Raptor nests are considered "active" upon the nest-building stage. If no active nests are observed, no further mitigation is required.
>
> Mitigation Measure BIO-1c (*Avoidance Buffers*): On discovery of any active nests or breeding colonies near work areas, a qualified biologist will determine appropriate avoidance buffer distances based on applicable CDFW and/or USFWS guidelines, the biology of the species, conditions of the nest(s), and the level of project disturbance. If necessary, avoidance buffers will be identified with flagging, fencing, or other easily visible means, and will be maintained until the biologist has determined that the nestlings have fledged.

3.4 SECTION 7 DETERMINATIONS

In addition to the occurrence analysis performed in Table 1 and Table 2 of this document, Table 3 summarizes project effect determinations for federally-listed species found on the CNDDB list generated on June 20, 2024, and the USFWS IPaC list generated on July 11, 2024 (see Appendix B and Appendix C, respectively), in accordance with Section 7 of the Endangered Species Act.

Table 3: Section 7 Determinations

Species	Determination	Rationale for Determination
Blunt-nosed leopard lizard (*Gambelia sila*)	No effect	**Habitat absent.** Habitats required by this species for nesting were absent from the APE.
Bakersfield cactus (*Opuntia basilaris var. treleasei*)	No effect	**Habitat absent.** Habitats required by this species for nesting were absent from the APE.
California condor *(Gymnogyps californianus)*	No effect	**Habitat absent.** Habitats required by this species for nesting were absent from the APE.
California jewelflower (*Caulanthus californicus*)	No effect	**Habitat absent.** Habitats and soils required by this species are absent from the APE.
Fisher (*Pekania pennanti*)	No effect	**Habitat absent.** APE is outside of the known distribution range of this species.
Foothill yellow-legged frog – south Sierra DPS (*Rana boylii*)	No effect	**Habitat absent.** Habitats required by this species for nesting were absent from the APE.
Kern mallow (*Eremalche parryi* ssp. *kernensis*)	No effect	**Habitat absent**. Habitats and soils required by this species were absent from the APE.
Monarch butterfly (*Danaus plexippus*)	No effect	**Habitat absent**. Foraging and roosting habitat was absent within the APE.
Northwestern pond turtle (*Actinemys marmorata*)	No effect	**Habitat absent**. Habitats required by this species for nesting were absent from the APE.
San Joaquin adobe sunburst *(Pseudobahia peirsonii)*	No effect	**Habitat absent.** Soils and habitats required by this species were absent from the APE.
San Joaquin kit fox (*Vulpes macrotis mutica*)	No effect	**Habitat absent.** Soils and habitats required by this species were absent from the APE.
San Joaquin woollythreads (*Monolopia congdonii*)	No effect	**Habitat absent**. Habitats and soils required by this species were absent from the APE.
Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*)	No effect	**Habitat absent**. Habitats required by this species were absent from the APE.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	No effect	**Habitat absent.** The APE is outside the current known range of this species and host plants were absent from the APE.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	No effect	**Habitat absent**. Vernal pool habitat was absent within the APE and surrounding lands.
Western spadefoot (*Spea hammondii*)	No effect	**Habitat absent.** Suitable upland and breeding habitats were less than marginal for this species within the APE.

3.5 LESS THAN SIGNIFICANT PROJECT-RELATED IMPACTS

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

Of the 22 regionally occurring special status plant species, all are considered absent from or unlikely to occur within the APE due to past or ongoing disturbance and/or the absence of suitable habitat.

Since it is unlikely that these species would occur onsite, implementation of the project should have no impact on these 22 special status species through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted.

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

Of the 28 regionally occurring special status animal species, all are considered absent from or unlikely to occur within the APE due to past or ongoing disturbance and/or the absence of suitable habitat.

Since it is unlikely that these species would occur onsite, implementation of the project should have no impact on these 28 special status species through construction mortality, disturbance, or loss of habitat. Mitigation measures are not warranted.

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

Riparian habitat is absent from the APE and adjacent lands. There are no CNDDB-designated "natural communities of special concern" recorded within the APE or surrounding lands. Mitigation is not warranted.

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

Typical wetlands, vernal pools, and other waters were absent from the APE. The existing basins are manmade and receive water from AEWSD's North Canal. The Project would include no disturbance impacts to the canal. There are no designated wild and scenic rivers within the project site; therefore, the project would not result in direct impacts to wild and scenic rivers. Mitigation measures are not warranted.

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

3.5.5 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.

The APE has suitable features (basins) that could be used by herpetofauna as nursery sites. However, the existing basins would not be subject to ground disturbance activities when inundated. Therefore, the project would have no impact on wildlife movement corridors or native wildlife nursery sites, and mitigation measures are warranted.

3.5.6 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, and mitigation measures are not warranted.

3.5.7 LOCAL POLICIES OR HABITAT CONSERVATION PLANS

The project appears to be consistent with the goals and policies of the Kern County General Plan. There are no known Habitat Conservation Plans or Natural Communities of Special Concern in the project vicinity. Mitigation measures are not warranted.

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APPENDIX A: REPRESENTATIVE PHOTOS OF THE APE

Photograph 1

Overview of the APE facing northwest. The fallow field is visible.

Photograph 2

Overview of the fence separating the field from the existing basins.

Photograph 3

Overview of a tunnel and collapsed burrow under the fence.

Photograph 4

Overview of the southern most basin.

Photograph 5

Overview of the eastern basins and dirt road.

Photograph 6

Overview of the northern basins and dirt road.

Photograph 7

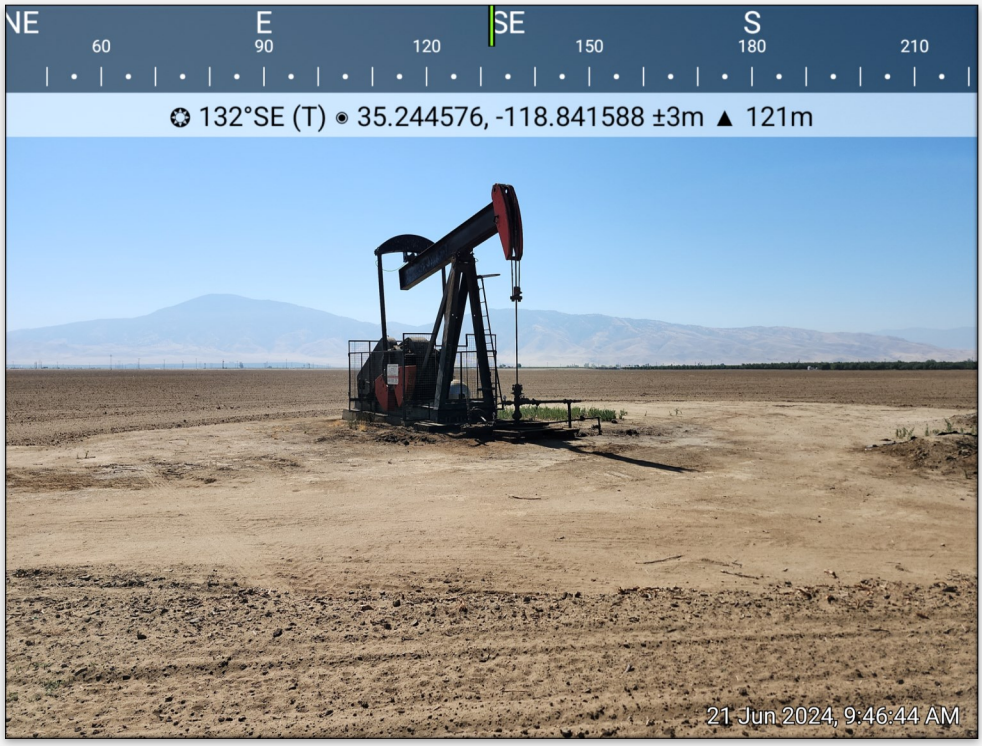
Overview of the active red-tailed hawk nest. Two hawk chicks are visible.

Photograph 8

Overview of a desiccated western toad located under the active hawk nest.

Photograph 9

Overview of the fallow field face south-southeast. The oil well is visible in the back-ground.



Photograph 10

Overview of the oil well and pumpjack.

