DRAFT

Initial Study and Mitigated Negative Declaration for the Mendota Wildlife Area Solar Project

Lead Agency:

DGS CALIFORNIA DEPARTMENT OF GENERAL SERVICES

Real Estate Services Division
707 Third Street, 4th Floor
West Sacramento, California 95605

Prepared for:

FOREFRONT POWER

100 Montgomery Street #1400
San Francisco, California 94104

January 2024

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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Mendota Wildlife Area Solar Project
Mendota, California

Lead Agency:

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707 Third Street, 4th Floor
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Prepared for:

100 Montgomery Street #1400
San Francisco, CA 94104

Prepared by:

2525 Warren Drive
Rocklin, California 95677

January 2024

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DRAFT MITIGATED NEGATIVE DECLARATION
MENDOTA WILDLIFE AREA SOLAR PROJECT

Lead Agency: California Department of General Services, Real Estate Services Division

Project Proponent: ForeFront Solar LLC

Project Location: 4333 Santa Fe Grade, Mendota, CA 93640

Project Description: The Proposed Project is a solar PV power generation system to be located within the Mendota Wildlife Area, off Highway 180, Mendota, CA. The 504 ground-mounted solar arrays would occupy approximately 28,000 square feet and will convert sunlight to Direct Current (DC) electrical power which would then be converted to Alternating Current (AC) by string inverters before being delivered to the Pacific Gas and Electric Company (PG&E) distribution system. The total system size is expected to be approximately 219 kilowatts (kW), subject to final design and site optimization.

Public Review Period: January 12, 2024 through February 12, 2024

Mitigation Measures Incorporated into the Project to Avoid Significant Effects:

Biological Resources

BIO-1: **Nesting Bird Surveys.** If construction is to occur during the nesting season (generally February 1 - August 31), conduct a pre-construction nesting-bird survey of all suitable nesting habitat within 14 days prior to construction. The survey shall be conducted within a 500-foot radius of Project work areas for raptors and within a 100-foot radius for other nesting birds. If any active nests are observed, these nests shall be designated an environmentally sensitive area and protected by an avoidance buffer established in coordination with CDFW until the breeding season has ended or until a qualified biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival.

Timing/Implementation: *Prior to construction (only during nesting season)*

Implementation/Responsibility/Verification: *Developer/Project Biologists*

BIO-2: **Preconstruction Wildlife Surveys.** A qualified biologist shall conduct a pre-construction special-status wildlife survey in the Project Area (including impacts areas, access roads, and staging areas) between 30 and 15 days prior to ground- or vegetation-disturbing construction activities. The survey shall be conducted within 200 feet of all areas of ground

or vegetation disturbance and shall be conducted for the following species: northwestern pond turtle, Northern California legless lizard, blunt-nosed leopard lizard, Blainville's horned lizard, San Joaquin coachwhip, western red bat, Nelson's antelope squirrel, giant kangaroo rat, Tulare grasshopper mouse, San Joaquin kit fox, and American badger. The survey shall follow accepted procedures for these species and shall map any occurrences or habitat features (i.e., dens or burrows) with sign of special-status species. If no special-status species are detected, construction may proceed in unoccupied habitat. If special-status species are detected, the following measures shall apply:

- If a special-status species is detected within or near the Project Area during the pre-construction survey and there is potential for Project activities to impact the species, a qualified biological monitor shall be present during all activities that may impact the species (e.g., ground or vegetation disturbance).
- Special-status wildlife detected prior to or during construction shall be allowed to move out of the work area of their own volition. If an individual must be relocated, a qualified biologist with any required permits or approvals must relocate the individual out of harm's way to the nearest suitable habitat at least 100 feet from the Project work area where it was found.
- If a kit fox or badger den is detected within 200 feet of the work area, it shall be designated an environmentally sensitive area and protected by an avoidance buffer of 200 feet for non-natal dens. A buffer distance for natal dens shall be established in consultation with USFWS and CDFW. Avoidance buffers shall be maintained until a qualified biologist determines the den is no longer active. Any demarcation of the dens or avoidance zone shall not prevent access to the den by kit foxes or badgers.

Timing/Implementation: *Prior to construction*

Implementation/Responsibility/Verification: *Developer/Project Biologists*

BIO-3: **Mandatory Worker Environmental Awareness Training.** A qualified biologist shall conduct mandatory worker environmental awareness training for all contractors, work crews, and any onsite personnel to aid workers in recognizing special-status species and other sensitive biological resources that may occur onsite. The training shall include identification of the special-status species with potential to occur and their habitats, a description of the regulatory status of sensitive resources, and review of the limits of construction, environmentally sensitive areas, and Measures required to reduce impacts to biological resources. The Project shall retain a qualified biologist with any required permits on an as-needed basis to assist with potential biological issues that may arise during construction (i.e., wildlife relocation).

Timing/Implementation: *Prior to construction*

Implementation/Responsibility/Verification: *Developer/Project Biologists*

BIO-4: **Project Limit Marking.** The Project impact limits shall be clearly demarcated prior to construction and all workers shall be made aware of the impact limits and avoided areas. If orange construction fencing is to be used, it shall be placed such that there is a one-foot gap between the ground and the bottom of the fencing to prevent ground-dwelling animals from being caught in the fencing. No work shall occur outside of the Project impact limits. All vehicles and equipment shall be restricted to the Project impact limits and/or existing designated access roads and staging areas. Project-related vehicles shall observe a speed limit of 20 miles per hour during the day and 10 miles per hour at night in construction areas and on access roads where it is safe and feasible to do so, except on county roads and State and federal highways.

Timing/Implementation: *Prior to construction*

Implementation/Responsibility/Verification: *Developer/Project Biologists*

BIO-5: **Inadvertent Entrapment.** To prevent inadvertent entrapment of special-status wildlife during construction, all excavated, steep-walled holes or trenches more than two-feet deep shall be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks shall be installed. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals. In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape or the USFWS/CDFW should be contacted for guidance.

Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of four-inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way.

Timing/Implementation: *Prior to and during construction*

Implementation/Responsibility/Verification: *Developer*

BIO-6: **Existing Burrow Designation.** Existing burrows may provide habitat for listed reptiles and mammals. Any existing burrow that is within 50 feet of the Project and was determined to provide habitat for special-status wildlife during the preconstruction survey shall be designated an environmentally sensitive area and protected by an avoidance buffer that has a minimum 50-foot radius from the burrow entrance. If Project activities will take place within 50 feet of avoided burrow entrances and, in the judgment of a qualified biologist, the combination of soil hardness and activity impact is not expected to collapse those burrows, then those Project activities shall be allowed to take place under the supervision of a qualified biological monitor. If burrows that provide habitat for special-status wildlife cannot be avoided, they shall be carefully dug out by hand under the supervision of a qualified biologist in a manner that avoids direct mortality of wildlife within the burrow to ensure that they are not occupied by special-status species.

Timing/Implementation: *Prior to and during construction*

Implementation/Responsibility/Verification: *Biologists and Developer*

BIO-7: **Garbage Collection.** To avoid attracting special-status mammals to the Project Site, all food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a week from the Project Site during construction.

Timing/Implementation: *Prior to, during, and after construction*

Implementation/Responsibility/Verification: *Developer*

Cultural Resources

CUL-1: **Implement Measures to Protect Unanticipated Cultural, Archaeological, and/or Tribal Cultural Resources Discoveries.** The following mitigation measure is intended to address the evaluation and treatment of inadvertent/unanticipated discoveries of potential tribal cultural resources (TCRs), archaeological, or cultural resources during a project's ground disturbing activities.

- If any suspected archaeological or cultural resources are discovered during ground disturbing construction activities, all work shall cease within 100 feet of the find, or an agreed upon distance based on the project area and nature of the find. A professional archaeologist who meets the Secretary of Interior's Standards for Archaeology will make recommendations for further evaluation and treatment, as necessary.
- If any suspected TCRs are discovered during ground disturbing construction activities, all work shall cease within 100 feet of the find, or an agreed upon distance based on the project area and nature of the find. A Tribal Representative from a California Native American tribe that is traditionally and culturally affiliated with a geographic area shall be immediately notified and shall determine if the find is a TCR (PRC §21074). The Tribal Representative will make recommendations for further evaluation and treatment, as necessary.
- When avoidance is infeasible, preservation in place is the preferred option for mitigation of TCRs, or archaeological or cultural resources under CEQA protocols, and every effort shall be made to preserve the resources in place, including through project redesign, if feasible. Culturally appropriate treatment may be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, or returning objects to a location within the project area where they will not be subject to future impacts. Permanent curation of TCRs will not take place unless approved in writing by the California Native American Tribe(s) that is traditionally and culturally affiliated with the project area.
- The contractor shall implement any measures deemed by the CEQA lead agency to be necessary and feasible to preserve in place, avoid, or minimize impacts to the resource,

including, but not limited to, facilitating the appropriate tribal treatment of the find, as necessary. Treatment that preserves or restores the cultural character and integrity of a TCR may include Tribal Monitoring, culturally appropriate recovery of cultural objects, and reburial of cultural objects or cultural soil.

- Work at the discovery location cannot resume until all necessary investigation and evaluation of the discovery under the requirements of the CEQA, have been satisfied.

Human Remains

- If the find includes human remains, or remains that are potentially human, he or she shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the Fresno County Coroner (per § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California PRC, and AB 2641 will be implemented. If the Coroner determines the remains are Native American and not the result of a crime scene, the Coroner will notify the NAHC, which then will designate a Native American Most Likely Descendant (MLD) for the project (§ 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (§ 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.

Timing/Implementation: *During construction*

Implementation/Responsibility/Verification: *Developer and Department of General Services*

Geology and Soils

GEO-1 If paleontological or other geologically sensitive resources are identified during any phase of project development, the construction manager shall cease operation at the site of the discovery and immediately notify the DGS. DGS shall retain a qualified paleontologist to provide an evaluation of the find and to prescribe mitigation measures to reduce impacts to a less-than-significant level. In considering any suggested mitigation proposed by the consulting paleontologist, DGS shall determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, land use assumptions, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on other parts of the Project Site while mitigation for paleontological resources is carried out.

Timing/Implementation: *During construction*

Implementation/Responsibility/Verification: *Developer and Department of General Services*

Tribal Cultural Resources

TCR-1: Tribal Cultural Resources - Cultural Awareness Training

The following mitigation measure is intended to address the cultural sensitivity of the project area by including a Worker Environmental Awareness Program for relevant project personnel and construction workers.

- The lead agency shall require the applicant/Contractor to provide a tribal cultural resources sensitivity and awareness training program (Worker Environmental Awareness Program [WEAP]) for all personnel involved in project construction, including field consultants and construction workers, at their own expense. The WEAP shall be developed in coordination with interested Native American Tribes.
- The WEAP shall be conducted before any project-related construction activities begin at the project site. The WEAP will include relevant information regarding sensitive cultural resources and tribal cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations. The WEAP will also describe appropriate avoidance and impact minimization measures for cultural resources and tribal cultural resources that could be located at the project site and will outline what to do and who to contact if any potential cultural resources or tribal cultural resources are encountered. The WEAP will emphasize the requirement for confidentiality and culturally appropriate treatment of any discovery of significance to Native Americans and will discuss appropriate behaviors and responsive actions, consistent with Native American tribal values. The training may be done in coordination with the project archaeologist.
- All ground-disturbing equipment operators shall be required to receive the training and sign a form that acknowledges receipt of the training.

Timing/Implementation: *Prior to ground disturbance activities*

Implementation/Responsibility/Verification: *Developer and Department of General Services*

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LIST OF ACRONYMS AND ABBREVIATIONS

Term	Definition
˚F	Degrees Fahrenheit
AB	Assembly Bill
AC	Alternating Current
AE-20	Exclusive Agricultural under 20 acres
AF	Acre-Feet
AMSL	Above Mean Sea Level
ANSI	American National Standards Institute
APE	Area of Project Effects
BAU	Business as Usual
BMPs	Best Management Practices
BPS	Best Performance Standards (BPS)
BRA	Biological Resource Assessment
CAA	Clean Air Act
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emissions Estimator Model, version 2022.1
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CARI	California Aquatic Resources Inventory
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFC	California Fire Code
CGS	California Geological Survey
CH_4	Methane
CHP	California Highway Patrol
CHRIS	California Historical Research Information System
CI	Coccidioides Immitis
CM	Coccidioidomycosis
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CO	Carbon Monoxide
CO_2e	Carbon Dioxide Equivalent
$gCO_2e/kWhe$	Grams of CO_2e per unit of busbar electricity
CRHR	California Rare Plant Rank
CUPA	Certified Unified Program Agency
dBA	A-Weighted Decibel
DC	Direct Current

Term	Definition
DGS	Department of General Services
DHS	Department of Health Services
DOC	Department of Conservation
DPM	Diesel Particulate Matter
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
EIR	Environmental Impact Report
FCFD	Fresno County Fire Department
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GHG	Greenhouse Gas
IS	Initial Study
IS/MND	Initial Study/Mitigated Negative Declaration
kW	Kilowatt Hours
kWh	Kilowatt Hours
L_{dn}	Day-Night Average
LEED	Leadership in Energy and Environmental Design
L_{eq}	Equivalent Noise Level
MBTA	Migratory Bird Treaty Act
MJHMP	Multi-Jurisdictional Hazard Mitigation Plan
MLD	Most Likely Descendant
MND	Mitigated Negative Declaration
mph	Miles Per Hour
MRZ	Mineral Resource Zones
MWA	Mendota Wildlife Area
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NIOSH	National Institute for Occupational Safety and Health
NO_X	Oxides of Nitrogen
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
O_3	Ozone
PG&E	Pacific Gas & Electric
PM	Particulate Matter
PM_{10}	Coarse Particulate Matter
$PM_{2.5}$	fine particulate matter
PPAs	Power Purchase Agreements
PPV	Peak Particle Velocity

Term	Definition
PRC	Public Resources Code
Project, Proposed Project	Mendota Wildlife Area Solar Project
PV	Photovoltaic
RACT	Reasonably Available Control Technology
RC	Resource Conservation
RWQCB	Regional water Quality Control Board
SIP	State Implementation Plan
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO2	Sulphur Dioxide
SRA	State Responsibility Area
SSC	Species of Special Concern
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resource Control Board
TCRs	Tribal Cultural Resources
UCMP	University of California Museum of Paleontology
USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geologic Survey
VHFHSZ	Very High Fire Hazard Severity Zone
VOC	Volatile Organic Compound
WEAP	Worker Environmental Awareness Program

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1.0 BACKGROUND

1.1 Summary

Project Title:	Mendota Wildlife Area Solar Project
Lead Agency Name and Address:	California Department of General Services Real Estate Services Division 707 Third Street, 4th Floor West Sacramento, CA 95605
Contact Person and Phone Number:	Terry Ash, Senior Environmental Planner Phone Number 916 201-0085
Project Location:	4333 Santa Fe Grade Mendota, CA 93640
General Plan Designation:	Public Lands and Open Space
Zoning:	RC (Resource Conservation)

1.2 Introduction

The California Department of General Services Real Estate Services Division (DGS) is the Lead Agency for this California Environmental Quality Act (CEQA) Initial Study. This Initial Study has been prepared to identify and assess the anticipated environmental impacts of the Mendota Wildlife Area Solar Project (Project) to satisfy CEQA (Public Resources Code [PRC], Section 21000 et seq.) and state CEQA Guidelines (Title 14, California Code of Regulations [CCR] 15000 et seq.). CEQA requires that all state and local government agencies consider the environmental consequences before approving those projects. DGS will use this CEQA Initial Study to determine which CEQA document is appropriate for the Project: Negative Declaration, Mitigated Negative Declaration (MND), or Environmental Impact Report (EIR).

In accordance with CEQA, this Initial Study/Mitigated Negative Declaration (IS/MND) will be circulated for a 30-day public review and comment period. Written comments on the Draft IS/MND should be submitted to:

Ms. Terry Ash, DGS Senior Environmental Planner
cc: Amberly Morgan
2525 Warren Drive
Rocklin, CA 95677

amorgan@ecorpconsulting.com

1.3 Surrounding Land Uses/Environmental Setting

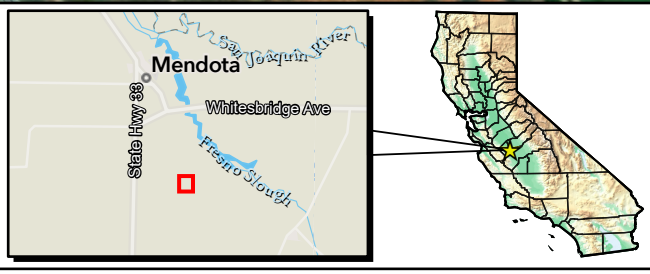
The Mendota Wildlife Area (MWA) is located in unincorporated Fresno County, California at 4333 Santa Fe Grade, Mendota, CA 93640 (Figure 1-1). The Mendota Wildlife Area is east of Highway 33 and south of SR-180, approximately 3 miles southeast of the City of Mendota. The California Department of Fish and Wildlife (CDFW) MWA is comprised of approximately 11,800 acres consisting of flatlands and floodplain of seasonally flooded freshwater emergent wetland, valley foothill riparian and alkali sink scrub and is

bordered by agricultural land to the west, east and south and the Alkali Sink Ecological Reserve and agricultural land to the north (Figure 1-2). Access to the CDFW MWA is provided by Santa Fe County Road (South San Benito Avenue) on the western boundary and West Whitesbridge Avenue (SR-180) on the northern boundary of the MWA (Figure2)

The MWA is operated by the CDFW. CDFW MWA property was designated as a wildlife area by the Fish and Game Commission in 1956 to serve three purposes: to protect agricultural crops from waterfowl depredation; to protect waterfowl wintering habitat and to accommodate public waterfowl hunting. Primarily managed as seasonally flooded wetland, the CDFW MWA consists of seasonally flooded wetlands, irrigation conveyances, access roadways and a 47.25-acre headquarters site that includes office facilities, maintenance facilities and employee housing.