APPENDIX B: CNDDB 9-QUAD SPECIES LIST

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Arvin (3511827) OR Tejon Hills (3511817) OR Mettler (3511818) OR Weed Patch (3511828) OR Lamont (3511838) OR Edison (3511837) OR Bena (3511836) OR Bear Mountain (3511826) OR Tejon Ranch (3511816))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
alkali mariposa-lily *Calochortus striatus*	PMLIL0D190	None	None	G3	S2S3	1B.2
American badger *Taxidea taxus*	AMAJF04010	None	None	G5	S3	SSC
An andrenid bee *Andrena macswaini*	IIHYM35130	None	None	G2	S2	
Bakersfield cactus *Opuntia basilaris var. treleasei*	PDCAC0D055	Endangered	Endangered	G5T1	S1	1B.1
Bakersfield legless lizard *Anniella grinnelli*	ARACC01050	None	None	G2G3	S2S3	SSC
Bakersfield smallscale *Atriplex tularensis*	PDCHE04240	None	Endangered	GX	SX	1A
blunt-nosed leopard lizard *Gambelia sila*	ARACF07010	Endangered	Endangered	G1	S2	FP
burrowing owl *Athene cunicularia*	ABNSB10010	None	None	G4	S2	SSC
calico monkeyflower *Diplacus pictus*	PDSCR1B240	None	None	G2	S2	1B.2
California alkali grass *Puccinellia simplex*	PMPOA53110	None	None	G2	S2	1B.2
California condor *Gymnogyps californianus*	ABNKA03010	Endangered	Endangered	G1	S2	FP
California glossy snake *Arizona elegans occidentalis*	ARADB01017	None	None	G5T2	S2	SSC
California jewelflower *Caulanthus californicus*	PDBRA31010	Endangered	Endangered	G1	S1	1B.1
California legless lizard *Anniella spp.*	ARACC01070	None	None	G3G4	S3S4	SSC
coast horned lizard *Phrynosoma blainvillii*	ARACF12100	None	None	G4	S4	SSC
Comanche Point layia *Layia leucopappa*	PDAST5N0A0	None	None	G1	S1	1B.1
Coulter's goldfields *Lasthenia glabrata ssp. coulteri*	PDAST5L0A1	None	None	G4T2	S2	1B.1
Crotch's bumble bee *Bombus crotchii*	IIHYM24480	None	Candidate Endangered	G2	S2	
foothill yellow-legged frog - south Sierra DPS *Rana boylii pop. 5*	AAABH01055	Endangered	Endangered	G3T2	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
great egret *Ardea alba*	ABNGA04040	None	None	G5	S4	
hispid salty bird's-beak *Chloropyron molle ssp. hispidum*	PDSCR0J0D1	None	None	G2T1	S1	1B.1
hoary bat *Lasiurus cinereus*	AMACC05032	None	None	G3G4	S4	
Hoover's eriastrum *Eriastrum hooveri*	PDPLM03070	Delisted	None	G3	S3	4.2
Horn's milk-vetch *Astragalus hornii var. hornii*	PDFAB0F421	None	None	GUT1	S1	1B.1
Kern mallow *Eremalche parryi ssp. kernensis*	PDMAL0C031	Endangered	None	G3G4T3	S3	1B.2
least Bell's vireo *Vireo bellii pusillus*	ABPBW01114	Endangered	Endangered	G5T2	S3	
Lemmon's jewelflower *Caulanthus lemmonii*	PDBRA0M0E0	None	None	G3	S3	1B.2
long-eared owl *Asio otus*	ABNSB13010	None	None	G5	S3?	SSC
Madera leptosiphon *Leptosiphon serrulatus*	PDPLM09130	None	None	G3	S3	1B.2
moestan blister beetle *Lytta moesta*	IICOL4C020	None	None	G2	S2	
Morrison's blister beetle *Lytta morrisoni*	IICOL4C040	None	None	G1G2	S2	
Munz's tidy-tips *Layia munzii*	PDAST5N0B0	None	None	G2	S2	1B.2
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G4	S3	SSC
Palmer's mariposa-lily *Calochortus palmeri var. palmeri*	PMLIL0D122	None	None	G3T2	S2	1B.2
Piute Mountains navarretia *Navarretia setiloba*	PDPLM0C0S0	None	None	G2	S2	1B.1
purple martin *Progne subis*	ABPAU01010	None	None	G5	S3	SSC
San Joaquin adobe sunburst *Pseudobahia peirsonii*	PDAST7P030	Threatened	Endangered	G1	S1	1B.1
San Joaquin coachwhip *Masticophis flagellum ruddocki*	ARADB21021	None	None	G5T2T3	S3	SSC
San Joaquin kit fox *Vulpes macrotis mutica*	AMAJA03041	Endangered	Threatened	G4T2	S3	
San Joaquin pocket mouse *Perognathus inornatus*	AMAFD01060	None	None	G2G3	S2S3	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
San Joaquin Valley giant flower-loving fly *Rhaphiomidas trochilus*	IIDIP05010	None	None	G1	S1	
San Joaquin woollythreads *Monolopia congdonii*	PDASTA8010	Endangered	None	G2	S2	1B.2
snowy egret *Egretta thula*	ABNGA06030	None	None	G5	S4	
Southern California legless lizard *Anniella stebbinsi*	ARACC01060	None	None	G3	S3	SSC
spiny-sepaled button-celery *Eryngium spinosepalum*	PDAPI0Z0Y0	None	None	G2	S2	1B.2
Stabilized Interior Dunes *Stabilized Interior Dunes*	CTT23100CA	None	None	G1	S1.1	
striped adobe-lily *Fritillaria striata*	PMLIL0V0K0	None	Threatened	G1	S1	1B.1
Swainson's hawk *Buteo swainsoni*	ABNKC19070	None	Threatened	G5	S4	
Tejon poppy *Eschscholzia lemmonii ssp. kernensis*	PDPAP0A071	None	None	G5T2	S2	1B.1
Tipton kangaroo rat *Dipodomys nitratoides nitratoides*	AMAFD03152	Endangered	Endangered	G3T1T2	S2	
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	Threatened	G1G2	S2	SSC
Tulare grasshopper mouse *Onychomys torridus tularensis*	AMAFF06021	None	None	G5T1T2	S1S2	SSC
valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	IICOL48011	Threatened	None	G3T3	S3	
Valley Needlegrass Grassland *Valley Needlegrass Grassland*	CTT42110CA	None	None	G3	S3.1	
Valley Saltbush Scrub *Valley Saltbush Scrub*	CTT36220CA	None	None	G2	S2.1	
Vasek's clarkia *Clarkia temblorensis ssp. calientensis*	PDONA05141	None	None	G3T1	S1	1B.1
western mastiff bat *Eumops perotis californicus*	AMACD02011	None	None	G4G5T4	S3S4	SSC
western spadefoot *Spea hammondii*	AAABF02020	Proposed Threatened	None	G2G3	S3S4	SSC
yellow-blotched salamander *Ensatina eschscholtzii croceater*	AAAAD04011	None	None	G5T3	S3	WL

Record Count: 59

APPENDIX C: IPAC SPECIES LIST

United States Department of the Interior

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

In Reply Refer To: 07/11/2024 15:00:01 UTC
Project Code: 2024-0114690
Project Name: North Canal Spreading Works Expansion Project

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

To Whom It May Concern:

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

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

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

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

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

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

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

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

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

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

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

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

This species list is provided by:

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

PROJECT SUMMARY

Project Code: 2024-0114690
Project Name: North Canal Spreading Works Expansion Project
Project Type: Water Supply Facility - New Constr
Project Description: AESWD proposes to construct approximately 160 acres into groundwater recharge facilities and add two recovery wells. Soils onsite will be excavated to construct the basins which will be gravity filled. The basins will be connected by precast inter-basin structures, accessed by levee drive roads (using fill), and protected by perimeter fencing and gates. The Project will connect to existing gravity pipeline infrastructure at the northeast corner of the site and divert available surface water via a proposed 48-inch butterfly valve, metered pipeline, and outfall structure. The proposed Project will be located exclusively on AEWSD property with the site surrounded by District owned Property on three sides. The existing wells (two agricultural, one oil) would not be disturbed as part of the proposed Project.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@35.24264445,-118.83770329912672,14z

Counties: Kern County, California

ENDANGERED SPECIES ACT SPECIES

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

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

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

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

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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
Fisher *Pekania pennanti* Population: SSN DPS There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3651	Endangered
San Joaquin Kit Fox *Vulpes macrotis mutica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered
Tipton Kangaroo Rat *Dipodomys nitratoides nitratoides* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7247	Endangered

BIRDS

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

REPTILES

NAME	STATUS
Blunt-nosed Leopard Lizard *Gambelia silus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/625	Endangered
Northwestern Pond Turtle *Actinemys marmorata* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

AMPHIBIANS

NAME	STATUS
Western Spadefoot *Spea hammondii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5425	Proposed Threatened

INSECTS

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

CRUSTACEANS

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi*	Threatened

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/498

FLOWERING PLANTS

NAME	STATUS
Bakersfield Cactus *Opuntia treleasei*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/7799

California Jewelflower *Caulanthus californicus*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4599

San Joaquin Wooly-threads *Monolopia (=Lembertia) congdonii*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/3746

CRITICAL HABITATS

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

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

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Mary Beth Bourne
Address: 455 W Fir Ave
City: Clovis
State: CA
Zip: 93611
Email marybbourne@gmail.com
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APPENDIX D: NRCS WEB SOIL SURVEY REPORT

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 Kern County, California, Southeastern Part

July 11, 2024

Preface

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

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

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

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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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.

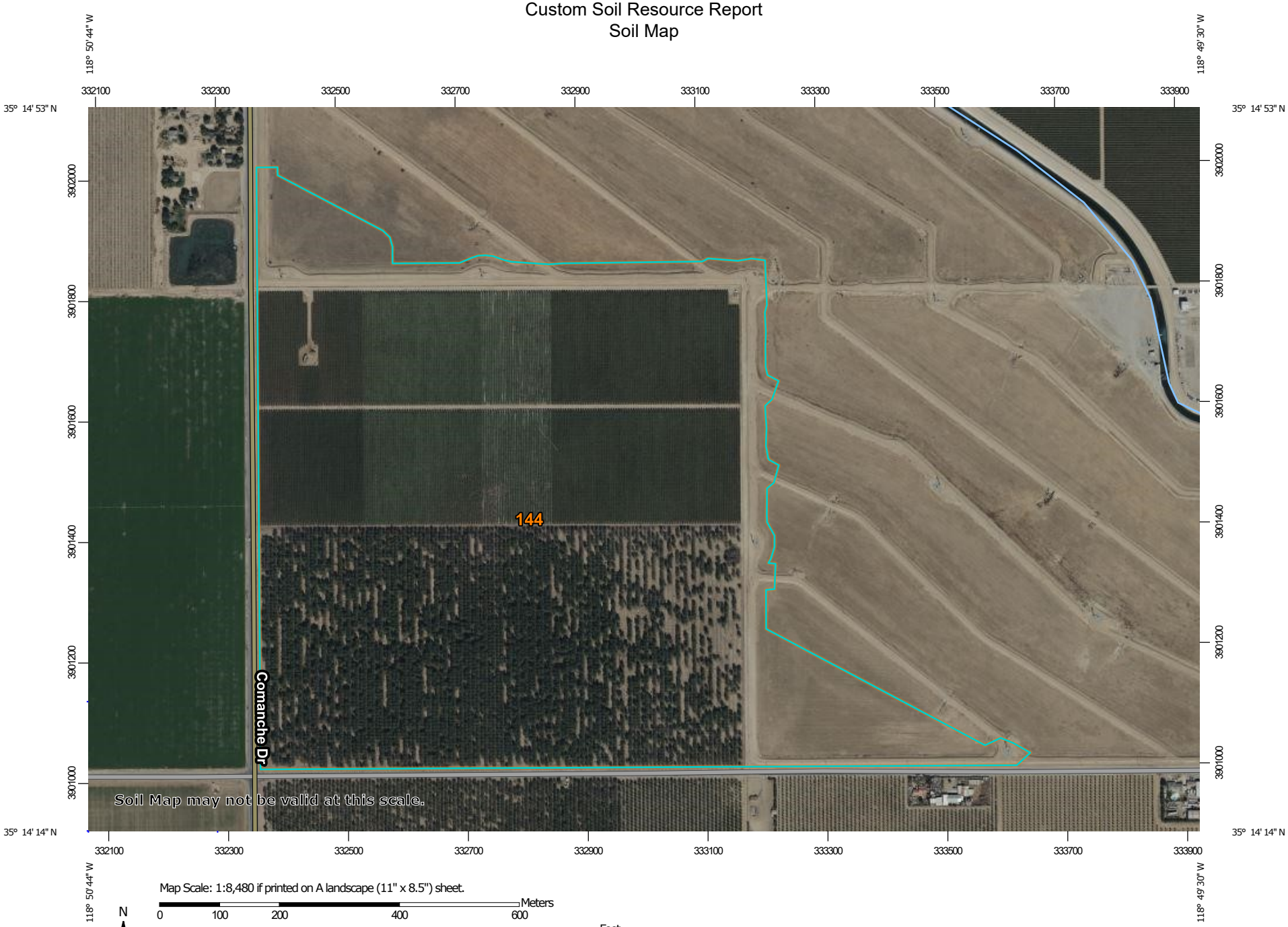
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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 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: Kern County, California, Southeastern Part
Survey Area Data: Version 14, Aug 30, 2023

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

Date(s) aerial images were photographed: Data not available.

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
144	Hesperia sandy loam, 0 to 2 percent slopes	195.5	100.0%
Totals for Area of Interest		**195.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Kern County, California, Southeastern Part

144—Hesperia sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hknv
Elevation: 200 to 4,000 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 61 to 70 degrees F
Frost-free period: 225 to 310 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

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

Description of Hesperia

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granitoid

Typical profile

A - 0 to 18 inches: sandy loam
C1 - 18 to 34 inches: fine sandy loam
C2 - 34 to 70 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.2 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R017XY906CA - Non-Alkali San Joaquin Valley Desert
Hydric soil rating: No

Minor Components

Digiorgio

Percent of map unit: 9 percent
Landform: Basin floors, flood plains
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Hesperia, ocasionally flooded

Percent of map unit: 3 percent
Landform: Alluvial fans
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Whitewolf

Percent of map unit: 2 percent
Landform: Flood plains, alluvial fans
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Unnamed, depression

Percent of map unit: 1 percent
Landform: Depressions
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: Yes

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Appendix C: Class III Inventory/Phase I Survey Report

Draft

CLASS III INVENTORY/PHASE I SURVEY, ARVIN EDISON WATER STORAGE DISTRICT NORTH CANAL SPREADING WORKS EXPANSION PROJECT, KERN COUNTY, CALIFORNIA

Prepared for:

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Prepared by:

Peter A. Carey, M.A., RPA

And

Dustin Merrick, M.A., RPA

ASM Affiliates
4800 Stockdale Hwy, Ste 405
Bakersfield, CA 93309

August 2024
PN 36510.61

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MANAGEMENT SUMMARY

An intensive Class III cultural resources inventory/Phase I survey was conducted for the Arvin Edison Water Storage District (AEWSD) North Canal Spreading Works Expansion Project (Project), Kern County, California. The Project site is approximately 27.4 miles (mi.) southeast of the city of Bakersfield. This places the Project on the open flats of the San Joaquin Valley. Specifically, the Project is within Section 11, Township 31 South, Range 29 East (T31S/R29E), Mount Diablo Base and Meridian (MDBM), as illustrated on the Arvin USGS 7.5-minute topographic quadrangle. The proposed Project site consists of agricultural fields adjacent to paved roads. Elevations within the Project area, which is mostly flat, range from 486 feet (ft.) above mean sea level (amsl) to 505 ft. asml.

ASM Affiliates (ASM) conducted this study, with Peter A. Carey, MA, RPA, serving as principal investigator and Senior Archaeologist Dustin Merrick, MA, RPA as lead author. 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 Area of Potential Effects (APE) for the Project was defined as the area of potential ground surface disturbance. The horizontal APE for the Project totals approximately 195 acres (ac.) and contains all construction areas, staging and laydown areas, and access roads. The vertical APE, defined as the maximum depth of excavation for the groundwater recharge basin, is approximately 10 ft.

Staff at the Southern San Joaquin Valley Information Center (SSJVIC), California State University, Bakersfield conducted a records search of site files and maps on April 2, 2024. According to the SSJVIC, a single previous study (KE-04875) has been conducted within the Project APE, and five previous studies (KE-00633, KE-01025, KE-04480, KE-04959, KE-05149) were identified within the 0.5 mi. buffer. Based on SSJVIC data, approximately five percent of the APE was surveyed by the previous study in 2015 (KE-04875). The SSJVIC results identified a single built environment resource (P-15-020588) within the APE. An additional seven historic-era built environment resources (P-15-003545, P-15-007994, P-15-020334, P-15-020341, P-15-20538, P-15-020545, and P-15-020596) were identified within the 0.5 mi. buffer, with the nearest located less than 0.1 mi. from the Project APE.

The Class III inventory/Phase I survey fieldwork was conducted in July 2024 with parallel transects spaced at maximum 15meter (m.) intervals walked throughout the Project APE. The proposed Project APE consists of agricultural lands, a paved road, and water retention basins. Surrounding the Project APE are the AEWSD North Canal, paved roads, agricultural fields, and residential and agricultural structures. The entire Project APE appears to have been disturbed to create an agricultural field and associated retention basin, as well as the construction of Thewalt Avenue. Due to the previous disturbances, ground surface visibility within the APE was excellent (90 percent to greater than 95 percent) for the Class III inventory/Phase I survey. Soil consisted of tan to brown sandy loam throughout the Project APE. Non-native vegetation inhibited visibility. Modern refuse (plastics, paper, glass bottles, aluminum cans) was observed in the APE. No archaeological resources of any kind were identified within the Project APE. Thewalt Avenue was observed as being in the same condition as last recorded (Preservation & Planning, LLC 2020). In

addition, an oil pumpjack was present in the northwestern corner of the APE; however, the pumpjack and nearby trailer were composed of modern materials.