Project Area - 1.95 ac.

Fresno County, California
§28,, T.14S, R.15E, MDBM
Latitude (NAD83): 36.681807°
Longitude (NAD83): -120.343484°



Location: N:\2018\2018-116.028 RESD Solar Screening Analysis\MAPS\CEQA\ForeFront Solar CEQA.aprx - Mendota CEQA Location and Vicinity 20230525 (JSwager - 5/31/2023)

Map Date: 5/31/2023
Sources: ESRI, Maxar (2022), ForeFront Power

Figure 1-1. Project Location and Vicinity

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2021-112.01 ForeFront Power - Mendota Wildlife Area

Figure 1-2. Photos of Project Site

Solar arrays would be installed in an area of annual grassland that is regularly disced for fire safety.

East side of the Project Area.

2.0 PROJECT DESCRIPTION

2.1 Project Background

The DGS is proposing to add solar arrays to the Mendota CDFW facility. The solar fields would be located adjacent to existing CDFW facility (i.e., administrative complexes) and would be approximately 28,000 square feet in size.

Several policies, regulations, and standards have been adopted by the State of California to address global climate change issues. Examples of such actions include the Governor's Green Building Order S-20-04, which mandates that State agencies evaluate the merits of using clean and renewable on-site energy generation technologies in all new building or large renovation projects. Incorporating solar Photo Voltaic (PV) technology supports energy reduction goals and achievement of Leadership in Energy and Environmental Design (LEED) building certifications from the United States Green Building Council. Using solar PV also supports the Global Warming Solutions Act.

To comply with policies, regulations, and standards that have been adopted by the State to address global climate change issues, DGS, in conjunction with participating State agencies, have created the Power Purchase Program. This program includes the installation of PV systems at State facilities. The PV systems are installed, operated, and owned by third parties who enter long-term power purchase agreements (PPAs) with the participating State agency.

2.2 Project Objectives

The Proposed Project is a solar PV power generation system to be located within the Mendota Wildlife Area, off Highway 180, Mendota, CA. The 504 ground-mounted solar arrays would occupy approximately 28,000 square feet and will convert sunlight to Direct Current (DC) electrical power which would then be converted to AC by string inverters before being delivered to the PG&E distribution system. The total system size is expected to be approximately 219 Kilowatts (kW), subject to final design and site optimization.

The solar system would be configured into three generally contiguous arrays that are laid-out to avoid impacts to natural resources. A security fence (totaling 700 linear feet) would be installed around the solar arrays. The solar system would utilize either fixed-tilt or single-axis tracking mounting technology to optimize efficiency and performance. Single-axis trackers are designed to rotate the arrays in the east-to-west plane to track the sun's movement across the horizon. Once installed, the ground-mounted solar arrays would be approximately 8 feet in height depending on the time of day to the extent a tracking system is utilized (Figure 2-1).

The electrical collection system is not expansive due to the close proximity of the solar arrays to each other. Conduits and wires would be buried in trenches that run between rows and/or installed above-grade running along the backside of strings to connect the output of each string to the inverters. String inverters would be attached to racking adjacent to each array to convert electricity from direct current to alternating current.

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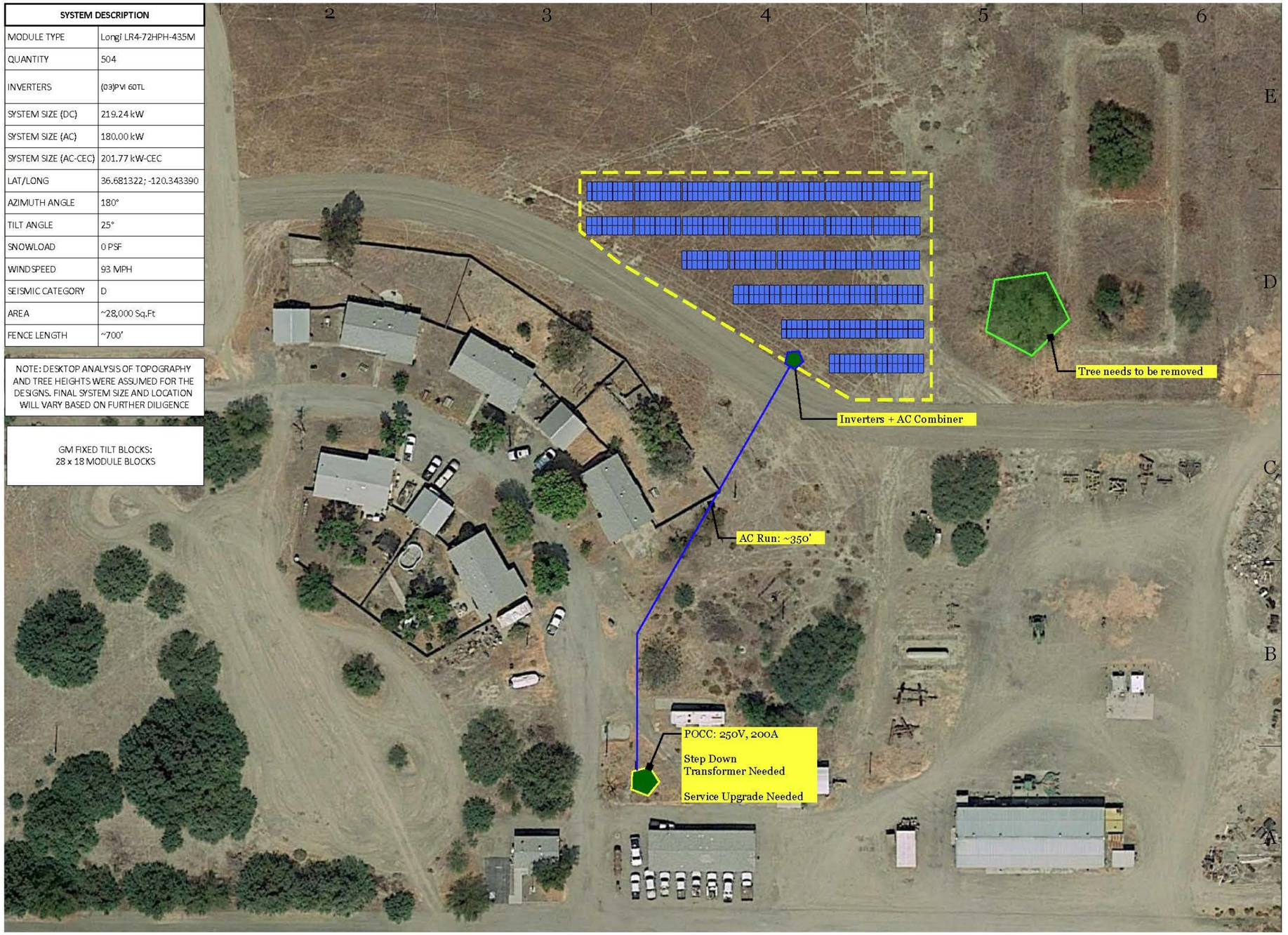
SYSTEM DESCRIPTION	
MODULE TYPE	Longi LR4-72HPH-435M
QUANTITY	504
INVERTERS	(03)PVI 60TL
SYSTEM SIZE (DC)	219.24 kW
SYSTEM SIZE (AC)	180.00 kW
SYSTEM SIZE (AC-CEC)	201.77 kW-CEC
LAT/LONG	36.681322; -120.343390
AZIMUTH ANGLE	180°
TILT ANGLE	25°
SNOWLOAD	0 PSF
WINDSPEED	93 MPH
SEISMIC CATEGORY	D
AREA	~28,000 Sq.Ft
FENCE LENGTH	~700'

NOTE: DESKTOP ANALYSIS OF TOPOGRAPHY AND TREE HEIGHTS WERE ASSUMED FOR THE DESIGNS. FINAL SYSTEM SIZE AND LOCATION WILL VARY BASED ON FURTHER DILIGENCE

GM FIXED TILT BLOCKS:
28 x 18 MODULE BLOCKS



FOREFRONT POWER

100 MONTGOMERY STREET #1400
SAN FRANCISCO, CA 94104
(855) 204-5083
www.ForeFrontPower.com

STAMP:

NOT FOR CONSTRUCTION

Department of Fish and Wildlife Mendota Wildlife Area

4333 Santa Fe Grade,
Mendota, CA 93640

PROJECT NUMBER:
CA-20-0270

SHEET TITLE:
CONCEPTUAL LAYOUT

SHEET SIZE:
TABLOID 11" X 17"

NO.	REVISION	DATE	INIT.

DATE: 16.Nov.2020
DRAWN BY: RP
ENGINEER: RP
APPROVED BY:

PROJECT PHASE:
PRELIMINARY DESIGN
SCALE: 1" : 60'
SHEET NO:
CL-1

Source: Forefront Power

Figure 2-1. Site Plan

2021-112.03 Mendota Wildlife Area Solar Project

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The inverters then send alternating current electricity to an on-site transformer to step the electricity up to the interconnection voltage. Trenching will be approximately 350 linear feet and will be excavated and backfilled pending the final conduit size and equipment. The conduit would extend from the southern boundary of the solar area in a southerly direction before reaching the point of connection at an existing electrical pole within the headquarters area. The connection will require a step down transformer and service upgrade. See Figure 2-1.

2.3 Operations and Maintenance

Once construction of the Proposed Project is completed, primary production-related monitoring would be done remotely. No employees would be based at the Project Site. The public would not have access to the facility. Access to the area would be infrequent and limited to authorized personnel only.

2.3.1 Project Timing

Construction would begin in late 2024 and would consist of approximately 120 days of activity to occur within a 180-day construction period. Prior to construction of the solar arrays, the project site will be cleared of debris and vegetation. Minimal site grading will be required for the installation of the system and access road. Construction equipment would include the following:

For the Site Preparation/Grading:

- Bobcat with mower attachment or tractor with mower attachment
- One dump truck
- One grader for short term use
- One Water truck

For the Construction of Structures:

- One backhoe for trenching
- One backhoe for wheel compaction
- One forklift for material deliveries
- One to three pile driving rigs
- One generator for Conex storage interior lighting and office

There would be 20 construction days requiring the use of a 3,000-gallon water truck. Approximately one truckload every other day is anticipated for dust control. Total water demand during construction is estimated to be 3,000 gallons every other day for 20 days, totaling 30,000 gallons. The water would come from an onsite source. Construction crew size is estimated to be 30 to 45 crew members at peak, with 15 workers on average. Material deliveries would consist of approximately three or four trucks for steel in one or two days, panel deliveries of approximately six trucks over two or three days, and misc. electrical component deliveries on an intermittent basis once or twice a week. Temporary sanitary facility servicing

will occur once a week. Other truck traffic would consist of construction equipment deliveries upon mobilization and equipment haul off near project completion.

2.4 Regulatory Requirements, Permits, and Approvals

The following approvals and regulatory permits would be required for implementation of the Proposed Project:

- Regional Water Quality Control Board, Central Valley Region
- National Pollutant Discharge Elimination System Permit
- Storm Water Pollution Prevention Plan

2.5 Consultation With California Native American Tribe(s)

On June 27, 2023, general request for information letters were sent to each representative listed for the tribes on the Native American Heritage Commission (NAHC) response letter. A summary of the consultation process is provided in Section 4.18, Tribal Cultural Resources, of this Initial Study.

In the absence of tribes wishing to consult, information about potential impacts to Tribal Cultural Resources (TCRs) was drawn from: 1) the results of a search of the Sacred Lands File of the NAHC; 2) existing ethnographic information about pre-contact lifeways and settlement patterns; and 3) information on archaeological site records obtained from the California Historical Research Information System (CHRIS).

3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED AND DETERMINATION

3.1 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by the Project, involving at least one impact that is a *Potentially Significant Impact,* as indicated by the checklist on the following pages.

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

Determination

On the basis of this initial evaluation:

I find that the Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.	☐
I find that although the 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 Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.	☐
I find that the 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 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 Project, nothing further is required.	☐

Terry Ash — Date
Senior Environmental Planner

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4.0 ENVIRONMENTAL CHECKLIST AND DISCUSSION

4.1 Aesthetics

4.1.1 Environmental Setting

4.1.1.1 Regional Setting

The City of Mendota is located in the central San Joaquin Valley, located 35 miles west of Fresno and 39 miles southeast of Los Banos in Fresno County.

4.1.1.2 Visual Setting of CDFW Mendota Wildlife Area

CDFW Mendota Wildlife Area (MWA) is located in Fresno County, east of Interstate 5, approximately 3 miles southeast of the City of Mendota and 30 miles west of the City of Fresno. The CDFW MWA is comprised of 11,825 acres and is bordered by agricultural land and Santa Fe County Road to the west; the Alkali Sink Ecological Reserve and West Whitesbridge Avenue (HWY180) to the north and agricultural land to the east and to the south. Flat valley floor and floodplain containing annual grassland and wetlands associated with the Fresno Slough of the San Joaquin River and the CDFW MWA facilities provide the predominant backdrop for the project area. The topography of the area is characterized by low relief, with gently sloping terrain and a lack of prominent elevation changes. Access to the CDFW MWA is provided via Whitesbridge Avenue to the north and Santa Fe County Road to the west.

4.1.1.3 Visual Character of the Project Site

The Project Site is completely within the CDFW MWA property with no nearby residences. A tree line along the boundary of the MWA and Santa Fe County Road obstructs the view into the 200-acre MWA headquarters property where the Project is proposed. The Project features three generally contiguous arrays immediately to the east, behind the park headquarters buildings on vacant ruderal grass land. A security fence (totaling 700 linear feet) would be installed around the solar arrays and would consist of chain-link with a minimum 6-foot height topped with three strands of barbed wire per applicable electrical and safety code requirements. The ground-mounted solar arrays would be approximately 8 feet in height depending on the time of day to the extent a tracking system is utilized.

A large tree lined berm runs along the property adjacent to Santa Fe County Road blocking travelers' and visitors' views of the MWA and Project Site.

4.1.2 Aesthetics (I) Environmental Checklist and Discussion

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 a substantial adverse effect on a scenic vista?	☐	☐	☒	☐

Less Than Significant Impact.

Fresno County's General Plan lists scenic resources as being associated with cultivated farmlands, foothill grasslands and high mountain peaks of the Planning Area. In addition, Fresno County has County-Designated Scenic Roadways. Goal OS-K of the General Plan is "to conserve, protect, and maintain the scenic quality of Fresno County and discourage development that degrades areas of scenic quality." Policy OS-K.4 states, "The County should require development adjacent to scenic areas, vistas, and roadways to incorporate natural features of the site and be developed to minimize impacts to the scenic qualities of the site.

While there are no designated scenic resources or Fresno County-Designated Scenic roadways in the vicinity of the proposed Project, the proposed Project would be built on the valley floor at CDFW Mendota WA, which is used by the public for recreational activities of a scenic nature including nature study, photography, sightseeing, and birding.

The Proposed Project will not obstruct long distance views of the natural terrain from any public viewing areas. The proposed Project is screened to the west and south by shrub vegetation, a tree line and WA facilities/buildings. The proposed Project will be visible to visitors of the WA from the wetland access roads to the east and north; however, the Project is immediately adjacent to and shorter than the WA headquarters facilities that obstruct the same views. Impacts to scenic vistas would be less than significant. No mitigation required.

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

No Impact.

The California Scenic Highway Program protects and enhances the scenic beauty of California's highways and adjacent corridors. The California Department of Transportation (Caltrans) can designate a highway as scenic based on how much natural beauty can be seen by users of the highway, the quality of the scenic landscape, and if development impacts the enjoyment of the view.

There are no designated Scenic Highways in the vicinity of the Project area. The closest scenic highways are approximately 30 miles to the south (SR-198) and approximately 44 miles to the north (SR-152) (Caltrans 2023). There are no impacts to state scenic highways. No mitigation required.

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

Less Than Significant Impact.

The proposed Project would be built within an approximately 0.75-acre area on the CDFW MWA Site. As previously stated in the Environmental Setting, flat valley floor and floodplain along the MWA headquarters facilities provide the predominant backdrop for the Project area. Due to trees and vegetation along the Santa Fe Road, the Project Site cannot be viewed from the Headquarters access road and there are no public viewing areas in proximity to the Project Site. The North entrance to the WA along Whitesbridge Avenue is approximately 3.5 miles north of the Project Area; visitors to the north entrance of the WA would see the Project in the same vicinity as the WA Headquarters buildings and facilities. While the Project is an additional feature in this administration area of the WA, the height of the array is shorter than the existing buildings. The existing buildings would serve as the visual backdrop to the Project for visitors to the North entrance at a considerable distance. The view of the project area to the east is unobstructed; however, the closest public road to the east is approximately 3 miles across the WA and again the existing buildings and facilities of the Headquarters would serve as the visual backdrop at a considerable distance. Furthermore, defining visual elements of the Central Valley such as the Coastal Range and rolling foothills surrounding the valley and the agricultural use of the valley floor would not be affected. A less than significant impact would occur. No mitigation required.

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
d) Would the Project create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Less Than Significant Impact.

The reflection of sunlight is the primary potential producer of glare from glass and metallic surfaces of the proposed solar panels. The reflection of light is an optical phenomenon governed by the law of reflection.

This law states that the direction of incoming light (incident ray) and the direction of the outgoing light reflected (reflected ray) make the same angle with respect to the surface normal, thus the angle of incidence equals the angle of reflection. The law of reflection shows how light responds when it contacts a truly spectral surface, like a mirror.

A solar panel differs from a truly spectral surface in that it has a microscopically irregular surface designed to trap the incident rays of sunlight with the intention of generating additional photon collision and energy production. Any incident radiation, if not absorbed or transmitted, will be reflected. With the current advancements in PV technology, a typical untreated silicon solar cell absorbs two-thirds of the sunlight reaching the panel's surface, meaning only one-third of the sunlight reaching the surface of the solar panel will be reflected. Recent improvements in PV technology have led to even greater light absorption efficiency through the use of nano-engineered anti-reflective materials applied directly to the solar cells that allow the cells to absorb light from virtually the entire solar spectrum. The intent of solar technology is to increase efficiency by absorbing as much light as possible (which further reduces reflection and glare). Most solar glass sheets (the glass layer that covers the PV panels) are typically tempered glass that is treated with an anti-reflective or diffusion coating that further diffuses (scatters) the intensity of glare produced. This type of diffused glare loses intensity as the distance from the reflection source increases.

The proposed Project includes the use of trackers. Trackers are devices that orient the solar array perpendicular (surface normal) to the incident solar radiation, thereby maximizing solar cell efficiency and potential energy output. Tracking devices are capable of positioning the array so that the incident rays would be at or very near a normal surface (perpendicular angle). In these optimal conditions, when the sun is high in the sky, the law of reflection indicates that the reflected ray would be at an equally low angle and reflected in a direction toward the light source or back into the atmosphere away from terrestrial-based receptors. This also means that the potential for glare is further reduced. However, when the sun is low on the horizon (near dawn or dusk), the sun's angle in the sky is low; because the trackers are tilted toward the light source, the potential for fugitive glare on terrestrial-based receptors increases.

CDFW MWA wetlands are located adjacent to the Project Site. Therefore, there are no residential that would be affected by the fugitive glare from the spectral surfaces of the solar panels. Any glare would be directed to the south, away from the main MWA facilities. Glare impacts would be less than significant. No mitigation required.

4.1.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required

4.2 Agriculture and Forestry Resources

4.2.1 Environmental Setting

According to the California Department of Conservation (DOC) online Important Farmland Finder Map, the Project Site does not contain Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, nor is the Site zoned for agriculture or forestry use or subject to a Williamson Act contract. The California

Important Farmland Finder Map identifies the Site as Urban and Built-Up Land. The adjacent parcels directly south, beyond Henry Miller Avenue, and east are designated as Grazing Land; the parcel directly west beyond the Site-adjacent Santa Fe Canal is designated Unique Farmland and Farmland of Statewide Importance; and the parcel directly adjacent to, and north of the Project Site, is designated as Farmland of Local Importance (DOC 2023).

There is Farmland of Local Importance under DOC criteria across Santa Fe County Road, to the west of the WA headquarters and the proposed Project Site within the WA headquarters property.

4.2.2 Agriculture and Forestry Resources (II) Environmental Checklist and Discussion

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?	☐	☐	☐	☒

No Impact.

The California Farmland Mapping and Monitoring Program, Important Farmlands Map for Fresno County designates the Project Site as Vacant or Disturbed Land and Rural Commercial land (DOC 2023). The Project Site is not located on Prime Farmland, Unique Farmland, or Farmland of Statewide Importance; thus, the proposed Project would not convert such farmland to non-agricultural use. No impact would occur. No mitigation necessary.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

No Impact.

The proposed Project is not located in an agricultural use zone. The CDFW MWA is zoned as Resource Conservation (RC) and is not under a Williamson Act contract (DOC 2023). Therefore, the project would not result in a conflict with an agricultural zoning designation or a Williamson Act contract. No impact would occur. No mitigation necessary.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒

No Impact.

The Project Site is not zoned for forest land, timberland, or timberland production (Fresno 2018). The Project Site is currently undeveloped and does not contain forest or timber resources. The flat valley floor and floodplain along the MWA headquarters facilities provide the predominant backdrop for the project area. No impact would occur. No mitigation required.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

No Impact.

The Proposed Project is located in a previously disturbed undeveloped area and would not convert forest land to non-forest use; no impact would occur. No mitigation required.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	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.

See discussion under item a) and c), the Proposed Project would not result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest. No impact would occur, and no mitigation measures are required.

4.2.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required

4.3 Air Quality

This assessment was prepared using methods and assumptions recommended in the rules and regulations of the San Joaquin Valley Air Pollution Control District (SJVAPCD). Regional and local existing conditions are presented, along with pertinent pollutant emissions standards and regulations. The purpose of this assessment is to estimate criteria air pollutants attributable to the Project and determine the level of impact the Project would have on the environment.

4.3.1 Environmental Setting

The Project Site is located in unincorporated Fresno County. The California Air Resources Board (CARB) divides the state into air basins that share similar meteorological and topographical features. The Proposed Project is located in the San Joaquin Valley Air Basin (SJVAB). The SJVAB occupies the southern two-thirds of the Central Valley. SJVAB is mostly flat, less than 1,000 feet in elevation, and is surrounded on three sides by the Sierra Nevada, Tehachapi, and Coast Range mountains. This bowl-shaped feature forms a natural barrier to the dispersion (spreading over an area) of air pollutants. As a result, the SJVAB is highly susceptible to pollutant accumulation over time.

The climate in the SJVAB is strongly influenced by the presence of mountain ranges. The mountains create a partial rain shadow over the valley and block the free circulation of air, trapping stable air in the valley for extended periods. The climate is semi-arid and is characterized by long, hot, dry summers and cool, wet, and foggy winters. Based on historical data obtained from the meteorological station located in Bakersfield, ambient temperatures range from an average minimum of 39 degrees Fahrenheit (˚F) in January to an average maximum of 98˚F in July. The average monthly precipitation is approximately 6.24 inches per year, with January and February averaging 1.35 inches. The average daily wind speed is 5.9 Miles Per Hour (mph). The air flow patterns are characterized by one of four directions depending on the season. For example, during the summer, winds are predominantly northwestern (upvalley), while winters typically feature a prevailing stagnant condition that leads to high incidence of valley fog.

Both the U.S. Environmental Protection Agency (USEPA) and CARB have established ambient air quality standards for common pollutants. These ambient air quality standards establish safe levels of contaminants that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called criteria pollutants because the health and other effects of each pollutant are described in criteria documents. The six criteria pollutants are ozone (O_3), carbon monoxide (CO), Particulate Matter (PM), oxides of nitrogen (NO_x), Sulfur Dioxide (SO_2), and lead. Areas that meet ambient air quality standards are classified as attainment areas, while areas that do not meet these standards are classified as nonattainment areas.

The air quality regulating authority in Fresno County is the SJVAPCD. The agency's primary responsibility is ensuring that the National Ambient Air Quality Standards and California Ambient Air Quality Standards are attained and maintained in the SJVAB, which encompasses Fresno County and the Project Site. Fresno

County is designated as a nonattainment area for the national standards O_3 and Fine Particulate Matter ($PM_{2.5}$) and designated as a nonattainment area for the state standards of O_3, Coarse Particulate Matter (PM_{10}) and $PM_{2.5}$ (CARB 2022a). The SJVAPCD is responsible for adopting or creating a comprehensive plan to reduce the emissions of these criteria pollutants. They also enforce rules and regulations, inspect and issue permits for stationary sources of air pollutants, respond to citizen complaints, monitor ambient air quality and meteorological conditions, award grants to reduce motor vehicle emissions, and conduct public education campaigns. The SJVAPCD coordinates work from government agencies, businesses, and private citizens to achieve and maintain healthy air quality.

The following is a list of noteworthy SJVAPCD rules that are required of construction activities associated with the Proposed Project:

- **Regulation IV (Visible Emissions), Rule 4101, Nuisance.** The purpose of this rule is to protect the health and safety of the public from source operations that emit or may emit air contaminants or other materials. It prohibits emissions of air contaminants or other materials "which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public."
- **Regulation IV (Visible Emissions), Rule 4601, Architectural Coatings.** The rule limits Volatile Organic Compound (VOC) emissions from architectural coatings and specifies practices for proper storage, cleanup, and labeling requirements. Rule 4601 applies to "any person who supplies, sells, offers for sale, applies, or solicits the application of any architectural coating, or who manufactures, blends or repackages any architectural coating for use within the District." Materials covered by the rule include adhesives, architectural coatings, paints, varnishes, sealers, stains, concrete curing compounds, concrete/masonry sealers, and waterproofing sealers.
- **Regulation IV (Visible Emissions), Rule 4641, Cutback, Slow Curve and Emulsified Asphalt, Paving and Maintenance Operations.** The purpose of this rule is to limit VOC emissions by restricting the application and manufacturing of certain types of asphalt and maintenance operations and applies to the use of these materials. Specifically, certain types of asphalt cannot be used for penetrating prime coat, dust palliative, or other paving: rapid cure and medium cure cutback asphalt, slow cure asphalt that contains more than 0.5 percent of organic compound which evaporates at 500˚F or lower, and emulsified asphalt containing VOC in excess of 3 percent which evaporates at 500˚F or lower.
- **Regulation VIII (Fugitive PM_{10} Prohibitions), Rules 8021–8071, Fugitive PM_{10} Prohibitions.** The purpose of these rules is to limit airborne particulate emissions associated with construction, demolition, excavation, extraction, and other earthmoving activities, as well as with open disturbed land and emissions associated with paved and unpaved roads. Accordingly, these rules include specific measures to be employed to prevent and reduce fugitive dust emissions from anthropogenic sources.
- **Regulation IX (Mobile and Indirect Sources), Rule 9510, Indirect Source Review.** This rule will reduce emissions of NO_x and PM_{10} from new development projects that attract or generate motor vehicle trips. In general, new development contributes to the air pollution problem in the SJVAB

by increasing the number of vehicles and vehicle miles traveled. Although newer, cleaner technology is reducing per-vehicle pollution, the emissions increase from new development partially offsets emission reductions gained from technology advances. Indirect Source Review applies to larger development projects that have not yet gained discretionary approval.

4.3.2 Air Quality (III) Environmental Checklist and Discussion

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?	☐	☐	☐	☒

No Impact.

As part of its enforcement responsibilities, the USEPA requires each state with nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. The Project region is classified as nonattainment for the federal O_3 and $PM_{2.5}$ standards and is also a nonattainment area for state O_3, $PM_{2.5}$ and PM_{10} standards (CARB 2022a). The USEPA, under the provisions of the Clean Air Act (CAA), requires each state with regions that have not attained the federal air quality standards to prepare a SIP detailing how these standards are to be met in each local area. The SIP is a legal agreement between each state and the federal government to commit resources to improving air quality. It serves as the template for conducting regional and project-level air quality analysis. CARB is the lead agency for developing the SIP in California. Local air districts, such as the SJVAPCD, prepare air quality attainment plans or air quality management plans and submit them to CARB for review, approval, and incorporation into the applicable SIP. The air districts develop the strategies stated in the SIPs for achieving air quality standards on a regional basis.

The SJVAPCD is required, pursuant to the federal CAA, to reduce emissions of criteria pollutants for which the SJVAB is in nonattainment. In order to reduce such emissions, the SJVAPCD prepared the following air quality plans:

- 2004 Extreme Ozone Attainment Demonstration Plan
- 2007 Plan for the 1997 8-Hour Ozone Standard
- 2009 Reasonably Available Control Technology (RACT)
- 2013 Plan for the Revoked 1-Hour Ozone Standard
- 2014 RACT SIP
- 2016 Plan for the 2008 8-Hour Ozone Standard
- 2020 RACT Demonstration for the 2015 8-Hour Ozone Standard

- 2022 Plan for the 2018 *-Hour Ozone Standard
- 2007 PM_{10} Maintenance Plan
- 2008 $PM_{2.5}$ Plan
- 2012 $PM_{2.5}$ Plan
- 2015 Plan for the 1997 $PM_{2.5}$ Standard
- 2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard
- 2018 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard

These plans collectively address the air basin's nonattainment status with the national and state O_3 standards as well as particulate matter by establishing a program of rules and regulations directed at reducing air pollutant emissions and achieving state (California) and national air quality standards. Pollutant control strategies are based on the latest scientific and technical information and planning assumptions.

According to the SJVAPCD (2015), the established thresholds of significance for criteria pollutant emissions are based on SJVAPCD New Source Review offset requirements for stationary sources. Stationary sources in the SJVAB are subject to some of the most stringent regulatory requirements in the nation. Emission reductions achieved through implementation of SJVAPCD offset requirements are a major component of SJVAPCD's air quality planning efforts. Thus, projects with emissions below the thresholds of significance for criteria pollutants are determined to "Not conflict or obstruct implementation of the SJVAPCD's air quality plan" (SJVAPCD 2015). As shown in Table 3.3-1 below, Project construction would not generate emissions that would exceed SJVAPCD significance thresholds and therefore would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new air quality violations. Additionally, once construction is complete, the Project would not generate quantifiable criteria emissions from Project operations. The Project would not conflict with any applicable air quality plans. There is no impact.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☒	☐

Less Than Significant Impact.

Emissions associated with Project construction would be temporary and short-term but have the potential to represent a significant air quality impact. Two basic sources of short-term emissions will be generated through Project construction: operation of the heavy-duty equipment (i.e., excavators, loaders, haul trucks) and the creation of fugitive dust during excavation. Construction activities such as excavation and grading

operations, construction vehicle traffic, and wind blowing over exposed soils would generate exhaust emissions and fugitive PM emissions that affect local air quality at various times during construction. Effects would be variable depending on the weather, soil conditions, the amount of activity taking place, and the nature of dust control efforts. The dry climate of the area during the summer months creates a high potential for dust generation. Project construction activities would be subject to SJVAPCD Regulation VIII, which specifies the following measures to control fugitive dust:

- Apply water to unpaved surfaces and areas.
- Use nontoxic chemical or organic dust suppressants on unpaved roads and traffic areas.
- Limit or reduce vehicle speed on unpaved roads and traffic areas to a maximum 15 miles per hour.
- Maintain areas in a stabilized condition by restricting vehicle access.
- Install wind barriers.
- During high winds, cease outdoor activities that disturb the soil.
- Keep bulk materials sufficiently wet when handling.
- Store and handle materials in a three-sided structure.
- When storing bulk materials, apply water to the surface or cover the storage pile with a tarp.
- Don't overload haul trucks. Overloaded trucks are likely to spill bulk materials.
- Cover haul trucks with a tarp or other suitable cover. Or, wet the top of the load enough to limit visible dust emissions.
- Clean the interior of cargo compartments on emptied haul trucks prior to leaving a site.
- Prevent trackout by installing a trackout control device.
- Clean up trackout at least once a day. If along a busy road or highway, clean up trackout immediately.
- Monitor dust-generating activities and implement appropriate measures for maximum dust control.

Construction-generated emissions associated with the Proposed Project were calculated using the California Emissions Estimator Model (CalEEMod), version 2022.1. CalEEMod is a statewide land use emissions computer model designed to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. Project construction-generated air pollutant emissions were calculated using CalEEMod model defaults for Fresno County. Appendix A provides more information regarding the construction assumptions, including construction equipment and duration, used in this analysis.

Predicted daily and maximum emissions attributable to Project construction are summarized in Table 4.3-1. Such emissions are short-term and of temporary duration, lasting only as long as Project construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the SJVAPCD's thresholds of significance.

Table 4.3-1. Construction-Related Emissions

Activity	ROG[1]	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Pollutant (tons per year)						
Construction Calendar Year One	0.05	0.43	0.42	0.01	0.06	0.03
SJVAPCD Significance Threshold	*10*	*10*	*100*	*27*	*15*	*15*
Exceed SJVAPCD Daily Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Note: CO = Carbon Monoxide; NO_x = Nitric Oxide; PM_{10} = Coarse Particulate Matter; $PM_{2.5}$ = Fine Particulate Matter; ROG = Reactive Organic Gases; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_2 = Sulfur Dioxide

Source: California Emissions Estimator Modeling (CalEEMod) Version 2022.1. Refer to Appendix A for Model Data Outputs.

As shown in Table 4.3-1, construction related emissions would not exceed thresholds established by the SJVAPCD or result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard for. The impact is less than significant.

In addition to the SJVAPCD criteria air pollutant thresholds, SJVAPCD Rule 9510, Indirect Source Review, aims to fulfill the SJVAPCD's emission reduction commitments in the PM_{10} and Ozone Attainment Plans. This rule applies to the following construction projects within the jurisdiction of the SJVAPCD:

- 50 residential units,
- 2,000 square feet of commercial space,
- 25,000 square feet of light industrial space,
- 100,000 square feet of heavy industrial space,
- 20,000 square feet of medical office space,
- 39,000 square feet of general office space,
- 9,000 square feet of educational space,
- 10,000 square feet of government space,
- 20,000 square feet of recreational space, or
- 9,000 square feet of space not identified above.

This rule also applies to any transportation or transit project where construction exhaust emissions equal or exceed two tons of NO_x or two tons of PM_{10}.

Since the Project does not include the construction of a permanent building and is not a transportation project, the Proposed Project would not be required to comply with this rule. Additionally, the Project is proposing a solar energy generation facility. One of the obvious benefits of solar energy is that the production of electricity from these sources involves almost no direct emissions of criteria air pollutant emissions. In contrast, fossil fuel–fired electric generation from coal, oil, or natural gas results in substantial direct emissions that contribute to adverse impacts on the environment. For instance, electric generation from fossil fuel–fired power plants contributes 22 percent of all NO_x emissions in the U.S. according to the U.S. Department of Energy (Department of Energy 2008). Renewable energy-generating facilities reduce emissions by decreasing the need for energy from fossil fuel–based power plants in the state, which is considered a beneficial impact statewide.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐

Less Than Significant Impact.

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The Project is proposed to be constructed at the Mendota Wildlife Area Headquarters, which contains seasonal housing for staff. Since the Project is proposing a solar generation system to improve this seasonal housing, the seasonal housing itself will not be evaluated as a sensitive receptor. It is further acknowledged that the seasonal housing onsite serves as temporary housing for Mendota Wildlife Area Headquarters staff and does not accommodate permanent residents. The nearest permanent, off-site sensitive receptor to the Project Site is a single-family home, located approximately 12,485 feet distant.