One segment of Thewalt Avenue (P-15-020588) intersects the Project APE; however, no alterations to Thewalt Avenue are proposed as part of the current Project. In addition, the resource has already been determined not eligible to the NRHP/CRHR under any criteria (Preservation & Planning, LLC 2020). No additional built environment resources and no archaeological resources were identified within the Project APE.

Based on the above analyses and findings, the proposed AEWSD North Canal Spreading Works Expansion Project will not result in adverse impacts or effects to historic properties or historical resources, and a determination of ***no adverse effect*** under Section 106 and ***no significant impact*** under CEQA is recommended. It is further recommended that, in the unlikely event that previously unrecorded cultural resources are identified during Project construction, work be halted within a 100 ft. radius of the find and a qualified archaeologist be contacted to evaluate the newly discovered resource.

1. INTRODUCTION AND REGULATORY CONTEXT

ASM Affiliates (ASM) was retained by the Provost & Pritchard Consulting Group to conduct an intensive Class III inventory/Phase I survey for the Arvin Edison Water Storage District (AEWSD) North Canal Spreading Works Expansion Project (Project), in Kern County, California (Figure 1 and Figure 2). The study was undertaken to assist with compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and the California Environmental Quality Act (CEQA). The investigation was conducted, specifically, to ensure that significant impacts or adverse effects to historic properties or historical resources do not occur as a result of Project construction.

This current study included:

- A background records search and literature review to determine if any known cultural resources were present in the project zone and/or whether the area had been previously and systematically studied by archaeologists;
- An on-foot, intensive inventory of the Project site to identify and record previously undiscovered cultural resources and to examine known sites; and
- A preliminary assessment of any such resources found within the subject property.

Director Peter A. Carey, MA, RPA, served as principal investigator, and ASM Assistant Archaeologists Daniel Ware, BA, and Brycen Estrada, BA, conducted the fieldwork. Senior Archaeologist Dustin Merrick, MA, RPA, was a contributing author of this report.

This document constitutes a report on the Class III inventory/Phase I survey. Subsequent chapters provide background to the investigation, including historic context studies; the findings of the archival records search; a summary of the field surveying techniques employed; and the results of the fieldwork. We conclude with management recommendations for the Project.

1.1 PROJECT LOCATION

The Project is within Kern County, approximately 27.4 miles (mi.) southeast of the city of Bakersfield. This places the Project on the open flats of the San Joaquin Valley. Specifically, the Project is within Section 11, Township 31 South, Range 29 East (T31S/R29E), Mount Diablo Base and Meridian (MDBM), as illustrated on the Arvin USGS 7.5-minute topographic quadrangle. The proposed Project site consists of agricultural fields adjacent to paved roads. Elevations within the Project area, which is mostly flat, range from 486 feet (ft.) above mean sea level (amsl) to 505 ft. asml.

1.2 PROJECT DESCRIPTION AND AREA OF POTENTIAL EFFECTS

The proposed Project would construct up to 195 acres (ac.) of groundwater recharge basins and install powerline extensions on vacant land to meet the goals of the Project. Soils onsite would be

excavated to construct basins which would be gravity filled. The excavated material would be used to create levees between basin cells as needed. The recharge basin would consist of an embankment up to six feet high from the existing grade. Basins would be connected by precast interbasin structures, accessed by new levee drive roads, and protected by new perimeter fencing and gates. The proposed Project would connect to the existing gravity pipeline infrastructure at the northeast corner of the site and divert available surface water via a proposed 48 inch (in.) butterfly valve, metered pipeline, and outfall structure to the North Canal.

The proposed Project would be located on AEWSD property and surrounded by District-owned property to the north and east. Currently, the Project site is vacant except for the two existing agricultural wells and one oil well which would not be disturbed as part of the proposed Project.

On average, the annual recharge benefit is expected to be 5,200 acre-feet pet year (AFY) with an additional benefit of approximately 500 AFY due to the land use change from vineyards and almond orchards to recharge basins.

The Area of Potential Effects (APE) for the Project was defined as the area of potential ground surface disturbance. The horizontal APE for the Project totals approximately 195 ac. and contains all construction areas, staging and laydown areas, and access roads. The vertical APE, defined as the maximum depth of excavation for the groundwater recharge basin, is approximately 10 ft.

1.3 REGULATORY CONTEXT

1.3.1 National Historic Preservation Act Section 106

NHPA Section 106 is applicable to federal undertakings, including projects financed or permitted by federal agencies regardless of whether the activities occur on federally managed or privately owned land. Its purpose is to determine whether adverse effects will occur to significant cultural resources, defined as "historical properties" that are listed in or determined eligible for listing in the National Register of Historic Places (NRHP). The criteria for NRHP eligibility are defined at 36 CFR § 60.4 as follows:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that:
>
> (A) are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (B) are associated with the lives of persons significant in our past; or
>
> (C) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

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

There are, however, restrictions on the kinds of historical properties that can be NRHP listed. These have been identified by the Advisory Council on Historic Preservation (ACHP), as follows:

> Ordinarily cemeteries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:
>
> (a) A religious property deriving primary significance from architectural or artistic distinction or historical importance; or
>
> (b) A building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
>
> (c) A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life.
>
> (d) A cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or
>
> (e) A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or
>
> (f) A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or
>
> (g) A property achieving significance within the past 50 years if it is of exceptional importance. (ACHP n.d.)

1.3.3 California Environmental Quality Act

CEQA is applicable to discretionary actions by state or local lead agencies. Under CEQA, lead agencies must analyze impacts to cultural resources. Significant impacts under CEQA occur when "historically significant" or "unique" cultural resources are adversely affected, which occurs when such resources could be altered or destroyed through project implementation. Historically significant cultural resources are defined by eligibility for or by listing in the California Register of Historical Resources (CRHR). In practice, the federal NRHP criteria (below) for significance applied under Section 106 are generally (although not entirely) consistent with CRHR criteria (see PRC § 5024.1, Title 14 CCR, Section 4852 and § 15064.5(a)(3)).

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

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

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

(3) 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

(4) 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.

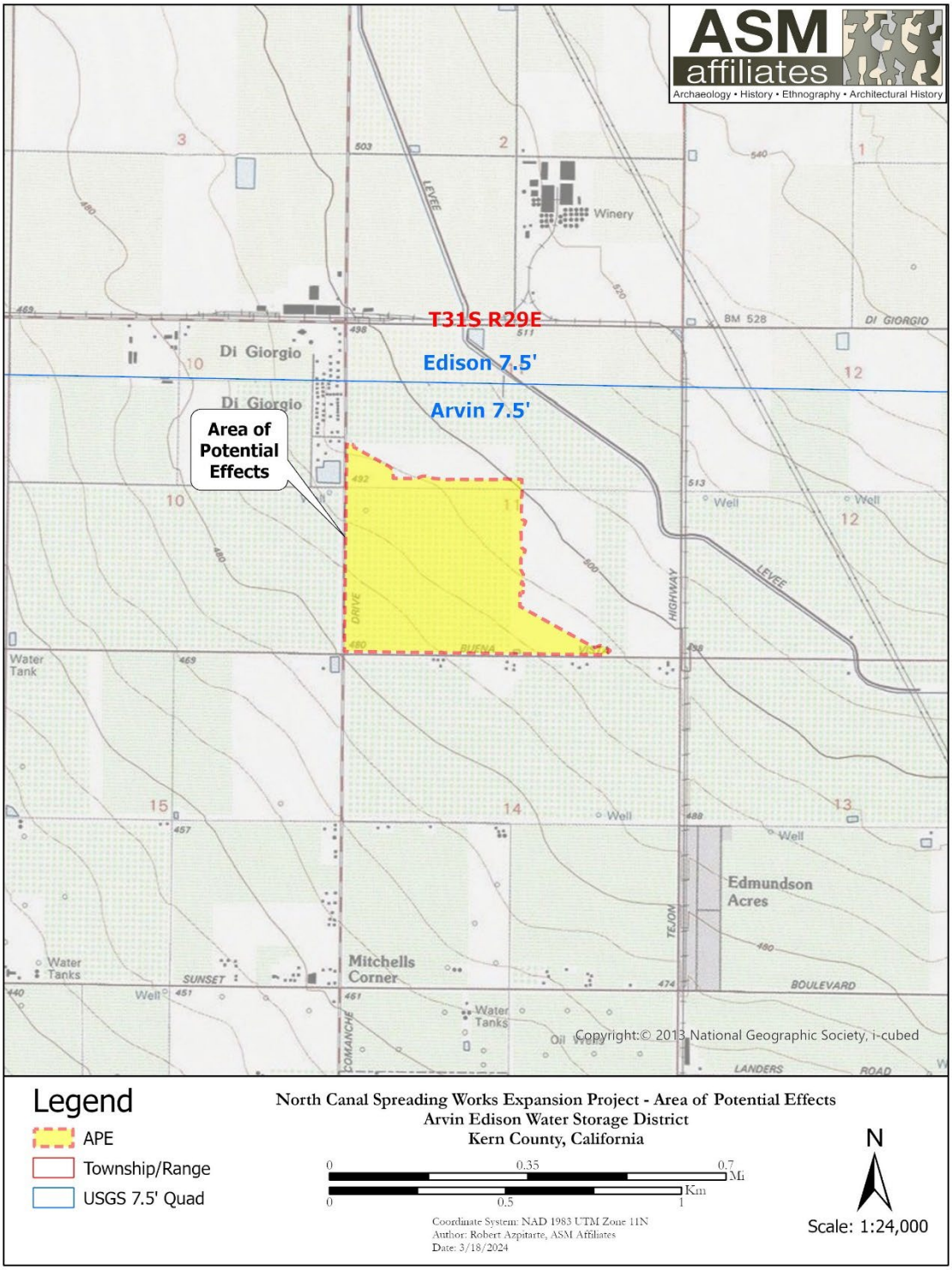

Figure 1. Location of the AEWSD North Canal Spreading Works Expansion Project, Kern County, California.

2. ENVIRONMENTAL AND CULTURAL BACKGROUND

2.1 ENVIRONMENTAL BACKGROUND AND GEOARCHAEOLOGICAL SENSITIVITY

As noted above, the Project is at an average elevation of approximately 495 ft. amsl, approximately 27.4 mi. southeast of the City of Bakersfield on the open flats of the San Joaquin Valley. Before the appearance of agriculture, this location would have been prairie grasslands, grading into tree savannas in the foothills to the east (Preston 1981). The APE and immediate surroundings have been farmed and grazed for many years and no native vegetation is present, with the APE now consisting largely of undeveloped land and a reservoir and associated access road. Perennial bunchgrasses such as purple needlegrass and nodding needlegrass most likely would have been the dominant plant cover in the region prior to cultivation.

Geologically, the APE is on recent fan deposits (Dibblee and Minch 2008; Smith 1964). United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil surveys identify the APE soils as 100 percent Hesperia sandy loam with 0 to 2 percent slopes.

The Project APE is within the southern extent of the San Joaquin Valley. A Caltrans geoarchaeological study (Meyer et al. 2010) that included the APE was consulted in order to identify the potential for buried archaeological sites in the vicinity of the Project area. This study involved first determining the location and ages of late Pleistocene (>25,000 years old) landforms in the southern San Joaquin Valley. These were identified by combining a synthesis of 2,400 published paleontological, soils and archaeological chronometric dates with geoarchaeological field testing. The ages of surface landforms were then mapped to provide an assessment for the potential for buried archaeological deposits. These ages were derived primarily from the Soil Survey Geographic Database (SSURGO) and the State Soils Geographic (STATSGO) database. A series of maps were created from this information that ranked locations in seven ordinal classes for sensitivity for buried soils, from Very Low to Very High.

According to the geoarchaeological model developed by Meyer et al. (2010), the general vicinity of the Project APE has a Moderately Low potential for buried archaeological deposits. Based on the observable data, intact buried sites and cultural resources are considered unlikely within the Project APE.

2.2 ETHNOGRAPHIC BACKGROUND

Penutian-speaking Yokuts tribal groups occupied the southern San Joaquin Valley region and much of the nearby Sierra Nevada. Ethnographic information about the Yokuts was collected primarily by Powers (1971, 1976 [originally 1877]), Kroeber (1925), Gayton (1930, 1948), Driver (1937), and Harrington (n.d.). For a variety of historical reasons, existing research information emphasizes the central Yokuts tribes which occupied both the valley and particularly the foothills of the Sierra Nevada. The northernmost tribes suffered from the influx of Euro Americans during

the Gold Rush and their populations were in substantial decline by the time ethnographic studies began in the early twentieth century. In contrast, the southernmost tribes were partially removed by the Spanish to missions and eventually absorbed into multi-tribal communities on the Sebastian Indian Reservation (on Tejon Ranch), and later the Tule River Reservation and Santa Rosa Rancheria to the north. The result is a scarcity of ethnographic detail on southern Valley tribes, especially in relation to the rich information collected from the central foothills tribes where native speakers of the Yokuts dialects are still found. Regardless, the general details of indigenous lifeways were similar across the broad expanse of Yokuts territory, particularly in terms of environmentally influenced subsistence and adaptation and with regard to religion and belief, which were similar everywhere.

This scarcity of specific detail is particularly apparent for southern valley tribal group distribution. According to Kroeber (1925:478), the Tulamni occupied the edges of Buena Vista Lake and the southwestern end of the San Joaquin Valley, the Hometwoli lived in and around Kern Lake to the south, the Tuhohi (or Chuxoxi) resided near the mouth of Kern River as it drained north into Tulare Lake, and Yauelmani territory comprised the southeastern side of the San Joaquin Valley. The APE is likely within Yauelmani territory. Kroeber identifies six Yauelmani villages; Tsineuhiu, west of Bakersfield on the Kern River, Woilo in Bakersfield, Kuyo to the south of Bakersfield, Tulamniu, at the northwestern edge of Buena Vista Lake, Hoschiu on Bitter Water Creek, and Wogitiu, near McKittrick. None of these villages are within the vicinity of the Project APE.

The Yokuts settlement pattern was largely consistent, regardless of the specific tribe involved. Winter villages were typically located along lakeshores and major stream courses (as these existed circa 150 years before present [YBP]), with dispersal phase family camps at elevated spots on the valley floor and near gathering areas in the foothills.

Most Yokuts groups, again regardless of specific tribal affiliation, were organized as a recognized and distinct tribelet; a circumstance that almost certainly pertained to the tribal groups noted above. Tribelets were land-owning groups organized around a central village and linked by shared territory and descent from a common ancestor. The population of most tribelets ranged from about 150 to 500 people (Kroeber 1925).

Each tribelet was headed by a chief who was aided by a variety of assistants, the most important of whom was the *winatum*, a herald or messenger and assistant chief. A shaman also served as religious officer. While shamans did not have any direct political authority, as Gayton (1930) has illustrated, they maintained substantial influence within their tribelet.

Shamanism is a religious system common to many Native American tribes. It involves a direct and personal relationship between the individual and the supernatural world enacted by entering a trance or hallucinatory state (usually through the ingestion of psychotropic plants, such as jimsonweed or more typically native tobacco). Shamans were considered individuals with an unusual degree of supernatural power, serving as healers or curers, diviners, and controllers of natural phenomena (such as rain or thunder). Shamans also produced the rock art of this region, depicting the visions they experienced in vision quests believed to represent their spirit helpers and events in the supernatural realm (Whitley 1992, 2000).

The centrality of shamanism to the religious and spiritual life of the Yokuts was demonstrated by the role of shamans in the yearly ceremonial round. The ritual round, performed the same way each year, started in the spring with the jimsonweed ceremony, followed by rattlesnake dance and (where appropriate) first salmon ceremony. After returning from seed camps, fall rituals began in the late summer with the mourning ceremony, followed by first seed and acorn rites, and then bear dance (Gayton 1930:379). In each case, shamans served as ceremonial officials responsible for specific dances involving a display of their supernatural powers (Kroeber 1925).

Subsistence practices varied from tribelet to tribelet based on the environment of residence. Throughout Native California, and Yokuts territory in general, the acorn was a primary dietary component, along with a variety of gathered seeds. Valley tribes augmented this resource with lacustrine and riverine foods, especially fish and wildfowl. As with many Native California tribes, the settlement and subsistence rounds included the winter aggregation into a few large villages, where stored resources (like acorns) served as staples, followed by dispersal into smaller camps, often occupied by extended families, where seasonally available resources would be gathered and consumed.

Although population estimates vary and population size was greatly affected by the introduction of Euro-American diseases and social disruption, the Yokuts were one of the largest, most successful groups in Native California. Cook (1978) estimates that the Yokuts region contained 27 percent of the aboriginal population in the state at the time of contact; other estimates are even higher. Many Yokuts people continue to reside in the southern San Joaquin Valley today.