4.3.2.1 Construction-Generated Air Contaminants

Construction of the Project would result in temporary, short-term proposed Project-generated emissions of diesel particulate matter (DPM), reactive organic gases, NOx, CO, and PM_{10} from the exhaust of off-road, heavy-duty diesel equipment for Project construction; soil hauling truck traffic; paving; and other miscellaneous activities. The portion of the SJVAB which encompasses the Project Area is designated as nonattainment for the federal O_3 and $PM_{2.5}$ standards and is also a nonattainment area for state O_3, $PM_{2.5}$ and PM_{10} standards (CARB 2022a). Thus, existing O_3 $PM_{2.5}$, and PM_{10} levels in the SJVAB are at unhealthy levels during certain periods. However, as shown in Table 4.3-1, the Project would not exceed the

SJVAPCD significance thresholds for construction emissions and therefore no regional health effects from Project criteria pollutants would occur.

Per SJVAPCD guidance, this analysis employs the SJVAPCD Prioritization Calculator health risk screening tool to assess the potential health risk-related effects of Project construction. The SJVAPCD Prioritization Calculator identifies a Prioritization score based on the Project emission potency at the vicinity sensitive residential receptors. A prioritization score of 10 or greater, as determined by this screening protocol, is potentially significant and indicates that mitigation should be imposed, or a detailed Health Risk Assessment (HRA) should be performed.

In addition to cancer risk, the significance thresholds for toxic air contaminant exposure requires an evaluation of non-cancer risk stated in terms of a hazard index. A chronic hazard index of 1.0 is considered individually significant. It should be noted that there is no acute health hazard for DPM, which is the only significant air toxic associated with construction for this Project. Thus, the maximum acute index for construction of the Project is zero.

The calculated carcinogenic risk and highest maximum chronic hazard indexes at the nearby sensitive residential receptors due to Project construction is depicted in Table 4.3-2.

Table 4.3-2. Health Risk Summary

Exposure Scenario	Maximum Cancer Risk at Residence	Maximum Chronic Hazard Index at Residence	Maximum Acute Hazard Index at Residence
Project Construction	0.316	0.003	0.00
SJVAPCD Screening Threshold	*10.0*	*1.0*	*1.0*
Exceed SJVAPCD Screening Threshold?	**No**	**No**	**No**

Source: San Joaquin Valley Air Pollution Control District (SJVAPCD) Prioritization Calculator. Refer to Appendix A for Model Data Outputs.

As shown in Table 4.3-2, impacts related to both cancer risk and non-cancer risk (chronic and acute hazard indexes) because of Project construction would not surpass the screening thresholds at the nearest permanent, offsite sensitive residential receptors. Therefore, Project construction would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants.

4.3.2.2 Valley Fever

Coccidioidomycosis, often referred to as San Joaquin Valley Fever or Valley Fever, is one of the most studied and oldest known fungal infections. Valley Fever most commonly affects people who live in hot dry areas with alkaline soil and varies with the season. This disease, which affects both humans and animals, is caused by inhalation of arthroconidia (spores) of the fungus *Coccidioides immitis* (CI). CI spores are found in the top few inches of soil and the existence of the fungus in most soil areas is temporary. The cocci fungus (an organism that grows and feeds on dead or decaying organic matter) lives as a

saprophyte in dry, alkaline soil. When weather and moisture conditions are favorable, the fungus "blooms" and forms many tiny spores that lie dormant in the soil until they are stirred up by wind, vehicles, excavation, or other ground-moving activities and become airborne. Agricultural workers, construction workers, and other people who work outdoors and who are exposed to wind and dust are more likely to contract Valley Fever. Children and adults whose hobbies or sports activities expose them to wind and dust are also more likely to contract Valley Fever. After the fungal spores have settled in the lungs, they change into a multicellular structure called a spherule. Fungal growth in the lungs occurs as the spherule grows and bursts, releasing endospores, which then develop into more spherules.

Valley fever (Coccidioidomycosis) is found in California, including Fresno County. In about 50 to 75 percent of people, valley fever causes either no symptoms or mild symptoms and those infected never seek medical care; when symptoms are more pronounced, they usually present as lung problems (cough, shortness of breath, sputum production, fever, and chest pains). The disease can progress to chronic or progressive lung disease and may even become disseminated to the skin, lining tissue of the brain (meninges), skeleton, and other body areas.

When soil containing this fungus is disturbed by ground-disturbing activities such as digging or grading, by vehicles raising dust, or by the wind, the fungal spores get into the air. When people breathe the spores into their lungs, they may get valley fever. Fungal spores are small particles that can grow and reproduce in the body. The highest infection period for valley fever occurs during the driest months in California, between June and November. Infection from valley fever during ground-disturbing activities can be partially mitigated through the control of Project-generated dust. As noted, Project-generated dust would be controlled by adhering to SJVAPCD dust-reducing measures (Regulation VIII), which includes the preparation of a SJVAPCD-approved dust control plan describing all fugitive dust control measures that are to be implemented before, during, and after any dust-generating activity.

With minimal site grading (mass grading is not required for the installation of a solar array) and conformance with SJVAPCD Regulation VIII, dust from the construction of the Project would not add significantly to the existing exposure level of people to this fungus, including construction workers. In summary, Project construction would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants.

4.3.2.3 Operational Air Contaminants

Operation of the Proposed Project would not result in the development of any substantial sources of air toxics. There would be no stationary sources associated Project operations; nor would the Project attract additional mobile sources that spend long periods queuing and idling at the site. Onsite Project emissions would not result in significant concentrations of pollutants at any sensitive receptors. Therefore, the Project would not be a substantial source of TACs. The Project will not result in a high carcinogenic or non-carcinogenic risk during operation.

This impact would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Less Than Significant Impact.

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

During construction, the Proposed Project presents the potential for generation of objectionable odors in the form of diesel exhaust in the immediate vicinity of the site. However, these emissions are short-term in nature and will rapidly dissipate and be diluted by the atmosphere downwind of the emission sources. Additionally, odors would be localized and generally confined to the construction area. Therefore, construction odors would not adversely affect a substantial number of people to odor emissions.

Land uses commonly considered to be potential sources of obnoxious odorous emissions include agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding. The Proposed Project does not include any uses identified as being associated with odors. The solar field would not emit odors.

This impact would be less than significant.

4.3.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.4 Biological Resources

At the request of the DGS, ECORP Consulting, Inc. conducted a biological resources assessment (BRA) and a Special Status Plant Survey Report for the Proposed Project. The purpose of the BRA was to collect information on the biological resources present or with the potential to occur in the Project Study Area (Project Area plus the Buffer Area)[1], assess potential biological impacts related to Project activities, and identify potential mitigation measures to inform and support the Project's CEQA documentation for biological resources. The Biological Resources Assessment (BRA) is included as Appendix B of this Initial Study and provides the information utilized in the following sections. The Special Status Plant Survey Report presents findings of both the early and late season rare plant surveys and is included in Appendix B-2, Attachment C.

4.4.1 Environmental Setting

The Study Area is located within relatively flat terrain situated at an elevational range of approximately 155 to 160 feet Above Mean Sea Level (AMSL) in the San Joaquin Valley subregion of the California floristic province (Jepson eFlora 2021). The average winter low temperature in the vicinity of the Study Area is 37.2˚F and the average summer high temperature is 93.9˚F. Average annual precipitation is approximately 12.23 inches, which falls as rain (Appendix B).

The Study Area is on State-owned land within and adjacent to the Mendota Wildlife Area Headquarters. The majority of the Study Area is a sparsely vegetated annual grassland that is regularly disced for fire safety. The Study Area also includes portions of access roads.

The Study Area is directly adjacent to lands that are either developed or disturbed. Lands further north and east of the Study Area are part of the Mendota Wildlife Area and mostly consist of riparian habitat, alkali sink scrub, and seasonally flooded wetlands managed mostly to provide wintering habitat for migratory birds. Lands further east and south of the Study Area are used for agriculture.

4.4.1.1 Vegetation Communities

The Project Site is primarily composed of disturbed land surrounding the headquarters of the Mendota Wildlife Area. The Project area includes the following upland vegetation communities and land cover types: annual grassland and disturbed/developed.

The annual grassland is located within the solar array area and is annually disced for fire safety (Figure 1-2). The grassland appeared to be dominated by brome (*Bromus* sp.). Scattered forb seedlings growing

[1] The BRA uses *Study Area* to represent the Project Site. Study Area and Project Site are interchangeable.

among grasses included red-stemmed filaree (*Erodium cicutarium*), clover (*Trifolium* sp.), and English plantain (*Plantago lanceolata*).

The trenching alignment is within an area that is either disturbed or developed. This area includes portions of unpaved, dirt or gravel one-lane access roads and disturbed areas adjacent to these roads. The disturbed/developed portion of the Project Site was largely devoid of vegetation at the time of the BRA site reconnaissance.

4.4.1.2 Wildlife Observations

A list of wildlife species observed during the field surveys is included in Appendix B-1. Wildlife species identified within the Project Site during the February 24, 2021, reconnaissance includes killdeer (*Charadrius vociferus*), red-tailed hawk (*Buteo jamaicensis*), and California ground squirrel (*Otospermophilus beecheyi*). Sign of coyote (*Canis latrans*) and rabbit or hare (*Leporidae* sp.) was also observed.

4.4.1.3 Aquatic Resources.

A preliminary aquatic resources assessment to identify potential waters of the U.S. and State was conducted within the Project Site concurrent with the reconnaissance-level field survey. No potential aquatic resources were observed within the Project Site, and no aquatic resources are mapped within the Project Site in the California Aquatic Resources Inventory (CARI) data (Appendix B, Figure 4). The CARI is a statewide dataset of surface waters and related habitats that combines multiple national and regional datasets, including the National Wetlands Inventory and the National Hydrography Dataset.

The nearest aquatic resource to the Project Site mapped in the CARI data is a depressional seasonal natural emergent wetland located approximately 300 feet east of the Project Site (Appendix B).

4.4.1.4 Evaluation of Species Identified in the Literature Search

The BRA (Appendix B) lists all the special-status plant and wildlife species identified in the literature review as potentially occurring within the vicinity of the Study Area. Included in the BRA are the listing status for each species, a brief habitat description, and an evaluation on the potential for each species to occur within the Study Area.

Below is a summary of the special status species that are identified in the BRA.

4.4.1.5 Plants

A total of 21 special-status plant species were identified as having potential to occur in the vicinity of the Study Area based on the literature review (Appendix -B-1). Of those, five species are considered to be absent from the Study Area due to the lack of suitable habitat. The following 16 plants have California Natural Diversity Database (CNDDB) documented occurrences within five miles of the project site: Heartscale (*Atriplex cordulata* var. *cordulata*), Earlimart orache (*Atriplex cordulata* var. *erecticaulis*), Lost Hills crownscale (*Atriplex coronata* var. *vallicola*), Brittlescale (*Atriplex depressa*), Lesser saltscale (*Atriplex*

minuscula), Subtle orache (*Atriplex subtilis),* Palmate-bracted bird's-beak (*Chloropyron palmatum*), Recurved larkspur (*Delphinium recurvatum*), Hoover's eriastrum (*Eriastrum hooveri*), Cottony buckwheat (*Eriogonum gossypinum*), Spiny-sepaled button-celery (*Eryngium spinosepalum),* Golden goodmania (*Goodmania luteola*), Munz's tidy tips (*Layia munzii*), Panoche pepper-grass (*Lepidium jaredii* ssp. *album*), San Joaquin woollythreads (*Monolopia congdonii*), and San Joaquin bluecurls (*Trichostema ovatum*).

4.4.1.6 Special-Status Wildlife

A total of 39 special status animals including fish, amphibians, invertebrates, reptiles, birds, and mammals were identified through CNDDB and U.S. Fish and Wildlife Service (USFWS) searches (see appendix B).

One special-status fish species, delta smelt (*Hypomesus transpacificus*), was identified as having potential to occur in the vicinity of the Study Area based on the literature review (Appendix B). However, upon further analysis and after the site visit, this species is considered to be absent from the Study Area due to the lack of suitable habitat and because it is outside of the known geographic range for this species.

One special-status amphibian species was identified as having potential to occur in the vicinity of the Study Area based on the literature review (Appendix B). However, upon further analysis, the one species is considered to be absent from the Study Area due to the lack of suitable habitat within the study area.

Three special-status invertebrates species were identified as having potential to occur in the vicinity of the Study Area based on the literature review (Appendix B). However, upon further analysis, all three species are considered to be absent from the Study Area due to the lack of suitable habitat and/or because it is outside of the known geographic range for these species.

Seven special-status reptiles were identified as having potential to occur in the vicinity of the Study Area based on the literature review (Appendix B). Of those, two species (giant garter snake, two-striped gartersnake) are considered to be absent from the Study Area due to the lack of suitable habitat. The following five species have low potential to occur within the Study Area: northwestern pond turtle, Northern California legless lizard (*Anniella pulchra*), blunt-nosed leopard lizard, Blainville's horned lizard (*Phrynosoma blainvillii*), San Joaquin coachwhip (*Coluber flagellum ruddocki*),

A total of 20 special-status bird species were identified as having the potential to occur within the Study Area based on the literature review (Appendix B). Of those, 13 species were determined to be absent from the Study Area due to the lack of suitable habitat and/or because it is outside of the known geographic range for these species. The following seven species that have potential or low potential to occur within the Study Area: Swainson's hawk (*Buteo swainsoni*), mountain plover (*Charadrius montanus),* long-billed curlew (*Numenius americanus*), burrowing owl (*Athene cunicularia*), short-eared owl (*Asio flammeus*), California horned lark (*Eremophila alpestris*), and tricolored blackbird (*Agelaius tricolor*).

In addition to the above-listed special-status birds, all native or naturally occurring birds and their occupied nests/eggs are protected under the California Fish and Game Code and the Migratory Bird Treaty Act (MBTA). The Study Area supports potential nesting habitat for a variety of native birds protected under these regulations.

Eight special-status mammal species were identified as having potential to occur in the vicinity of the Study Area based on the literature review (Appendix B). Of those, two species (western mastiff bat, Fresno kangaroo rat) were determined to be absent from the Study Area due to the lack of suitable habitat or because there are no known extant populations in its vicinity. The following six species have low potential to occur within the Study Area: western red bat (*Lasiurus blossevillii*), Nelson's antelope squirrel (*Ammospermophilus nelsoni*), giant kangaroo rat (*Dipodomys ingens),* Tulare grasshopper mouse (*Onychomys torridus tularensis),* San Joaquin kit fox (*Vulpes macrotis*), and American badger (*Taxidea taxus)*.

4.4.1.7 Riparian Habitats and Sensitive Natural Communities

Two sensitive natural communities were identified as having potential to occur within the vicinity of the Study Area based on the literature review (Appendix B). These include Coastal and Valley Freshwater Marsh and Valley Sink Scrub. Upon further analysis and site reconnaissance, both sensitive natural communities were determined to be absent from the Study Area.

Based on the site reconnaissance, no sensitive natural communities or riparian habitats are located within the Study Area. Riparian habitats and sensitive natural communities will not be discussed further in this analysis.

4.4.1.8 Wildlife Movement Corridors and Nursery Sites

The Project Site does not fall within an Essential Habitat Connectivity area mapped by the CDFW (Appendix B). The Project Site is a small area within and adjacent to a developed facility. While the Project Site may provide movement corridors for wildlife, it is not expected to support critical wildlife movement corridors. No nursery sites have been documented within the Project Site (Appendix B) and none were observed during the site reconnaissance.

4.4.2 Biological Resources (IV) Environmental Checklist and Discussion

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?	☐	☒	☐	☐

Less Than Significant Impact With Mitigation Incorporated.

There is suitable habitat within the Proposed Project Site for sixteen special-status plants, five special-status reptiles, seven special-status birds, and six special-status mammals.

No special-status species are known to occur within the Project Site and the majority of the site is repeatedly disturbed by disking. However, there is a possibility that special-status species could be present or could move into the Project Site prior to construction. Potential effects to special-status species are summarized in the following sections.

4.4.2.1 Special-Status Plants

ECORP biologist Krissy Walker-Berry and Roxanne Kessler conducted the early season survey on April 27, 2023, and ECORP biologist Krissy Walker-Berry conducted the late season survey on August 2, 2023. The surveys were conducted in accordance with guidelines promulgated by USFWS, and CDFW, California Native Plant Society (Appendix B-2, Attachment C). During the surveys, the biologists walked meandering transects throughout the Survey Area, including all suitable habitat for target species, and identified all plant species to the lowest possible taxonomic level required to assess rarity. No special-status plant species were observed during the survey. A list of all plant species observed within the Survey Area is included in Appendix B. Therefore, no mitigation is required.

4.4.2.2 Special-Status Reptiles

There is low potential for one federally and State-listed reptile, blunt-nosed leopard lizard, to occur in the Project Site. Additionally, there is low potential for four non-listed CDFW Species of Special Concern (SSC) to occur (Appendix B).

In the unlikely event that special-status reptiles occur onsite, they may be temporarily displaced by Project construction and may be directly or indirectly impacted by the Project. Additionally, a small amount of very marginal potential habitat would be removed or altered in the footprint of the solar array.

Implementation of recommendations BIO-2 through BIO-6 described in Section 4.3.3 would avoid or minimize potential effects on special-status reptiles. These include a pre-construction wildlife survey, avoidance measures if necessary, worker awareness environmental training, demarcation of Project limits to avoid offsite impacts, and measures to avoid impacts to wildlife during construction such as burrow avoidance, speed limits, and practices to prevent entrapment. With implementation of these measures, the Project is not expected to significantly impact special-status reptiles.

4.4.2.3 Special-Status Birds

There is potential foraging habitat for two State-listed bird species, Swainson's hawk and tricolored blackbird, within the Project Site. Additionally, there is marginal potential nesting habitat for three non-listed special-status bird species (i.e.., burrowing owl, short-eared owl, California horned lark), marginal potential foraging habitat for two other non-listed special-status bird species (mountain plover and long-billed curlew), and potential nesting habitat for a variety of other birds that are protected under the MBTA and the California Fish and Game Code.