2.3 PRE-CONTACT ARCHAEOLOGICAL BACKGROUND

The southern San Joaquin Valley region has received minimal archaeological attention compared to other areas of the state. In part, this is because the majority of California archaeological work has been concentrated in the Sacramento Delta, Santa Barbara Channel, and central Mojave Desert areas (see Moratto 1984). Although knowledge of the region's prehistory is limited, enough is known to determine that the archaeological record is broadly similar to south-central California as a whole (see Gifford and Schenk 1926; Hewes 1941; Wedel 1941; Fenenga 1952; Elsasser 1962; Fredrickson and Grossman 1977; Schiffman and Garfinkel 1981). Based on these sources, the general prehistory of the region can be outlined as follows.

Initial occupation of the region occurred at least as early as the *Paleoindian Period*, or prior to about 10,000 YBP. Evidence of early use of the region is indicated by characteristic fluted and stemmed points found around the margin of Tulare Lake, in the foothills of the Sierra, and in the Mojave Desert proper.

Both fluted and stemmed points are particularly common around lake margins, suggesting a terminal Pleistocene/early Holocene lakeshore adaptation similar to that found throughout the far west at the same time; little else is known about these earliest peoples. More than 250 fluted points have been recovered from the Witt Site (CA-KIN-32), located along the western shoreline of ancient Tulare Lake, west of the Project APE, demonstrating the importance of this early occupation in the San Joaquin Valley (see Fenenga 1993). Additional finds consist of a Clovis-like projectile point discovered in a 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 like those found on the Great Plains. Second, the western Mojave Desert evidence suggests small, very mobile populations that left a minimal archaeological signature. The evidence from the ancient Tulare Lake shore, in contrast, suggests much more substantial population and settlements which, instead of relying on big-game hunting, were tied to the lacustrine lake edge. Variability in subsistence and settlement patterns is thus apparent in California, in contrast to the Great Plains.

Substantial evidence for human occupation across California, however, first occurs during the middle Holocene, roughly 7500 to 4000 YBP. This period is known as the *Early Horizon*, or alternatively as the Early Millingstone, along the Santa Barbara Channel. In the south, populations concentrated along the coast with minimal visible use of inland areas. Adaptation emphasized hard seeds and nuts with toolkits dominated by mullers and grindstones (manos and metates). Additionally, little evidence for Early Horizon occupation exists in most inland portions of the state, partly due to a severe cold and dry paleoclimatic period occurring at this time, although a site deposit dating to this age has been identified along the ancient Buena Vista shoreline in Kern County to the south (Rosenthal et al. 2007). Regardless of specifics, Early Horizon population density was low with a subsistence adaptation more likely tied to plant food gathering than hunting.

Environmental conditions improved dramatically after about 4000 YBP during the *Middle Horizon* (or Intermediate Period). This period is known climatically as the Holocene Maximum (circa 3800 YBP) and was characterized by significantly warmer and wetter conditions than previously experienced. It was marked archaeologically by large population increase and radiation into new environments along coastal and interior south-central California and the Mojave Desert (Whitley 2000). In the Delta region to the north, this same period of favorable environmental conditions was characterized by the appearance of the Windmiller culture which exhibited a high degree of ritual elaboration (especially in burial practices) and perhaps even a rudimentary mound-building tradition (Meighan, personal communication, 1985). Along with ritual elaboration, Middle Horizon times experienced increasing subsistence specialization, perhaps correlating with the appearance of acorn processing technology. Penutian-speaking peoples (including the Yokuts) are also posited to have entered the state roughly at the beginning of this period and, perhaps to have brought this technology with them (cf. Moratto 1984). Likewise, it appears the so-called "Shoshonean Wedge" in southern California, the Takic-speaking groups that include the Gabrielino/Fernandeño, Tataviam, and Kitanemuk, may have moved into the region at that time (Sutton 2009), rather than at about 1500 YBP as first suggested by Kroeber (1925).

Evidence for Middle Horizon occupation of interior south-central California is substantial. For example, in northern Los Angeles County along the upper Santa Clara River, to the south of the San Joaquin Valley, the Agua Dulce village complex indicates occupation extending back to the Intermediate Period, when the population of the village may have been 50 or more people (King et al. n.d.). Similarly, inhabitation of the Hathaway Ranch region near Lake Piru, and the Newhall Ranch near Valencia, appears to date to the Intermediate Period (W&S Consultants 1994). To the

west, little or no evidence exists for pre-Middle Horizon occupation in the upper Sisquoc and Cuyama River drainages; populations first appear there at roughly 3500 YBP (Horne 1981). The Carrizo Plain, the valley immediately west of the San Joaquin, experienced a major population expansion during the Middle Horizon (W&S Consultants 2004; Whitley et al. 2007), and recently collected data indicates the Tehachapi Mountains region was first significantly occupied during the Middle Horizon (W&S Consultants 2006). A parallel can be drawn to the inland Ventura County region where a similar pattern has been identified (Whitley and Beaudry 1991), as well as the western Mojave Desert (Sutton 1988a, 1988b), the southern Sierra Nevada (W&S Consultants 1999), and the Coso Range region (Whitley et al. 1988). In all of these areas a major expansion in settlement, the establishment of large site complexes and an increase in the range of environments exploited appear to have occurred sometime roughly around 4000 YBP. Although most efforts to explain this expansion have focused on local circumstances and events, it is increasingly apparent this was a major occurrence throughout southern California, and any explanation must be sought at a larger level of analysis (Whitley 2000). Additionally, evidence from the Carrizo Plain suggests the origins of the tribelet level of political organization developed during this period (W&S Consultants 2004; Whitley et al. 2007). Whether this same demographic process holds for the southern San Joaquin Valley, including the current Project APE, is yet to be determined.

The beginning of the *Late Horizon* is set variously at 1500 and 800 YBP, with a growing archaeological consensus for the shorter chronology. Increasing evidence suggests the importance of the Middle-Late Horizons transition (AD 800 to 1200) in the understanding of south-central California prehistory. This corresponds to the so-called Medieval Climatic Anomaly, followed by the Little Ice Age, and this general period of climatic instability extended to about AD 1860. It included major droughts matched by intermittent "mega-floods," and resulted in demographic disturbances across much of western North America (Jones et al. 1999). It is believed to have resulted in major population decline and abandonments across south-central California, involving as much as 90 percent of the interior populations in some regions, including the Carrizo Plain (Whitley et al. 2007). It is not clear whether site abandonment was accompanied by a true reduction in population or an agglomeration of the same numbers of peoples into fewer but larger villages in more favorable locations. Population along the Santa Barbara coast appears to have spiked at about the same time that it collapsed on the Carrizo Plain (Whitley et al. 2007). Along Buena Vista Lake, in Kern County, population appears to have been increasingly concentrated toward the later end of the Medieval Climatic Anomaly (Culleton 2006), and population intensification also appears to have occurred in the well-watered Tehachapi Mountains during this same period (W&S Consultants 2006).

What is clear is that Middle Period villages and settlements were widely dispersed across the south-central California landscape, including in the Sierra Nevada and the Mojave Desert. Many of these sites are found at locations that lack existing or historically known fresh water sources. Late Horizon sites, in contrast, are typically concentrated in areas where fresh water was available during the historical period, if not currently.

One extensively studied site that shows evidence of intensive occupation during the Middle-Late Horizons transition (~1500-500 YBP) is the Redtfeldt Mound (CA-KIN-66/H), located west of the current Project APE, near the north shore of ancient Tulare Lake. There, Siefkin (1999) reported on human burials and a host of artifacts and ecofacts excavated from a modest-sized mound. He

found that both Middle Horizon and Middle-Late Horizons transition occupations were more intensive than Late Horizon occupations, which were sporadic and less intensive (Siefkin 1999:110-111).

The Late Horizon can then be understood as a period of recovery from a major demographic collapse. One result is the development of regional archaeological cultures as the precursors to ethnographic Native California; suggesting that ethnographic lifeways recorded by anthropologists extend roughly 800 years into the past.

The position of southern San Joaquin Valley prehistory relative to patterns seen in surrounding areas is still somewhat unknown. The presence of large lake systems in the valley bottoms appears to have mediated some of the desiccation seen elsewhere. But, as the reconstruction of Soda Lake in the nearby Carrizo Plain demonstrates (see Whitley et al. 2007) environmental perturbations had serious impacts on lake systems too. Identifying certain 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 region. It was not until the American annexation of California in 1848 that the exploitation of the San Joaquin Valley truly began (Pacific Legacy 2006). The near simultaneous discovery of gold in northern California in 1849 resulted in a dramatic increase of population, and some new immigrants began ranching in the San Joaquin Valley to supply the miners and mining towns (JRP Historical Consulting 2009). Mining would remain the most important economic use of water in California for three decades, even though during this time there were already thoughts of the potential of the Central Valley region as an agrarian landscape. (Kelley 1979). As a result, during the Gold Rush decade, grazing sheep and cattle remained the principal land use on the pasture lands of the Great Central Valley (JRP Historical Consulting 2019).