Birds may be temporarily displaced from the Project Area during construction and nesting birds within or in the vicinity of the Project may be directly or indirectly impacted by the Project. Additionally, a small amount of marginal potential nesting habitat would be removed or altered in the footprint of the solar

array. Due to the small footprint of the solar arrays and the short duration of the Project, mortality of special-status birds due to collisions is not expected.

Implementation of recommendations BIO-1, BIO-3, and BIO-4 described in Section 4.3.3 would avoid or minimize potential effects on special-status birds and other protected birds. These include a pre-construction nesting-bird survey, avoidance measures if necessary, worker awareness environmental training, and demarcation of Project limits to avoid offsite impacts. With implementation of these measures, the Project is not expected to significantly impact special-status birds.

4.4.2.4 Special-Status Mammals

Three federally and/or State-listed mammals (Nelson's antelope squirrel, giant kangaroo rat, and San Joaquin kit fox) have low potential to occur in the Project Site. Additionally, there is potential or low potential for three CDFW SSC (western red bat, Tulare grasshopper mouse, American badger) to occur.

In the unlikely event that special-status mammals occur onsite they may be temporarily displaced by Project construction and may be directly or indirectly impacted by the Project. Additionally, a small amount of marginal potential habitat would be removed or altered in the footprint of the solar array.

Implementation of recommendations BIO-2 through BIO-7 described in Section 4.3.3 would avoid and/or minimize potential effects on special-status mammals. These include a pre-construction wildlife survey, avoidance measures if necessary, worker awareness environmental training, demarcation of Project limits to avoid offsite impacts, and measures to avoid impacts to wildlife during construction such as burrow avoidance, speed limits, and practices to prevent entrapment of mammals and attraction of mammals to the Project Site. With implementation of these measures, the Project is not expected to significantly impact special-status mammals.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☐	☒

No Impact.

Two sensitive natural communities were identified as having potential to occur within the vicinity of the Project area based on literature review for the BRA (Appendix B). These include Coastal and Valley Freshwater Marsh and Valley Sink Scrub. Upon further analysis and site reconnaissance, both sensitive natural communities were determined to be absent from the Project area.

Based on site reconnaissance and the analysis of the BRA, there are no impacts to sensitive natural communities or riparian habitats. No mitigation required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒

No Impact.

As stated above, a preliminary aquatic resources assessment to identify potential waters of the U.S. and State was conducted within the Project area concurrent with a reconnaissance-level field survey for the BRA. No potential aquatic resources were observed within the Project area, and no aquatic resources are mapped within the BRA Study Area in the California Aquatic Resources Inventory (CARI) data (Appendix B Figure 4). The nearest aquatic resource to the Project area mapped in the CARI data is a depressional seasonal natural emergent wetland located approximately 300 feet east of the Study Area. There are no impacts as a result of the Project. No mitigation measures are required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	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.

Project construction is likely to temporarily disturb and displace most wildlife from the Project area. Some wildlife such as birds or nocturnal species are likely to continue to use the habitats opportunistically for the duration of construction. Once construction is complete, wildlife movements are expected to resume. Therefore, the Project is not expected to substantially interfere with wildlife movement.

There are no documented nursery sites and no nursey sites were observed within the Project area during the BRA site reconnaissance. Therefore, the Project is expected to have less than significant impact to wildlife nursery sites. No mitigation measures are required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

No Impact.

The Project is within the MWA on land owned by CDFW. The only known local policies relevant to the Project are outlined in the draft Management Plan for the MWA (California Department of Fish and Game [CDFG] 1994). The Project is not expected to conflict with goals and objectives outlined within the Plan. There are no impacts to local policies or ordinances protecting biological resources. No mitigation measures are required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	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 area is not covered by any local, regional, or State conservation plan. Therefore, the Project would not conflict with any plans. No impact and no mitigation measures required.

4.4.3 Mitigation Measures

The following measures are recommended to avoid and/or minimize potential impacts to biological resources from the proposed Project:

BIO-1: **Nesting Bird Surveys.** If construction is to occur during the nesting season (generally February 1 - August 31), conduct a pre-construction nesting-bird survey of all suitable nesting habitat within 14 days prior to construction. The survey shall be conducted within a 500-foot radius of Project work areas for raptors and within a 100-foot radius for other nesting birds. If any active nests are observed, these nests shall be designated an environmentally sensitive area and protected by an avoidance buffer established in coordination with CDFW until the breeding season has ended or until a qualified biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival.

Timing/Implementation: *Prior to construction (only during nesting season)*

Implementation/Responsibility/Verification: *Developer/Project Biologists*

BIO-2: **Preconstruction Wildlife Surveys.** A qualified biologist shall conduct a pre-construction special-status wildlife survey in the Project Area (including impacts areas, access roads, and staging areas) between 30 and 15 days prior to ground- or vegetation-disturbing construction activities. The survey shall be conducted within 200 feet of all areas of ground or vegetation disturbance and shall be conducted for the following species: northwestern pond turtle, Northern California legless lizard, blunt-nosed leopard lizard, Blainville's horned lizard, San Joaquin coachwhip, western red bat, Nelson's antelope squirrel, giant kangaroo

rat, Tulare grasshopper mouse, San Joaquin kit fox, and American badger. The survey shall follow accepted procedures for these species and shall map any occurrences or habitat features (i.e., dens or burrows) with sign of special-status species. If no special-status species are detected, construction may proceed in unoccupied habitat. If special-status species are detected, the following measures shall apply:

- If a special-status species is detected within or near the Project Area during the pre-construction survey and there is potential for Project activities to impact the species, a qualified biological monitor shall be present during all activities that may impact the species (e.g., ground or vegetation disturbance).
- Special-status wildlife detected prior to or during construction shall be allowed to move out of the work area of their own volition. If an individual must be relocated, a qualified biologist with any required permits or approvals must relocate the individual out of harm's way to the nearest suitable habitat at least 100 feet from the Project work area where it was found.
- If a kit fox or badger den is detected within 200 feet of the work area, it shall be designated an environmentally sensitive area and protected by an avoidance buffer of 200 feet for non-natal dens. A buffer distance for natal dens shall be established in consultation with USFWS and CDFW. Avoidance buffers shall be maintained until a qualified biologist determines the den is no longer active. Any demarcation of the dens or avoidance zone shall not prevent access to the den by kit foxes or badgers.

Timing/Implementation: *Prior to construction*

Implementation/Responsibility/Verification: *Developer/Project Biologists*

BIO-3: **Mandatory Worker Environmental Awareness Training.** A qualified biologist shall conduct mandatory worker environmental awareness training for all contractors, work crews, and any onsite personnel to aid workers in recognizing special-status species and other sensitive biological resources that may occur onsite. The training shall include identification of the special-status species with potential to occur and their habitats, a description of the regulatory status of sensitive resources, and review of the limits of construction, environmentally sensitive areas, and Measures required to reduce impacts to biological resources. The Project shall retain a qualified biologist with any required permits on an as-needed basis to assist with potential biological issues that may arise during construction (i.e., wildlife relocation).

Timing/Implementation: *Prior to construction*

Implementation/Responsibility/Verification: *Developer/Project Biologists*

BIO-4: **Project Limit Marking.** The Project impact limits shall be clearly demarcated prior to construction and all workers shall be made aware of the impact limits and avoided areas. If orange construction fencing is to be used, it shall be placed such that there is a one-foot gap between the ground and the bottom of the fencing to prevent ground-dwelling animals from being caught in the fencing. No work shall occur outside of the Project impact limits. All vehicles and equipment shall be restricted to the Project impact limits and/or existing designated access roads and staging areas. Project-related vehicles shall observe a speed limit of 20 miles per hour during the day and 10 miles per hour at night in construction areas and on access roads where it is safe and feasible to do so, except on county roads and State and federal highways.

Timing/Implementation: *Prior to construction*

Implementation/Responsibility/Verification: *Developer/Project Biologists*

BIO-5: **Inadvertent Entrapment.** To prevent inadvertent entrapment of special-status wildlife during construction, all excavated, steep-walled holes or trenches more than two-feet deep shall be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks shall be installed. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals. In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape or the USFWS/CDFW should be contacted for guidance.

Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of four-inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way.

Timing/Implementation: *Prior to and during construction*

Implementation/Responsibility/Verification: *Developer*

BIO-6: **Existing Burrow Designation.** Existing burrows may provide habitat for listed reptiles and mammals. Any existing burrow that is within 50 feet of the Project and was determined to provide habitat for special-status wildlife during the preconstruction survey shall be designated an environmentally sensitive area and protected by an avoidance buffer that has a minimum 50-foot radius from the burrow entrance. If Project activities will take place within 50 feet of avoided burrow entrances and, in the judgment of a qualified biologist, the combination of soil hardness and activity impact is not expected to collapse those burrows, then those Project activities shall be allowed to take place under the supervision of a qualified biological monitor. If burrows that provide habitat for special-status wildlife cannot be avoided, they shall be carefully dug out by hand under the supervision of a qualified biologist in a manner that avoids direct mortality of wildlife within the burrow to ensure that they are not occupied by special-status species.

Timing/Implementation: *Prior to and during construction*

Implementation/Responsibility/Verification: *Biologists and Developer*

BIO-7: **Garbage Collection.** To avoid attracting special-status mammals to the Project Site, all food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a week from the Project Site during construction.

Timing/Implementation: *Prior to, during, and after construction*

Implementation/Responsibility/Verification: *Developer*

4.5 Cultural Resources

ECORP Consulting, Inc. prepared a Cultural Resources Inventory and Architectural History Evaluation Report (Appendix C) for the Proposed Project to determine if cultural resources were present in or adjacent to the Project Area and assess the sensitivity of the Project Area for undiscovered or buried cultural resources. Cultural resources include prehistoric archaeological sites, historic archaeological sites, and historic structures, and generally consist of artifacts, food waste, structures, and facilities made by people in the past. Prehistoric archaeological sites are places that contain the material remains of activities carried out by the native population of the area (i.e., Native Americans) prior to the arrival of Europeans in Southern California. Places that contain the material remains of activities carried out by people during the period when written records were produced after the arrival of Europeans are considered historic archaeological sites. Historic structures include houses, garages, barns, commercial structures, industrial facilities, community buildings, and other structures and facilities that are more than 50 years old. Historic structures may also have associated archaeological deposits, such as abandoned wells, cellars, privies, refuse deposits, and foundations of former outbuildings.

The information provided below is an abridged version of the Cultural Resources Inventory and Architectural History Evaluation Report and is included here to provide a brief context of the potential cultural resources in the Project Area. Due to the sensitive nature of cultural resources and their records and documentation, which are restricted from public distribution by state and federal law, the IS/MND appendices do not include the cultural resources report; however, all pertinent information necessary for impact determinations is included in this section. A redacted version of the cultural resources report that does not include site records or locations may be obtained by contacting Lead Agency DGS.

4.5.1 Environmental Setting

The Project Area is in the San Joaquin Valley region within the greater Central Valley. The land to the north and south of the Project Area is characterized by open agricultural fields. A levee, Santa Fe Grade, is located to the west of the Project Area, paralleling Santa Fe County Road on the west. Natural, undeveloped land is located to the east. The elevations within the Project Area range from 156 to 159 feet above mean sea level. The San Joaquin River is approximately 7.2 miles north of the Project Area and the Fresno Slough is approximately 2 miles northeast.

4.5.2 Cultural Resources (V) Environmental Checklist and Discussion

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 §15064.5?	☐	☐	☒	☐

Less Than Significant Impact.

ECORP did not identify any archaeological or architectural history resources on the property as a result of the records search and field survey; therefore, no known Historic Properties under Section 106 of the National Historic Preservation Act (NHPA) or Historical Resources under CEQA will be affected by the Proposed Project. However, the Project Area may overlap a larger rural historic landscape (a historic district) that includes the entire Mendota Wildlife Area. The National Park Service identifies "conservation (including natural reserves) areas" as a type of rural historic landscape (Appendix C). Such a landscape has not been fully defined or recorded, as its scope far exceeds the Project Area, and the proposed project is not likely to have a significant effect on the landscape. No mitigation measures are necessary.

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

Less Than Significant Impact With Mitigation Incorporated.

There always remains the potential for ground-disturbing activities to expose previously unrecorded cultural resources. Both CEQA and Section 106 of the NHPA require the lead agency to address any unanticipated cultural resource discoveries during Project construction.

The underlying soil and geology of the Project Area do not support a high likelihood of buried pre-contact archaeological sites. Additionally, due to the amount of previous ground disturbance from the construction of the buildings located on the CDFW property, the nearby Santa Fe County Road, and Santa Fe Grade in the vicinity of the Project Area, there is a low likelihood for intact subsurface cultural deposits in the Project Area. However, given the presence of alluvium along the San Joaquin River and the Fresno Slough, located approximately 7 miles and 2 miles north and northeast of the Project Area, respectively, and the likelihood of pre-contact archaeological sites located along perennial waterways, there is an elevated potential for subsurface cultural resources in the Project Area. Overall, the likelihood for buried archaeological sites or resources in the Project Area is low to moderate. With the implementation of mitigation measure CUL-1, impacts will be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

Less Than Significant Impact With Mitigation Incorporated.

No signs of human remains were found during the records search or field survey. CEQA requires the lead agency to address any unanticipated cultural resource discoveries during project construction. Therefore, the mitigation measure CUL-1 shall be adopted and implemented by the lead agency to reduce potential adverse impacts to less than significant.

4.5.3 Mitigation Measures

CUL-1: **Implement Measures to Protect Unanticipated Cultural, Archaeological, and/or Tribal Cultural Resources Discoveries.** The following mitigation measure is intended to address the evaluation and treatment of inadvertent/unanticipated discoveries of potential tribal cultural resources (TCRs), archaeological, or cultural resources during a project's ground disturbing activities.

- If any suspected archaeological or cultural resources are discovered during ground disturbing construction activities, all work shall cease within 100 feet of the find, or an agreed upon distance based on the project area and nature of the find. A professional archaeologist who meets the Secretary of Interior's Standards for Archaeology will make recommendations for further evaluation and treatment, as necessary.
- If any suspected TCRs are discovered during ground disturbing construction activities, all work shall cease within 100 feet of the find, or an agreed upon distance based on the project area and nature of the find. A Tribal Representative from a California Native American tribe that is traditionally and culturally affiliated with a geographic area shall be immediately notified and shall determine if the find is a TCR (PRC §21074). The Tribal Representative will make recommendations for further evaluation and treatment, as necessary.
- When avoidance is infeasible, preservation in place is the preferred option for mitigation of TCRs, or archaeological or cultural resources under CEQA protocols, and every effort shall be made to preserve the resources in place, including through project redesign, if feasible. Culturally appropriate treatment may be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, or returning objects to a location within the project area where they will not be subject to future impacts. Permanent curation of TCRs will not take place unless approved in writing by the California Native American Tribe(s) that is traditionally and culturally affiliated with the project area.

- The contractor shall implement any measures deemed by the CEQA lead agency to be necessary and feasible to preserve in place, avoid, or minimize impacts to the resource, including, but not limited to, facilitating the appropriate tribal treatment of the find, as necessary. Treatment that preserves or restores the cultural character and integrity of a TCR may include Tribal Monitoring, culturally appropriate recovery of cultural objects, and reburial of cultural objects or cultural soil.
- Work at the discovery location cannot resume until all necessary investigation and evaluation of the discovery under the requirements of the CEQA, have been satisfied.

Human Remains

- If the find includes human remains, or remains that are potentially human, he or she shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the Fresno County Coroner (per § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California PRC, and AB 2641 will be implemented. If the Coroner determines the remains are Native American and not the result of a crime scene, the Coroner will notify the NAHC, which then will designate a Native American Most Likely Descendant (MLD) for the project (§ 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (§ 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.

Timing/Implementation: *During construction*

Implementation/Responsibility/Verification: *Developer and Department of General Services*

4.6 Energy

4.6.1 Environmental Setting

California relies on a regional power system comprised of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. Natural gas provides California with a majority of its electricity followed by renewables, large hydroelectric and nuclear (California Energy Commission 2022). PG&E provides electricity and natural gas to Fresno County. It generates or buys electricity from hydroelectric, nuclear, renewable, natural gas, and coal facilities. PG&E provides natural gas and electricity to most of the northern two-thirds of California, from Bakersfield and Barstow to near the Oregon,

Nevada and Arizona State Line. It provides 5.2 million people with electricity and natural gas across 70,000 square miles. In 2019, PG&E announced that 100 percent of the company's delivered electricity comes from greenhouse gas emission-free sources, including renewables, nuclear, and hydropower (PG&E 2019).

Potential energy-related impacts associated with this Project include the depletion of nonrenewable resources (e.g., oil, natural gas, coal) and emissions of pollutants during the construction. Since the Proposed Project is a solar PV power generation system, there will be no operational energy uses, and thus will not be discussed in this analysis. Discussion of the impact will focus on the single source of energy that is relevant to the Proposed Project: the equipment-fuel necessary for Project construction.

4.6.1.1 Energy Consumption

Electricity use is measured in Kilowatt-Hours (kWh). Natural gas is measured in therms. Vehicle fuel use is typically measured in gallons (e.g. of gasoline or diesel fuel), although energy use for electric vehicles is measured in kWh. Total automotive fuel consumption in Fresno County from 2018 to 2022 is shown in Table 4.6-1. As shown, automotive fuel consumption decreased since 2018.

Table 4.6-1. Automotive Fuel Consumption in Fresno County 2018 - 2022

Year	Total Fuel Consumption (gallons)
2022	537,970,309
2021	537,288,839
2020	487,624,247
2019	549,114,020
2018	545,482,636

Source: California Air Resources Board (CARB) 2022b

4.6.2 Energy (VI) Environmental Checklist and Discussion

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?	☐	☐	☒	☐

Less Than Significant Impact.