Following the passage of state-wide “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. Settlers began reclaiming swampland in 1866, building small dams across rivers to divert water into the fields (Pacific Legacy 2006).

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 (Morgan 1914). Miller and Lux ultimately became one of the biggest private property holders in the country, controlling the right to more than 22,000 square miles, and their impacts were widespread. They recognized early on that control of water would have important economic implications, used generous federal and state land laws to monopolize land ownership in the Central Valley, and played a major role in the water development of the state as a result. They controlled, for example, more than 100 miles of the San

Joaquin River with the San Joaquin and Kings River Canal and Irrigation System including some of the lands surrounding the APE (Morgan 1914).

In the mid-to-late 1860s, the rise of wheat farming emerged as an increasingly prominent use of land in the Central Valley and contributed to the decline and eventual demise of the open range cattle industry in the area during its three-decade reign (JRP Historical Consulting 2019). For a number of reasons, wheat crop in the Central Valley was not sustainable, and farmers increasingly turned to irrigated crops. As this transition took place, irrigation grew steadily. In 1860, 60,000 ac. were irrigated, growing to 400,000 ac. in 1880. By the early years of the twentieth century, irrigated landscapes became the dominant feature of the Central Valley and California at large with 2,644,000 ac. under irrigation.

However, in the Central Valley, problems were made apparent as the demand for water grew over time. Namely, the Central Valley's great acreage allowed for regional differences in water supply, and the Mediterranean-type climate of prolonged dry summers necessitated irrigation of summer crops, differing from other climates where rainfall during summer months is more common (JRP Historical Consulting 2019).

To combat this, irrigation systems were initially developed by individuals under private initiative and financing, using the natural flow of local streams. These early projects were concerned with local issues and irrigated relatively small tracts of land. These early irrigation projects were more common in the southern portion of the San Joaquin Valley, where growing crops without the aid of irrigation systems was much more difficult (JRP Historical Consulting 2019). In 1880, State Engineer William Hammond Hall conducted California's first state-wide irrigation survey and found that the San Joaquin Valley was the most heavily irrigated region of the state with 188,000 irrigated ac., which was 47 percent of irrigated acreage state-wide.

Irrigation of the San Joaquin Valley continued using surface water supplies flowing in creeks and rivers, artesian waters, and groundwater. During the late nineteenth century, large areas of land were amassed within Mexican land grants, swamp and overflow land, railroad grant land, and others under public land laws, and some private companies began to deliver water to farmers, creating land and water monopolies. (JRP Historical Consulting 2019). These companies enjoyed only limited success, and the largest projects undertaken ultimately failed. The high rate of failure for a much-needed system popularized a proposal for a unified, coordinated, and centralized canal system constructed and operated by the state (JRP Historical Consulting 2019).

In 1873, the Central Valley's irrigation system problem caught the attention of the United States Congress, and the "Alexander Commission" was led by Lt. Barton Stone Alexander, a U.S. Army engineer, who organized and conducted the first federally funded irrigation survey and plan for coordinated irrigation development of the Central Valley. The State Engineers Office, the first state water agency, worked from 1878 to 1888 to implement many of the basic recommendations suggested by the Alexander Commission.

The Commission predicted 8.5 million ac. could be irrigated in the Great Central Valley, with the potential for 12 million ac. should the foothills surrounding the valley be included, and proposed a complex network of canals (JRP Historical Consulting 2019). A network was ultimately preferred over a single large canal, as the many streams flowing in different directions and areas

from the Sierra Nevada would necessitate siphons or aqueducts at high expense. Because of California's then limited population and tax base, it was predicted at the time that the project would proceed at a slow pace and could potentially take as long as 50 years to complete.

In 1878, after California's legislature passed an act providing for an investigation of the subject of irrigation, William Hammond Hall was appointed as the first State Engineer. During his term from 1878 to 1889, he published a report on the subject of irrigation and proposed regional and statewide water planning for development of water resources, and prepared a detailed map of the San Joaquin Valley which revealed the extent of actual irrigation (JRP Historical Consulting 2019). After Hall's 1889 resignation, he went on to serve under the United States Geological Survey (USGS), which continued stream gaging and topographic mapping in the Central Valley area.

By the early twentieth century, the southern section of the San Joaquin River exhibited a complicated situation as streams had been developed early by multiple diverters, leading to an adjustment of water rights and financing of storage facilities. Between 1919 and 1929 in the southeastern San Joaquin Valley, as land irrigated by underground water sources increased, groundwater was increasingly relied upon as the capacity of pumped wells nearly tripled. From the Kaweah River south and in the area from Mendota to Kettleman City, there were few available local surface water supplies (JRP Historical Consulting 2019).

As California entered the first decades of the twentieth century, the state's population increase brought an increase in tax revenue. After a long drought from 1917 to 1920, the California state government began to exhibit an interest in comprehensive water planning, as it felt that it finally had the support it needed to complete such an expansive project. In 1921, the governor directed the State Engineer to produce a statewide water management proposal addressing conservation, flood control, storage, distribution, and uses for California water and an estimated cost for implementation of the plan and approved $200,000 to investigate a development and management plan (JRP Historical Consulting 2019). The state plan was officially presented in 1923, and was revised in 1925, 1927 and 1929. These investigations led the state to consider plans for a coordinated water management and development program in 1931, which began construction in the San Joaquin Valley after the adoption of the Central Valley Plan (CVP). The CVP is composed of 20 dams and reservoirs, 11 powerplants, and 500 miles of major canals as well as conduits, tunnels, and related facilities (Bailey 2018). The CVP provides many irrigation companies and water districts with an apportionment of water, including the AEWSD.

2.4.1 Arvin-Edison Water Storage District North Canal[1]

By the decade of the 1930s and the ensuing era of the Great Depression, the water table in Kern County was receding and began to greatly affect the crop production of the area. This was seen particularly in the southwestern area of Kern County, where the lack of access to a reliable water supply during this time caused the abandonment of about 40,000 ac. of farmland. The existing wells in the area were expanded to as much as 600 ft. to reach the groundwater, but the high levels of boron in the water made it unsuitable for agriculture. It was clear that another solution would

[1] Except where indicated, the text in this section is adapted from *Cultural Resources Survey and Evaluation for the Arvin-Edison Water Storage District Water Conservation and Efficiency Project, Kern County, California* (Applied Earthworks Inc., 2015).

be needed, and in 1942 the AEWSD was approved by the farmers in the Arvin-Edison area, named after the two communities of Arvin and Edison, located laterally to the north and south of each other and southeast of Bakersfield. The primary purpose of the AEWSD was to create a local agency that would be able to contract the Bureau of Reclamation for water and power service from the CVP.

In 1951, the CVP constructed an intake canal in Kern County which terminated at Truxton Avenue and Coffee Road to relieve the need for water in the area. However, this was 17 miles away from the Arvin-Edison area (see Appendix B for a historic context prepared by Applied Earthworks Inc.). The success of the concept is notable in the growth of agriculture in the area over 50 years. In 1955, before the AEWSD completed construction of the system, less than 15,000 ac. were planted with row crops and orchards; by 2005 approximately 100,000 ac. of the AEWSD was planted with irrigation agriculture.

In 2000, the 347 ac. North Canal Spreading Works was constructed. In 1997, AEWSD entered into a 25-year water management program with Metropolitan Water District of Southern California (MWD). As of 2003, AEWSD operated 72 production wells, and provided irrigation water to 52,000 ac, or 50 percent of all cropped acreage in its service area. Landowners additionally own and operate about 350 active private wells within the district's service area (AEWSD 2003).

3. RECORDS AND SACRED LANDS FILE SEARCHES

3.1 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, staff of the Southern San Joaquin Valley Information Center (SSJVIC) conducted an archival records search on April 2, 2024. The records search was completed to determine: (i) if pre-contact or historic-era cultural resources had previously been recorded within the Project APE; (ii) if the Project APE had been systematically surveyed by archaeologists prior to the initiation of this fieldwork; and/or (iii) whether the area surrounding the proposed Project was known to contain archaeological sites or built environment resources and to thereby be culturally sensitive. Records examined included archaeological site files and maps, the NRHP, Historic Property Data File, California Inventory of Historic Resources, and the California Points of Historic Interest. The records search included the Project APE and a 0.5 mi. buffer.

According to the SSJVIC, a single previous study (KE-04875) has been conducted within the Project APE, and five previous studies (KE-00633, KE-01025, KE-04480, KE-04959, KE-05149) were identified within the 0.5 mi. buffer (Table 1). Based on SSJVIC data approximately five percent of the APE was surveyed by a previous study in 2015 (KE-04875).

The SSJVIC results identified a single built environment resource (P-15-020588) within the APE. An additional seven historic-era built environment resources (P-15-003545, P-15-007994, P-15-020334, P-15-020341, P-15-20538, P-15-020545, and P-15-020596) were identified within the 0.5 mi. buffer, with the nearest located less than 0.1 mi. from the Project APE (Table 2). The results of the SSJVIC records search are available in Confidential Appendix A.

Table 1. Previous Reports within 0.5 mi. of the APE

Report #	Year	Author/Affiliation	Title	APE Relationship
KE-00633	1993	Macko, Michael E., Binning, Jeanne D., Earle, David D., and Langenwalter, Paul E.	National Register Eligibility Determinations for Historic Resources Along the Proposed AT&T Lightguide System, Victorville to Bakersfield, California	Outside
KE-01025	1996	Roper, Kristina C. and Moratto, Michael J.	Preliminary Cultural Resources Study for the Proposed MWD Water Transfer Facilities Project, Kern County, California	Outside
KE-04480	2011	Perez, Don C.	Archaeological Assessment for Prior Disturbance Arvin / LAB519A 14141 Di Giorgio Road, Arvin, Kern County, California	Outside
KE-04875	2015	Asselin, Katie and Lloyd, Jay B.	Cultural Resources Inventory for the Arvin-Edison Water Storage District Drought Solicitation Improvement Grant Project, Kern County, California	**Within**

Report #	Year	Author/Affiliation	Title	APE Relationship
KE-04959	2016	Brunzell, David	Phase I Cultural Resources Assessment and Extended Phase I Subsurface Testing, Sonshine Water System Consolidation Project, Kern County, California	Outside
KE-05149	2019	Whitley, David S., Azpitarte, Robert, and Escamilla, Stacey	Class III Inventory/Phase I Survey, Arvin-Edison Water Storage District Water Metering Project, Kern County, California	Outside

Table 2. Previously Recorded Resources

Primary #	Type	Description	NRHP Eligibility Status	APE Relationship
P-15-003545	Historic-era structure	Tejon Highway	Unevaluated	Outside
P-15-007994	Historic-era structure	Arvin-Edison Canal	Determined ineligible for NR by consensus through Section 106 process	Outside
P-15-020334	Historic-era structure	Well 23B	Recommended not eligible	Outside
P-15-020341	Historic-era structure	Well 26B	Recommended not eligible	Outside
P-15-020538	Historic-era structure	Buena Vista Boulevard	Found ineligible for NR, CR or Local designation through survey evaluation	Outside
P-15-020545	Historic-era structure	DiGiorgio Road	Found ineligible for NR, CR or Local designation through survey evaluation	Outside
P-15-020588	Historic-era structure	Thewalt Avenue	Found ineligible for NR, CR or Local designation through survey evaluation	**Within**
P-15-020596	Historic-era structure	Access Road to SCE Big Creek Hydroelectric System Vincent 220kV Transmission Line	Found ineligible for NR, CR or Local designation through survey evaluation	Outside

3.2 PREVIOUS EVALUATIONS

Thewalt Avenue (P-15-020588)

Sections of Thewalt Avenue have been previously evaluated by Preservation & Planning, LLC (2020). Preservation & Planning, LLC (2020) found the evaluated segments of Thewalt Avenue to be not eligible under both NRHP/CRHR criteria (NHRP/CRHR Status Code 6Z).

3.3 HISTORICAL MAPS AND AERIALS

Historical topographical maps and aerial imagery that included the Project APE were consulted to identify potential historical structures or resources. According to USGS topographic quadrangles, historical aerials, Google Earth imagery, and Nationwide Environmental Title Research, the Project APE has undergone minimal development since at least the early twentieth century. The 1933 Arvin USGS 7.5-minute topographical quadrangle depicts the Project APE as undeveloped land with the Tejon Highway to the east, Buena Vista Road to the south, Di Giorgio Road to the north, and North Comanche Drive to the west. Thewalt Avenue runs east-west through the northern

portion of the APE. The same quadrangle shows several structures labeled as DiGiorgio Family Headquarters northwest of the Project APE. The 1955 Arvin USGS 7.5-minute topographical quadrangle depicts the area as unchanged, except the western portion which is labeled as agricultural land.

Aerial imagery depicts the Project APE as agricultural lands as far back as 1952. From 1952 to 1992, the vicinity of the Project APE changes very little, remaining agricultural fields with an oil derrick constructed between 1952 and 1956 (NETR 2023). Between 1970 and 1985, a reservoir was constructed southwest of the APE. Between 1992 and 2005, the APE was converted from agricultural land to a reservoir with associated access roads. From 1992 on, the Project APE appears in its current condition.

4. METHODS AND RESULTS

4.1 FIELD METHODS

An intensive Class III inventory/Phase I survey of the Project APE was conducted by ASM Associate Archaeologist Robert Azpitarte, BA, with assistance from Daniel Ware BA, and Brycen Estrada, BA,. from July 11 to 15, 2024. The Class III inventory/Phase I survey included a review of the Project APE for the presence of built environment features. The field methods employed also included intensive pedestrian examination of the ground surface for evidence of archaeological sites in the form of artifacts, surface features (such as bedrock mortars, historical mining equipment), and archaeological indicators (e.g., organically enriched midden soil, burnt animal bone); the identification and location of any discovered sites, should they be present; tabulation and recording of surface diagnostic artifacts; site sketch mapping; preliminary evaluation of site integrity; and site recording, following the California Office of Historic Preservation (OHP) Instructions for Recording Historic Resources using California Department of Parks and Recreation (DPR) 523 forms. Parallel survey transects spaced at maximum intervals of 15 m. apart were employed for pedestrian survey of the 195 ac. Project APE.

4.2 SURVEY RESULTS

The proposed Project APE consists of agricultural lands, a paved road, and water retention basins. Surrounding the Project APE are the AEWSD North Canal, paved roads, agricultural fields, and residential and agricultural structures. The entire Project APE appears to have been disturbed to create an agricultural field and associated retention basin (Figure 2 and Figure 3), as well as the construction of Thewalt Avenue (Figure 4). Due to the previous disturbances, ground surface visibility within the APE was excellent (90 percent to greater than 95 percent) for the Class III inventory/Phase I survey. Soil consisted of tan to brown sandy loam throughout the Project APE. Non-native vegetation inhibited visibility. Modern refuse (plastics, paper, glass bottles, aluminum cans) was observed in the APE. No archaeological resources of any kind were identified within the Project APE. Thewalt Avenue (Figure 4) was observed as being in the same condition as last recorded (Preservation & Planning, LLC 2020). In addition, an oil pumpjack (Figure 5) was present in the northwestern corner of the APE; however, the pumpjack and nearby trailer were composed of modern materials.

Thewalt Avenue (P-15-020588) was observed intersecting the Project APE and in the same condition as described by Preservation & Planning, LLC (2020). No alterations to Thewalt Avenue are proposed as part of the current Project.

Figure 2. Project APE overview, facing northeast.

Figure 3. Project APE overview, facing northwest.

Figure 4. Thewalt Avenue, facing west.

Figure 5. Oil pumpjack, facing south.

5. SUMMARY AND RECOMMENDATIONS

An intensive Class III inventory/Phase I survey was conducted for the Project, Kern County, California. A records search was conducted at the Southern San Joaquin Valley Information Center, California State University, Bakersfield. This search indicated that approximately five percent of Project APE had been previously surveyed, and a single built environment resource intersects the Project APE boundary; however, this resource will not be impacted as part of the Project.

A Class III inventory/Phase I survey fieldwork of the Project APE was conducted in July 2024 with parallel transects spaced at 15 m intervals. One segment of Thewalt Avenue (P-15-020588) intersects the Project APE; however, no alterations to Thewalt Avenue are proposed as part of the current Project. In addition, the resource has already been determined not eligible to the NRHP/CRHR under any criteria (Preservation & Planning, LLC 2020). No additional built environment resources and no archaeological resources were identified within the Project APE.

5.1 RECOMMENDATIONS

Based on the above analyses and findings, the proposed AEWSD North Canal Spreading Works Expansion Project will not result in adverse impacts or effects to historic properties or historical resources, and a determination of ***no adverse effect*** under Section 106 and ***no significant impact*** under CEQA is recommended. It is further recommended that, in the unlikely event that previously unrecorded cultural resources are identified during Project construction, work be halted within a 100 ft. radius of the find and a qualified archaeologist be contacted to evaluate the newly discovered resource.

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