Operations of the Proposed Project would not result in the consumption of electricity or natural gas and thus, would not contribute to the County wide usage. Instead, the Project would directly support the state's Renewable Portfolio Standard goal of increasing the percentage of electricity procured by renewable sources. The one quantifiable source of energy associated with the Project includes the equipment fuel necessary for construction. For the purpose of this analysis, Project increases in

construction fuel consumption are compared with the countywide fuel consumption in 2022, the most recent full year of data. The amount of total construction-related fuel used was estimated using ratios provided in the Climate Registry's General Reporting Protocol for the Voluntary Reporting Program, Version 2.1 (2016).

Addressing energy impacts requires an agency to make a determination as to what constitutes a significant impact. There are no established thresholds of significance, statewide or locally, for what constitutes a wasteful, inefficient, and unnecessary consumption of energy for a proposed land use. For the purposes of this analysis, the amount of fuel necessary for Project construction is calculated and compared to that consumed in Fresno County.

Table 4.6-2. Proposed Project Energy and Fuel Consumption

Energy Type	Annual Energy Consumed	Percentage Increase Countywide
Vehicular/Equipment Fuel Consumption		
Construction Calendar Year One	6,207 gallons	0.001

Source: ECORP Consulting, Inc., Appendix D.
Notes: The Project increase construction-related fuel consumption is compared with the countywide construction-related fuel consumption in 2022, the most recent full year of data.

As shown in Table 4.6-2, the Project's gasoline fuel consumption during the first calendar year of construction is estimated to be 6,207 gallons of fuel. This would increase the annual gasoline fuel use in the county by 0.001 and 0.003 percent, respectively, during Project construction. As such, Project construction would have a nominal effect on local and regional energy supplies, especially over the long-term. Additionally, construction equipment fleet turnover and increasingly stringent state and federal regulations on engine efficiency combined with state regulations limiting engine idling times and require recycling of construction debris, would further reduce the amount of transportation fuel demand during Project construction. For these reasons, it is expected that construction fuel consumption associated with the Project would not be any more inefficient, wasteful, or unnecessary than other similar development projects of this nature.

Operations of the Project would not generate any fuel consumption as it would not be contributing to any mobile sources. As such, fuel consumption associated with vehicle trips generated by the Project during operation would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region.

For these reasons, this impact would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

No Impact.

The purpose of the Proposed Project is the construction of a renewable energy facility. Once in operation, it will decrease the need for energy from fossil fuel–based power plants in the state. The result would be a net increase in electricity resources available to the regional grid, generated from a renewable source. Additionally, the Project would directly support the Renewable Portfolio Standard goal of increasing the percentage of electricity procured from renewable sources. There is no impact.

4.6.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.7 Geology and Soils

4.7.1 Environmental Setting

The Project Area is in the western portion of the San Joaquin Valley. This area was formed by a series of geologic activities over eons, including crustal plates colliding and suturing, volcanic and sedimentary deposition, and plutonic intrusions. During the Pleistocene, erosion of the Sierra Nevada led to the deposition of large alluvial fans at the base of the foothills along the eastern side of the Central Valley. Glacial conditions are generally credited for the deposition of these fans, while subsequent interglacial periods are marked by landscape stability, soil formation, and channel incision. Subsequent depositional cycles during the Holocene progressively buried downstream sections of many older alluvial fans and led to the formation of inset stream terraces and nested alluvial fans along the foothills.

Geology of the Project Area is composed of primarily recent basin deposits from the Great Valley. It consists of sediments deposited during flood stages of major streams in the areas between natural streams, levees, and alluvial fans.

According to the Natural Resources Conservation Service (NRCS) Web Soil Survey (2023), one soil type is present within the Project Area: Lethent silt loam (375), Major Land Resource Area 17, 0 to 1 percent slopes. Lethent silt loam is a poorly drained soil with a depth to water table of approximately 4 inches. The parent material is alluvium derived from sedimentary and igneous rock.

The underlying geology of the Project Area and vicinity consists of Pleistocene-Holocene marine and non-marine sedimentary rocks and includes alluvium, lake, playa, and terrace deposits.

4.7.1.1 Geomorphic Setting

The CDFW MWA is located within the Great Valley geomorphic province of California. Located between the Coast Ranges and Sierra Nevada provinces, the Great Valley is comprised of an alluvial plain approximately 50 miles wide and 400 miles long. During the Mesozoic and Cenozoic eras, a sedimentary and metasedimentary alluvium basin was formed by erosion of the Coast Ranges and Sierra Nevada Mountain ranges. Geologic features naturally divide the Great Valley into two valleys; the Sacramento Valley composes the northern portion and the San Joaquin Valley composes the southern portion. The Sacramento Valley is drained by the Sacramento River system and the San Joaquin Valley is drained by the San Joaquin River system, which ultimately drain into the Sacramento-San Joaquin Delta.

The geomorphology near the CDFW MWA in central California is primarily influenced by the interaction of the San Joaquin River and the surrounding valley floor. The region exhibits a combination of fluvial, alluvial, and lacustrine landforms.

The river's flow has led to the development of a broad floodplain with relatively low relief. Over time, the river has meandered within the valley, resulting in sinuous channels and oxbow lakes. The river's continuous sediment deposition and lateral migration have contributed to the formation of natural levees along its banks.

The floodplain itself consists of alluvial deposits, which are primarily composed of fine-grained sediment such as sand, silt, and clay. These sediments have been transported and deposited by the San Joaquin River during periods of high water flow and flooding. Alluvial fans can be observed where smaller tributaries join the main river, indicating sediment deposition in areas of reduced velocity.

The presence of oxbow lakes, abandoned meander loops of the river, is a characteristic feature of the landscape near the refuge. These crescent-shaped bodies of water provide important habitat for aquatic vegetation, fish, and wildlife. Oxbow lakes are formed as the river changes course over time, leaving behind isolated water bodies disconnected from the main channel.

In addition to the fluvial features, the MWA also exhibits lacustrine characteristics. Historically, the region was part of a larger Pleistocene lake known as Lake Corcoran. The remnants of this ancient lake are visible in the form of playa deposits and sediments rich in clay and silt. These lacustrine deposits can be found in low-lying areas and contribute to the overall geomorphic diversity of the region.

Human activities have also influenced the geomorphology of the area surrounding the refuge. The construction of levees and flood control structures has altered the natural hydrological patterns and sediment transport dynamics. Agricultural practices, including irrigation and land leveling, have modified the land surface, resulting in a more uniform topography in certain areas.

4.7.1.2 Regional Seismicity and Fault Zones

An "active fault," as defined by the Alquist-Priolo Act, is a fault that has ruptured within the last 11,000 years. A potentially active fault is one that has ruptured within the last 1.6 million years. A fault is considered *inactive* if it has not shown geologic evidence of surface displacement in the last 11,000 years.

The CDFW MWA is situated within a seismically active region in central California, known for its complex fault systems and ongoing tectonic activity. The area is influenced by several major fault zones and experiences a significant level of regional seismicity.

One of the prominent fault systems near the refuge is the San Andreas Fault, which extends through California and forms the boundary between the Pacific Plate and the North American Plate. Although the San Andreas Fault is not immediately adjacent to the refuge, it is within a reasonable distance and contributes to the overall seismic activity in the region.

To the east of the CDFW Mendota WA, the region is influenced by the seismicity associated with the active faults of the central California shear zone. This zone comprises a network of interconnected faults, including the San Joaquin Fault, the Polonio Pass Fault, and the Westhaven-North Fork Fault, among others. These faults are responsible for the ongoing tectonic deformation and earthquake activity in the area.

Another significant fault system in the vicinity is the East Bay Faults, which extends to the northwest of the refuge. This fault system includes the Calaveras Fault, the Hayward Fault, and the Greenville Fault. These faults are associated with the complex tectonic activity in the San Francisco Bay Area but have the potential to impact the seismicity in the broader region.

The Richter Scale is a measure of magnitude of an earthquake's seismic energy release. Higher numerical values indicate a greater level of seismic energy released by the earthquake. According to the U.S. Geological Society (USGS), there is an estimated 63 percent chance that a magnitude 6.7 or greater earthquake will occur in the San Francisco Bay Area (Bay Area) before the year 2032. Fault ruptures occurring within the San Francisco Bay Area could trigger surface displacement and ground shaking at the Project Site.

The regional seismicity near the Mendota Wildlife Refuge is characterized by a mix of smaller to moderate earthquakes, occasional larger events, and ongoing fault creep. Earthquakes in the region are typically associated with strike-slip faulting due to the lateral movement between the tectonic plates.

4.7.1.3 Soils

According to the Web Soil Survey (NRCS 2023), one map unit, or soil type, has been mapped within the Project Site:

- 375 – Lethent silt loam, 0 to 1 percent slopes, poorly drained, MRLA 17

This map unit consists of 85 percent Lethent silt loam, poorly drained, and similar soils, and 15 percent minor components. The Lethent series is described as very deep, moderately well-drained soils on low lying alluvial fans, fan remnants, basins, and basin rims. Project Site soils also have a slight erosion potential and high linear extensibility (shrink-swell). These soils formed in mixed alluvium dominantly from sedimentary and/or igneous rocks. The Lethent silt loam, poorly drained soil type is strongly saline and has a hydric soil rating. Additionally, one minor component (Lillis, clay) is rated as hydric (NRCS 2023).

No soil units derived from serpentinite or other ultramafic parent materials have been reported to occur within the Project Site or its immediate vicinity (Appendix B).

4.7.1.4 Paleontological Resources

ECORP conducted a query of the University of California Museum of Paleontology (UCMP) catalog records, a review of regional geologic maps from the California Geological Survey (CGS), a review of local soils data, and a review of existing literature on paleontological resources of Fresno County. The purpose of the assessment was to determine the sensitivity of the Project Area, whether known occurrences of paleontological resources are present within or immediately adjacent to the Project Area, and whether implementation of the Project could result in significant impacts to paleontological resources. Paleontological resources include mineralized (i.e., fossilized) or unmineralized bones, teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains.

The results of the search of the UCMP indicated that 270 paleontological specimens were recorded from 36 identified localities and 215 unidentified localities in Fresno County. Paleontological resources include fossilized remains of birds, mammals, reptiles, and amphibians (UCMP 2023).

4.7.2 Geology and Soils (VII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☒	☐
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐

Less Than Significant Impact.

i) No impact.

The Proposed Project Site is not located within the Alquist-Priolo Earthquake Zone (CGS 2023). The Project Site is not within a currently established State of California Earthquake Fault Zone for surface fault

rupture hazards. No active or potentially active faults are known to pass directly beneath the Site. By CGS definition, an active fault is one with surface displacement within the last 11,000 years. A potentially active fault has demonstrated evidence of surface displacement within the past 1.6 million years. Faults that have not moved in the last 1.6 million years are typically considered inactive. There would be no impact related to fault rupture.

ii) Less than significant impact.

Depending upon the magnitude, proximity to epicenter, and subsurface conditions (e.g., bedrock stability and the type and thickness of underlying soils), ground shaking damage could vary from slight to intensive. According to CGS' Earthquake Shaking Potential for California mapping, the Proposed Project Site is located in an area with a low to moderate likelihood of experiencing ground shaking (CGS 2023a). According to the CGS Seismic Hazard Zone Map, the Project Site is not subject to significant geologic hazards such as significant seismic shaking (CGS 2023b). The Proposed Project would have a less than significant impact related to strong ground shaking.

iii) Less than significant impact.

Liquefaction occurs when loose sand and silt saturated with water behaves like a liquid when shaken by an earthquake. Liquefaction can result in the following types of seismic-related ground failure:

- Loss of bearing strength – soils liquefy and lose the ability to support structures,
- Lateral spreading – soils slide down gentle slopes or toward stream banks,
- Flow failures – soils move down steep slopes with large displacement,
- Ground oscillation – surface soils, riding on a buried liquefied layer, are thrown back and forth by shaking,
- Flotation – floating of light buried structures to the surface,
- Settlement – settling of ground surface as soils reconsolidate, and
- Subsidence – compaction of soil and sediment.

Liquefaction potential has been found to be greatest where the groundwater level and loose sands occur within a depth of about 50 feet or less. The DOC provides mapping for areas susceptible to liquefaction in California. According to this mapping, the Project Site is not located in an area identified for the risk of liquefaction (CGS 2023b). As such, the Proposed Project would result in less than significant impacts with regard to seismic-related ground failure, including liquefaction.

iv) Less than significant impact.

The 0.75-acre Project Site is relatively flat with elevations ranging between 155 to 157 feet AMSL throughout the Site. The Project Site has minimal elevation gain and the area does not have steep hillsides or other formations susceptible to landslides during a seismic event. As such, the potential for landslides would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

Less Than Significant Impact.

As previously discussed in section 4.6.1.3, the project site soil has a very slight erosion potential. The Proposed Project includes the construction of a new ground-mounted solar system, with construction involving grading, excavation, and soil hauling, which would disturb soils and potentially expose them to wind and water erosion.

Any development involving clearing, grading, or excavation that causes soil disturbance of 1 or more acres, or any project involving less than 1 acre that is part of a larger development plan and includes clearing, grading, or excavation, is subject to National Pollutant Discharge Elimination System (NPDES) State General Permit (Order No. 2009-0009-DWQ) provisions. Any development of this size, including the Project Site, would be required to prepare and comply with an approved Stormwater Pollution Prevention Plan (SWPPP) that provides a schedule for the implementation and maintenance of erosion control measures and a description of the erosion control practices, including appropriate design details and a time schedule. The SWPPP would consider the full range of erosion control Best Management Practices (BMPs), including any additional site-specific and seasonal conditions. Erosion control BMPs include, but are not limited to, the application of straw mulch, hydroseeding, the use of geotextiles, plastic covers, silt fences, and erosion control blankets, as well as construction site entrance and outlet tire washing. The State General Permit also requires that those implementing SWPPPs meet prerequisite qualifications that would demonstrate the skills, knowledge, and experience necessary to implement SWPPPs. The NPDES requirements would significantly reduce the potential for substantial erosion or topsoil loss to occur in association with new development. In addition, the Proposed Project would be required to use BMPs to control runoff from all new development and thus limit erosion.

Since erosion impacts are often dependent on the type of development, intensity of development, and amount of lot coverage of a particular project site, impacts can vary. However, compliance with NPDES and SWPPP requirements would ensure that soil erosion and related impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☒	☐

Less Than Significant Impact.

As discussed previously, the Project Site has little potential for landslides.

Lateral spreading is a form of horizontal displacement of soil toward an open channel or other *free* face, such as an excavation boundary. Lateral spreading can result from either the slump of low cohesion and unconsolidated material or, more commonly, by liquefaction of either the soil layer or a subsurface layer underlying soil material on a slope, resulting in gravitationally driven movement. One indicator of potential lateral expansion is frost action. Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing (NRCS 2023). As indicated in Table 4.7-1 above, the Web Soil Survey identifies the Project Site as having soils with no frost action potential. Additionally, as discussed in Item a) iii) above, the Project Site is identified as not being susceptible to liquefaction. As such, the potential for impacts due to lateral spreading would be less than significant.

With the withdrawal of fluids, the pore spaces within the soils decrease, leading to a volumetric reduction. If that reduction is significant enough over an appropriately thick sequence of sediments, regional ground subsidence can occur. This typically only occurs within poorly lithified sediments and not within competent rock.[2] This can occur as a result of high-volume water, oil, or gas extraction operations. No oil, gas, or high-volume water extraction wells are known to be present in the Project vicinity. According to the USGS Areas of Land Subsidence in California webpage, the Project Site is located in an area of land subsidence due to groundwater pumping (USGS 2023). However, as the Project entails the construction of solar arrays, with no occupation of structures, there is no impact on the environment or persons by constructing these arrays. As such, the potential for impacts due to subsidence would be less than significant.

Collapse occurs when water is introduced to poorly cemented soils, resulting in the dissolution of the soil cementation and the volumetric collapse of the soil. In most cases, the soils are cemented with weak clay (argillic) sediments or soluble precipitates. This phenomenon generally occurs in granular sediments situated within arid environments. Collapsible soils will settle without any additional applied pressure when sufficient water becomes available to the soil. Water weakens or destroys bonding material between particles that can severely reduce the bearing capacity of the original soil. As the Project proposes the installation of a ground-mounted solar array configuration, impacts associated with off-site landslide, lateral spreading, subsidence, liquefaction or collapse is negligible.

Because of the distance from active faults and the nature of the Project, the potential for settlement or collapse at the Project Site is considered unlikely. As such, there is a less than significant impact in this area.

[2] The processes by which loose sediment is hardened to rock are collectively called lithification.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☒	☐

Less Than Significant Impact.

Expansive soils are types of soil that shrink or swell as the moisture content decreases or increases. Structures built on these soils may experience shifting, cracking, and breaking damage as soils shrink and subside or expand. Expansive soils can be determined by a soil's linear extensibility. There is a direct relationship between linear extensibility of a soil and the potential for expansive behavior, with expansive soil generally having a high linear extensibility. Thus, granular soils typically have a low potential to be expansive, whereas clay-rich soils can have a low to high potential to be expansive. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent, moderate if 3 to 6 percent, high if 6 to 9 percent, and very high if greater than 9 percent. If the linear extensibility is greater than 3 percent, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. As previously shown in Table 4.7-1, the majority of Project Site soils exhibit a linear extensibility value of 7.7 percent. Soils with linear extensibility at this range correlate to having a high expansion potential, respectively.

However, due to the nature of the Proposed Project being the installation of a ground-mounted solar array, with no potential for human occupancy, the Project would have a less than significant impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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 waste water?	☐	☐	☐	☒

No Impact.

Due to the nature of the Project being the installation of a ground-mounted solar array, the Proposed Project does not require any wastewater sewer system and would not require the construction of septic tanks or alternative wastewater disposal systems. Thus, there is no impact associated with Project Site soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

Less Than Significant Impact With Mitigation Incorporated.

A search of the UCMP failed to indicate the presence of paleontological resources in the Project Area. Although paleontological resources sites were not identified in the Project Area, there is the possibility that unanticipated paleontological resources will be encountered during ground-disturbing Project-related activities. As such, mitigation measure GEO-1 is included to reduce impacts to unknown paleontological resources to a less than significant level.

4.7.3 Mitigation Measures

GEO-1 If paleontological or other geologically sensitive resources are identified during any phase of project development, the construction manager shall cease operation at the site of the discovery and immediately notify the DGS. DGS shall retain a qualified paleontologist to provide an evaluation of the find and to prescribe mitigation measures to reduce impacts to a less-than-significant level. In considering any suggested mitigation proposed by the consulting paleontologist, DGS shall determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, land use assumptions, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on other parts of the Project Site while mitigation for paleontological resources is carried out.

Timing/Implementation: *During construction*

Implementation/Responsibility/Verification: *Developer and Department of General Services*

4.8 Greenhouse Gas Emissions

4.8.1 Environmental Setting

Greenhouse Gas (GHG) emissions are released as byproducts of fossil fuel combustion, waste disposal, energy use, land use changes, and other human activities. This release of gases, such as CO_2, methane (CH_4), nitrous oxide (N_2O), and chlorofluorocarbons, creates a blanket around the earth that allows light to pass through but traps heat at the surface, preventing its escape into space. While this is a naturally occurring process known as the greenhouse effect, human activities have accelerated the generation of GHGs beyond natural levels. The overabundance of GHGs in the atmosphere has led to an unexpected warming of the earth and has the potential to severely impact the earth's climate system.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH_4 traps more than 25 times more heat per molecule than CO_2, and

N_2O absorbs 298 times more heat per molecule than CO_2. Often, estimates of GHG emissions are presented in Carbon Dioxide Equivalents (CO_2e). Expressing GHG emissions in carbon dioxide equivalents takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

The CEQA Guidelines Appendix G thresholds for GHG's do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA. With respect to GHG emissions, the CEQA Guidelines Section 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The CEQA Guidelines note that an agency has the discretion to either quantify a project's GHG emissions or rely on a "qualitative analysis or other performance-based standards." (14 CCR 15064.4(b)). A lead agency may use a "model or methodology" to estimate GHG emissions and has the discretion to select the model or methodology it considers "most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change." (14 CCR 15064.4(c)). Section 15064.4(b) provides that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment:

1. The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

In addition, Section 15064.7(c) of the CEQA Guidelines specifies that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7(c)). The CEQA Guidelines also clarify that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis (see CEQA Guidelines Section 15130(f)). As a note, the CEQA Guidelines were amended in response to Senate Bill 97. In particular, the CEQA Guidelines were amended to specify that compliance with a GHG emissions reduction plan renders a cumulative impact insignificant.

Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public

review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plans [and] plans or regulations for the reduction of greenhouse gas emissions." Put another way, CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of less than significant for GHG emissions if a project complies with adopted programs, plans, policies and/or other regulatory strategies to reduce GHG emissions.

To provide guidance to local lead agencies on determining significance for GHG emissions in CEQA documents, the SJVAPCD provides a tiered approach in assessing significance of project specific GHG emission increases as shown below.

- Projects complying with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located would be determined to have a less-than-significant individual and cumulative impact for GHG emissions. Such plans or programs must be specified in law or approved by the lead agency with jurisdiction over the affected resource and supported by a CEQA-compliant environmental review document adopted by the lead agency. Projects complying with an approved GHG emission reduction plan or GHG mitigation program would not be required to implement Best Performance Standards (BPS).
- Projects implementing BPS would not require quantification of project-specific GHG emissions. Consistent with CEQA Guidelines, such projects would be determined to have a less-than-significant individual and cumulative impact for GHG emissions.
- Projects not implementing BPS would require quantification of project-specific GHG emissions and demonstration that project-specific GHG emissions would be reduced or mitigated by at least 29 percent, and compared to Business-as-Usual (BAU), including GHG emission reductions achieved since the 2002-2004 baseline period, consistent with GHG emission reduction targets established in the 2017 Scoping Plan. Projects achieving at least a 29 percent GHG emission reduction compared to BAU would be determined to have a less-than-significant individual and cumulative impact for GHGs.

The BPS and the BAU portion of the SJVAPCD tiered approach are problematic based on the 2015 California Supreme Court *Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal. 4th 2014, 213, 221, 227 (Newhall Ranch) decision, which stated that a GHG-related impact determination based on the BAU approach is "not supported by a reasoned explanation based on substantial evidence." Additionally, the SJVAPCD thresholds were adopted to achieve statewide GHG-reduction goals for the year 2020, and the Proposed Project would not be built until after the year 2020. Therefore, for the purposes of this analysis, Project GHG emissions are quantified and compared to the thresholds issued by the California Air Pollution Control Officers Association (CAPCOA), which is an association of the air pollution control officers from all 35 local air quality agencies throughout California, including the SJVAPCD. CAPCOA recommends a significance threshold of 900 metric tons annually. This threshold is based on a capture rate of 90 percent of land use development projects, which in turn translates into a 90

percent capture rate of all GHG emissions. The 900 metric ton threshold is considered by CAPCOA to be low enough to capture a substantial fraction of future projects that will be constructed to accommodate future statewide population and economic growth, while setting the emission threshold high enough to exclude small projects that will in aggregate contribute a relatively small fraction of the cumulative statewide GHG emissions.

In the Newhall Ranch decision, following its review of various potential GHG thresholds proposed in an academic study [Crockett, *Addressing the Significance of Greenhouse Gas Emissions: California's Search for Regulatory Certainty in an Uncertain World* (July 2011), 4 Golden Gate U. Envtl. L. J. 203], the California Supreme Court identified the use of numeric bright-line thresholds as a potential pathway for compliance with CEQA GHG requirements. The study found numeric bright line thresholds designed to determine when small projects were so small as to not cause a cumulatively considerable impact on global climate change was consistent with CEQA. Specifically, Public Resources Code section 21003(f) provides it is a policy of the state that "[a]ll persons and public agencies involved in the environmental review process be responsible for carrying out the process in the most efficient, expeditious manner in order to conserve the available financial, governmental, physical and social resources with the objective that those resources may be better applied toward the mitigation of actual significant effects on the environment." The Supreme Court-reviewed study noted, "[s]ubjecting the smallest projects to the full panoply of CEQA requirements, even though the public benefit would be minimal, would not be consistent with implementing the statute in the most efficient, expeditious manner. Nor would it be consistent with applying lead agencies' scarce resources toward mitigating actual significant climate change impacts." (Crockett, *Addressing the Significance of Greenhouse Gas Emissions: California's Search for Regulatory Certainty in an Uncertain World* (July 2011), 4 Golden Gate U. Envtl. L. J. 203, 221, 227.)

4.8.2 Greenhouse Gas Emissions (VIII) Environmental Checklist and Discussion

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?	☐	☐	☒	☐

Less Than Significant Impact.

A potent source of GHG emissions associated with the Proposed Project would be combustion of fossil fuels during construction activities. Construction-related activities that would generate GHG emissions include worker commute trips, haul trucks carrying supplies and materials to and from the Project Site, and off-road construction equipment (e.g., dozers, loaders, excavators). Table 4.8-1 illustrates the specific construction generated GHG emissions that would result from construction of the Project. Once construction is complete, the generation of these GHG emissions would cease.

Table 4.8-1. Construction-Related Greenhouse Gas Emissions	
Emission Source	**CO_2e (Metric Tons/Year)**
Construction Calendar Year One	63
Construction Calendar Year Two	154
Potentially Significant Impact Threshold	*900*
Exceed Significant Impact Threshold?	**No**

Source: California Emissions Estimator Model (CalEEMod) Version 2022.1. Refer to Appendix A for Model Data Outputs.

As shown in Table 4.8-1, Project construction would result in the generation of approximately 63 metric tons of CO_2e over the course of the first calendar year of construction and 154 metric tons of CO_2e over the course of the second calendar year, which is below the significance threshold of 900 metric tons of CO_2e. Once construction is complete, the generation of these GHG emissions would cease.

Operational GHG emissions impacts are long-term GHG emissions impacts that are associated with any changes in the permanent use of the Project Site by onsite stationary and offsite mobile sources that substantially increase emissions. The Project proposes the installation of a solar PV power system. Once upgrades are complete, the Project would not be a greater source of operational emissions beyond current conditions. Therefore, Proposed Project operations would not contribute to on- or offsite emissions.

Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) 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 any adopted plans, policies, or regulations adopted for the purpose of reducing GHG emissions. As discussed previously, the Proposed Project-generated GHG emissions would not surpass the CAPCOA GHG significance threshold, which was developed in consideration of statewide GHG reduction goals. Additionally, the Project would not include new permanent sources of GHG emissions and would not generate new or unplanned permanent GHG emissions. Once construction is complete, the Project would be a producer of renewable energy, which generates substantially less GHG emissions compared with the more common types of fossil-fueled energy generation facilities.

GHG emissions generated by energy sources account for all stages of the life cycle (i.e., mining, construction), which are referred to as the cumulative GHG emissions and are usually expressed in grams

of CO_2e per unit of busbar electricity (i.e., gCO_2e/kWh_e). When comparing various fossil-fueled energy generators, the GHG emissions generated are dependent on the type of fuel (i.e., gas, oil, coal). GHG emissions generated by some of the more common types of fossil-fueled plants and solar-power plants are summarized in Table 4.8-2.

Table 4.8-2. Life-Cycle Greenhouse Gas Emissions for Various Types of Energy Generators

Fossil Fueled ($gCO_2e/kWhe$)	
Coal	950 to 1,250
Oil	500 to 1,200
Gas	440 to 780
Solar	43 to 73[3]

Notes:
[1]$gCO_2e/kWhe$ = grams of CO_2e per unit of busbar electricity.
[2]Emissions are based on lifecycle of energy source including mining, construction, operation, etc.
[3]Solar PV life-cycle emissions result from using fossil-fuel-based energy to produce the materials for solar cells, modules, and systems, as well as directly from smelting, production, and manufacturing facilities.
CO2e = Carbon Dioxide Equivalents; PV = Photovoltaic
Source: Weisser 2007

As shown in Table 4.8-2, solar plants generate far less GHG life-cycle emissions (approximately 83 to 94 percent less) than fossil-fueled energy plants. Therefore, the Proposed Project would contribute to the continued reduction of GHG emissions in the interconnected California and western U.S. electricity systems, as the energy produced by the Project would displace GHG emissions that would otherwise be produced by existing business-as-usual power generation resources (including natural gas, coal, arid renewable combustion resources).

For these reasons, the Project would not conflict with any applicable plan, policy or regulation related to the reduction in GHG emissions. There is no impact.

4.8.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.9 Hazards and Hazardous Materials

4.9.1 Environmental Setting

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency, or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined by the California Health and Safety Code, Section 25501 as follows:

> "Hazardous material" means any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the

> environment. "Hazardous materials" include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

A hazardous material is defined in 22 CCR Section 662601.10 as follows:

> A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed.

Transporters of hazardous waste in California are subject to several federal and state regulations. They must register with the California Department of Health Services (DHS) and ensure that vehicle and waste container operators have been trained in the proper handling of hazardous waste. Vehicles used for the transportation of hazardous waste must pass an annual inspection by the California Highway Patrol (CHP). Transporters must allow the CHP or DHS to inspect its vehicles and must make certain required inspection records available to both agencies. The transport of hazardous materials that are not wastes is regulated by the U.S. Department of Transportation through national safety standards.

Other risks resulting from hazardous materials include the use of these materials in local industry, businesses, and agricultural production. The owner or operator of any business or entity that handles a hazardous material above threshold quantities is required by state and federal laws to submit a business plan to the local Certified Unified Program Agency (CUPA). The Fresno County HazMat Compliance Program is designated by the State Secretary for Environmental Protection as the CUPA for Fresno County in order to focus the management of specific environmental programs at the local government level. The CUPA program is designed to consolidate, coordinate, and uniformly and consistently administer permits and conduct inspection and enforcement activities throughout Fresno County. This approach strives to reduce overlapping and sometimes conflicting requirements of different governmental agencies independently managing these programs. The County will refer large cases of hazardous materials contamination or violations to the Central Valley Regional water Quality Control Board (RWQCB) (Region 5) and the California Department of Toxic Substances Control (DTSC). It is not uncommon for other agencies, such as federal and state Occupational Safety and Health Administrations, to become involved when issues of hazardous materials arise.

Under Government Code Section 65962.5, both the DTSC and the State water Resources Control Board (SWRCB) are required to maintain lists of sites known to have hazardous substances present in the environment. Both agencies maintain up-to-date lists on their websites. The Project Site is not listed by the DTSC as a hazardous substances site on the list of hazardous waste sites compiled pursuant to Government Code Section 65962.5 (Cortese List).

4.9.2 Hazards and Hazardous Materials (IX) Environmental Checklist and Discussion

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?	☐	☐	☒	☐

Less Than Significant Impact.

Construction may include the use of hazardous materials given that construction activities involve the use of heavy equipment, which uses small and incidental amounts of oils and fuels and other potentially flammable substances. The level of risk associated with the accidental release of hazardous substances is not considered significant due to the small volume and low concentration of hazardous materials used during construction. The construction contractor would be required to use standard construction controls and safety procedures that would avoid and minimize the potential for accidental release of such substances into the environment. Standard construction practices would be observed such that any materials released are appropriately contained and remediated as required by local, state, and federal law.

Therefore, potential construction-related impacts for creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials from the Proposed Project would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☒	☐

Less Than Significant Impact.

As discussed in Issue a), the Project would not result in the routine transport, use, disposal, handling, or emission of any hazardous materials that would create a significant hazard to the public or the environment. Potential construction-related hazards could be created during the course of Project construction at the Site, given that construction activities involve the use of heavy equipment, which uses small and incidental amounts of oils and fuels and other potentially flammable substances. The level of risk associated with the accidental release of hazardous substances is not considered significant due to the small volume and low concentration of hazardous materials used during construction. The construction contractor would be required to use standard construction controls and safety procedures that would avoid and minimize the potential for accidental release of such substances into the

environment. Standard construction practices would be observed such that any materials released are appropriately contained and remediated as required by local, state, and federal law.

To note, the CDFW facility has existing onsite chemical and petroleum storage locations. However, as the Proposed Project consists of the installation of solar arrays that do not contain battery storage facilities that would have the potential to create a fire risk that could otherwise ignite any of these existing hazardous materials known to the state of California, the Project in and of itself would not create a significant hazard to the public or environment. All hazardous materials on the Project Site would be handled in accordance with State regulations. Long-term impacts associated with handling, storing, and disposing of hazardous materials from Project operation would be less than significant because any hazardous materials used for operations would be in small quantities.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐

Less Than Significant Impact.

The Project Site is located approximately 4.71 miles southeast of the Mendota High School, which is located at 1282 Belmont Avenue within the City of Mendota. The school would not be within 0.25 miles of the Project Site. The construction and operation of the Proposed Project would not include uses that would emit hazardous emissions or include activities that use acutely hazardous materials. Any hazardous materials used on Site would be typical of construction land uses and would not create hazardous emissions that could adversely affect nearby schools. Once the solar arrays expire, they will be disposed of in a manner consistent with local regulations regarding the disposal of hazardous material. The impact would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☐	☒

No Impact.

Under Government Code Section 65962.5, both the DTSC and the SWRCB are required to maintain lists of sites known to have hazardous substances present in the environment. Both agencies maintain up-to-date lists on their websites. A search of the DTSC and SWRCB lists identified that the Proposed Project Site is

not located on or adjacent to a hazardous materials site. Given that there are no existing hazardous waste sites within or directly adjacent to the Project Site, the Project will have no impact in this area.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	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 for people residing or working in the project area?	☐	☐	☐	☒

No Impact.

The Project Site is located approximately 5.1 miles southeast of the William Robert Johnston Municipal Airport. Because the Project Site is not located within 2 miles of an airport, there would be no safety hazard to people working in the Project Area due to proximity to planes overhead and in the immediate vicinity. Therefore, no impact would occur.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

No Impact.

Standard evacuation routes have not been designated in the City of Mendota. However, the Fresno County Office of Emergency Services has an online link to the Fresno County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) which identifies resources, information, and strategies for reducing risk from natural hazards. Elements and strategies in the plan were selected because they meet a program requirement and because they best meet the needs of the planning partners and their citizens. The plan was originally developed in 2007-2008 and Federal Emergency Management Agency- (FEMA) approved in 2009. The plan was comprehensively updated in 2017-2018. The County followed a planning process in alignment with FEMA guidance during its original development and update, which began with the formation of a hazard mitigation planning committee comprised of key county, city, and district representatives and other stakeholders. The committee conducted a risk assessment that identified and profiled hazards that pose a risk to the County, assessed the County's vulnerability to these hazards, and examined the capabilities in place to mitigate them. The County is vulnerable to several hazards that are identified, profiled, and analyzed in this plan. Floods, wildfires, severe weather, drought, and agricultural hazards are among the hazards that can have a significant impact on the County.

Based on the risk assessment, the committee identified goals and objectives for reducing the County's vulnerability to hazards. One hundred eighty-four (184) people filled out the survey online and in hardcopy. Results showed that the public perceives the most significant hazards to be drought, tree mortality and wildfire. Wildfire fuels treatment projects, evacuation route development and hazardous tree removal were cited as the most popular mitigation actions.

Goal 1 of the Fresno County MJHMP Emergency Response Plan aims to foster an efficient and coordinated response to emergencies and natural disasters. Maintaining an emergency evacuation plan in consultation with the Police and Fire Departments and other emergency service providers, which shows potential evacuation routes and a list of emergency shelters to be used in case of catastrophic emergencies, is the focus of Policy NS-6-d. The evacuation plan will be flexible in order to consider many scenarios and multiple modes of transportation beyond private automobiles. It will provide special provisions for disadvantaged populations, such as those with physical disabilities or those with low or very low incomes, and for areas with fewer resources through neighborhood emergency preparedness programs.

The hazard summaries in Table H.5 reflect the hazards that could potentially affect the City. Those of Medium and High significance for the City of Mendota are identified below. The discussion of vulnerability-related information for each of the following hazards is located in Section H.3.2 *Estimating Potential Losses*. Based on this analysis the priority hazards (High Significance) for mitigation include drought and flood/levee failure. Additional hazards for Mendota include agricultural hazards, dam failure, drought, earthquake, flood/levee failure, hazardous materials incidents, human health hazards: epidemic/pandemic, severe weather: extreme heat; windstorm, soil hazards: expansive soils. Hazards involving flood risks are addressed in Section 4.8 below.

According to the CDFW facility staff, the closest responders to the Project Site is the CalFire station, located in the City of Mendota north of the Site. The City of Mendota does not currently have specific evacuation routes, nor does that County of Fresno. However, all construction activities of the Proposed Project would not impede the use of surrounding roadways in an emergency evacuation. The Project would be limited to periodic maintenance and inspection activities a few times per year and would not generate a substantial number of people or vehicle trips within the area that could otherwise impede emergency response or evacuation efforts within the Project Area. Based on required compliance with the most recent California Fire Code (CFC) and County Public Works requirements, the Project would not substantially impair an adopted emergency response plan or emergency evacuation plan. Implementation of the Proposed Project would result in no impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

Less Than Significant Impact.

The risk of wildfire is related to a variety of parameters, including fuel loading (vegetation), fire weather (winds, temperatures, humidity levels and fuel moisture contents), and topography (degree of slope). Steep slopes contribute to fire hazard by intensifying the effects of wind and making fire suppression difficult. Fuels such as grass are highly flammable because they have a high surface area-to-mass ratio and require less heat to reach the ignition point; while fuels such as trees have a lower surface area-to-mass ratio and require more heat to reach the ignition point.

Fire Hazard Severity Zone (FHSZ) mapping is performed by the California Department of Forestry and Fire Protection (CAL FIRE) and is based on factors such as fuels, terrain, and weather. According to the CAL FIRE, FHSZ mapping, the Project Site is located in an area with no risk of wildfire (CAL FIRE 2023). In addition, the Proposed Project would not result in development that would increase population or residential development in the area. Therefore, the proposed project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fire and would result in a less than significant impact with respect to exposure to risks associated with wildland fires.

4.9.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.10 Hydrology and Water Quality

4.10.1 Environmental Setting

4.10.1.1 Regional Hydrology

Surface/Ground Water

According to the Watershed Boundary Dataset (2023), a seamless and national hydraulic unit dataset, the Project Site is located within the Upper Dry Watershed and is part of the Delta Mendota Subbasin, which in turn is a within the greater San Joaquin Valley-Delta Mendota Groundwater Basin (California Department of Water Resources [DWR] 2023). The Delta-Mendota Subbasin is in the San Joaquin Valley Groundwater Basin, located along the western edge of the San Joaquin Valley, and includes portions of San Joaquin, Stanislaus, Merced, Fresno, and Madera Counties. The northern boundary begins just south of Tracy in San Joaquin County. The eastern boundary generally follows the San Joaquin River and Fresno Slough. The southern boundary is near the small town of San Joaquin. The subbasin is bounded on the west by the Coast Range (DWR 2007).

The Central Valley RWQCB monitors surface water quality through implementation of the Basin Plan and designates beneficial uses for surface water bodies and groundwater within Fresno County. The California Basin Plan Beneficial Use Viewer (RWQCB 2023) does not list any surface water bodies with beneficial uses within the Project Site but does state that all groundwater in Region 5 is considered as suitable or potentially suitable for municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply (RWQCB 2019).

4.10.1.2 Site Hydrology and On-Site Drainage

Surface Water

The 0.75-acre Project Site is relatively flat with elevations ranging between approximately 155 to 157 feet AMSL throughout the Site. According to the Site BRA (Appendix B), no aquatic resources were found on the Site. The Site consists of ruderal grasslands and is consistent with the MWA facility, with elevations slightly above grade of the wetlands located 670 feet to the east, beyond a drainage canal that is part of the irrigation district system of drainage canals throughout the MWA. According to the FEMA National Flood Hazard (06019C2025H), a 100-year floodplain surrounds the majority of the MWA, however its boundary lies outside, and approximately 2,560 feet directly east of the Project Site.

Groundwater

As described in Section 4.18 below, the CDFW MWA uses a significant amount of electricity to run the 16 pumps (15-100 HP) for delivering water to the wetlands of the WA. Approximately 27,000-acre feet of water, of which 3000 acres is gravity flow. 6000 Acre-Feet (AF) of tailwater is pumped off the MWA. The volume of water is for maintaining the WA wetlands, for irrigating upland wildlife habitat, and soil management.

According to the MWA *Refuge Water Management Plan*, there are no production, monitoring, or domestic wells in use, with the exception of four or five monitoring wells on the west side of the Mendota Pool that Westlands Water District tests. Three wells were abandoned within the MWA in the 1950's due to high boron concentrations. Another three wells were acquired with the Traction Ranch property and were capped in 1992 due to boron concentrations of 2.0 mg/L, EC of 7,800µmhos/cm and eroded casings. Wells were non-functional and abandoned by former property owner. Two test wells were drilled in April 1992, one located at parking lot #16, drilled to 580 feet, tested boron at 5.0 mg/L and an EC of 9,640 µmhos/cm. The second test well located at parking lot #22, Traction Ranch, drilled 570 feet, tested boron at 2.2 mg/L and EC of 5,601 µmhos/cm. These wells did not go below the Corcoran clay (600 ft). Additional concerns of salinity, manganese, and selenium detected in wells within the Kings Subbasin as well as aquifer depletion and soil subsidence will need to be addressed before groundwater use can be considered (CDFG 1994).

As described in Section 4.18 below, the CDFW MWA uses a significant amount of electricity to run the 16 pumps (15-100 HP) for delivering water to the wetlands within the MWA. Approximately 27,000-acre feet of water, of which 3000 acres is gravity flow. 6000 AF of tailwater is pumped off the MWA. The volume of water is for maintaining the MWA wetlands, for irrigating upland wildlife habitat, and soil management.

4.10.2 Hydrology and Water Quality (X) Environmental Checklist and Discussion

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 groundwater quality?	☐	☐	☒	☐

Less Than Significant Impact.

Without implementation of appropriate control measures, grading involved in preparing the Project Site for construction would decrease vegetative cover and potentially increase the rate and quantity of stormwater runoff. This would result in accelerated soil erosion and sediment delivery to the on-site waterway and off-site areas. This could increase the quantity of suspended solids in local waterways and contribute to elevated turbidity in portions of the Upper Dry Watershed below the Project Site.

Conformance with standard RWQCB Best Management Practices (BMPs), and Fresno County's General Plan Policies such as Policy OS-D.3 which requires development projects adjacent to wetlands to be designed in such a manner that pollutants and siltation do not significantly degrade the area, value, or function of wetlands. Under this Policy, projects are required to implement the use of BMPs to aid in this effort. Through the required NPDES Permit, projects are evaluated for potential soil erosion impacts on a site-by-site basis. As impacts are dependent on the type of development, intensity of development, and amount of lot coverage of a particular project, impacts due to soil erosion can vary. However, compliance with adopted erosion control standards and NPDES and SWPPP requirements, as well as implementation of the proposed General Plan policies listed above (of which the facility is not subject to, but will often comply if appropriate), would ensure that the Proposed Project soil erosion-related impacts are less than significant (Fresno County 2000).

Additionally, prior to initiation of construction activities, the applicant would be required to demonstrate coverage for Project activities under the SWRCB's NPDES General Permit for Storm Water Discharges Associated with Construction Activities. To obtain coverage under the permit, the Project applicant would submit a Notice of Intent with the required permit fee and prepare a SWPPP for review by the Central Valley Regional Water Quality Control Board. The SWPPP would include the following four major elements:

1. Identify pollutant sources, including sources of sediment, which may affect the quality of stormwater discharges from the construction site.
2. Identify non-stormwater discharges.
3. Identify, construct, implement in accordance with a time schedule, and maintain BMPs to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the construction site during construction.

4. Identify, construct, implement in accordance with a time schedule, and assign maintenance responsibilities for post-construction BMPs to be installed during construction that are intended to reduce or eliminate pollutants after construction is completed.

In addition, dischargers are also required to inspect construction sites before and after storms to identify stormwater discharge from construction activity, and to identify and implement controls where necessary.

Typical BMPs that would be appropriate to implement at the Project Site may include: scheduling or limiting activities to certain times of the year; implementing dust control procedures throughout the site; stabilizing cut and fill slopes as soon as possible; controlling erosion through a variety of means such as mulch and compost blankets, riprap, and installation of sediment retention structures (such as a sediment retention basin); and sediment control through the use of measures such as storm drain inlet protection, vegetated buffers, fiber rolls and berms, sediment fencing, and straw or hay bales.

Other temporary BMPs would ensure *good housekeeping* at the Project Site during construction. These would include cleaning construction equipment and preventing the leakage of fluids, storing materials away from surface water, protecting sensitive areas with sediment barriers or other containment methods, controlling laying of concrete and washing of related equipment, and collecting debris and gravel associated with paving operations. Adequate temporary storm drainage controls would be provided, including on-site drainage containment, the placement of silt fences around construction areas, and constructing temporary sediment basins, as necessary.

Compliance with the provisions contained in the SWPPP approved by the RWQCB would reduce potential impacts to water quality due to construction activities to less than significant by ensuring that all appropriate and necessary BMPs are implemented to avoid or minimize the discharge of pollutants and sediment to surface water.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐

Less Than Significant Impact.

The Proposed Project would not increase the demand for groundwater in the County. The Project proposes to install a new solar array system to increase the use of renewable energy at the CDFW facility. County General Plan Policy OS-E.11 *Water Withdrawal Protection* aims to protect significant aquatic habitats against excessive water withdrawals that could endanger special-status fish and wildlife or would interrupt migratory patterns.

Additionally, the Proposed Project would have the potential to remove a portion of the less than 0.75-acre Site's potential groundwater recharge area due to the development of this area with impervious surfaces.

However, this area would be limited to the footings for the individual panels and would represent a small portion of the overall site. All rainfall on this small amount of impervious surface would be directed towards the drainage canal and MWA approximately 560 feet east of the Project Site. Therefore, the Project would have a less than significant impact on groundwater recharge.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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 that would:				
i) result in substantial erosion or siltation onsite or offsite;	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite;	☐	☐	☒	☐
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?	☐	☐	☒	☐

i) Less Than Significant Impact.

Construction activities within the Project Site would result in soil disturbances. Although For those activities that disturb 1 acre or more of land, an NPDES Construction General Permit would be required prior to the start of construction. To comply with the requirements of the NPDES Construction General Permit, these projects will be required to file a Notice of Intent with the State of California and submit a SWPPP defining BMPs for construction and post-construction-related control of the Proposed Project Site runoff and sediment transport. Requirements for the SWPPP include incorporation of both erosion and sediment control BMPs as discussed previously. Preparation of and compliance with a required SWPPP will reduce potential runoff, erosion, and siltation associated with construction and operation.

As such, the effects of the Proposed Project on on-site and off-site erosion and siltation would be less than significant.

ii-iii) Less Than Significant Impact.

Implementation of the Proposed Project may result in an increase of the rate or amount of surface runoff as the Site is developed. As discussed above, this area of impervious surface is insignificant in size and all

surface runoff would be directed to the drainage canal at the southern boundary of the Project Site. As such, the Project would have a less than significant impact in this area.

iv) Less Than Significant Impact.

FEMA flood hazard map 06019C2025H indicates that the FEMA-designated 100-year floodplain occurs approximately 2,560 feet directly east of the Project Site. The FEMA-designated floodplains were mapped based on regional topography and drainage data and do not reflect site-specific conditions. However, as the Project consists of a solar array system, with no occupied buildings proposed, there would be no redirection or impediment of flood flows onsite. As such, the Project would have a less than significant impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?	☐	☐	☐	☒

No Impact.

The Proposed Project is located inland, and the topography is relatively flat. The Project is not located in an area that is subject to seiche, tsunami, or mudflow. No impacts would occur. No mitigation necessary.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Less Than Significant Impact.

The Project Site is located within the Water Quality Control Plan (Basin Plan) for the Central Valley Region – San Joaquin River Basin (DWR 2023). However, as stated under Item C) above, the Project is obliged to comply with water quality protection requirements of the NPDES Construction General Permit BMPs for construction and post-construction-related control of the Proposed Project Site runoff and sediment transport. Compliance with these requirements would eliminate the potential for conflicts with the water quality control plan. As such, the Project would have a less than significant impact in this area.

4.10.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.11 Land Use and Planning

4.11.1 Environmental Setting

The 10.75-acre Site is within the area of the County zoned Resource Conservation (RC) and designated Open Space in the Fresno County General Plan Review (Figure LU-1a; Fresno County 2023). The General Plan Agriculture and Land Use Element provides the primary guidance on issues related to land use and land use intensity. The element provides designations for land in the County and outlines goals and policies concerning development and use of land. In concert with the General Plan, the Fresno County Code establishes zoning districts in the County and specifies allowable uses and development standards for each district. Under State law, each jurisdiction's zoning ordinance must be consistent with its general plan.

4.11.2 Land Use and Planning (XI) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☒	☐

Less Than Significant Impact.

The existing and proposed land uses surrounding the Project Site are generally Exclusive Agricultural under 20 acres (AE-20) to the west, northwest, and southwest of the Project Site, beyond Santa Fe County Road. The CDFW MWA is located northeast, east, and southeast of the Site, of which the Site is also located within. This area is zoned RC, as discussed previously.

The Project Site is currently mostly vacant, aside from several CDFW facility buildings that the approximately 520-foot electrical conduit trench alignment will be meandering through to tie into the step-down transformer and switch gear that are proposed for installation and upgrading. There are no established communities on Site that the Proposed Project would disrupt or divide. Although there is a residential community 5.0 miles north of the Site, beyond agricultural land, the construction of a solar array on the largely vacant Project Site would not disrupt or divide the existing neighborhoods. Because the land uses proposed by the Project would be a solar array system supplying clean renewable energy to the CDFW facility and consistent with current uses surrounding the Project Site, this impact would be less than significant.

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

No Impact.

As explained above, the Project is consistent with the County of Fresno General Plan land use designations. State project are not subject to local policies or ordinances, but when feasible, the Project would rely on the General Plan policies and actions, especially those adopted to assist in the protection of the environment. As analyzed in each section of this IS/MND, the Project would not conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. No impact would occur.

4.11.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.12 Mineral Resources

4.12.1 Environmental Setting

The State-mandated Surface Mining and Reclamation Act of 1975 requires the identification and classification of mineral resources in areas within the State subject to urban development or other irreversible land uses that could otherwise prevent the extraction of mineral resources. These designations categorize land as Mineral Resource Zones (MRZ) MRZ-1 through MRZ-4.

Fresno County has been a leading producer of minerals because of the abundance and wide variety of mineral resources that are present in the county. Extracted resources include aggregate products (sand and gravel), fossil fuels (oil and coal), metals (i.e., chromite, copper, gold, mercury, and tungsten), and other minerals used in construction or industrial applications (asbestos, high-grade clay, diatomite, granite, gypsum, and limestone). Aggregate and petroleum are the county's most significant extractive resources and play an important role in maintaining the county's overall economy (Fresno County 2023). However, according to the Department of Mines and Reclamation (2023), as well as the CGS (2023), the Project Site is not located within a Surface Mining and Reclamation Act study area. The closest mining location is a sand and gravel resource mine and is located approximately 8.0 miles north of the Site. There is currently no mining activity occurring within the Project vicinity. Furthermore, the Fresno County General Plan does not identify any mineral resource zones within the MWA (Fresno County 2000).

4.12.2 Mineral Resources (XII) Environmental Checklist and Discussion

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?	☐	☐	☐	☒

No Impact.

As discussed above, the County's existing General Plan does not identify any mineral resources in the Project vicinity, including on the Project Site. Therefore, no impacts would occur to mineral resources.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☐	☒

No Impact.

The Project Site is not identified as a mineral resource recovery site in the Fresno County General Plan. There would be no impact in this area.

4.12.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.13 Noise

4.13.1 Environmental Setting

4.13.1.1 Noise Fundamentals

Noise is generally defined as sound that is loud, disagreeable, or unexpected. The selection of a proper noise descriptor for a specific source is dependent on the spatial and temporal distribution, duration, and fluctuation of the noise. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise include the average hourly noise level (in L_{eq}) and the Average Daily Noise Levels/Community Noise Equivalent Level (in L_{dn}/CNEL). The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL are measures of community noise. Each is applicable to this analysis and defined as follows:

- **Equivalent Noise Level (L_{eq})** is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- **Day-Night Average (L_{dn})** is a 24-hour average L_{eq} with a 10-dBA "weighting" added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.

- **Community Noise Equivalent Level (CNEL)** is a 24-hour average L_{eq} with a 5-dBA weighting during the hours of 7:00 pm to 10:00 pm and a 10-dBA weighting added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the evening and nighttime, respectively.

Noise can be generated by a number of sources, including mobile sources, such as automobiles, trucks and airplanes, and stationary sources, such as construction sites, machinery, and industrial operations.

Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately 3 dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (Federal Highway Administration [FHWA] 2011). Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed (FHWA 2011).

The manner in which older structures in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows (Caltrans 2002). The exterior-to-interior reduction of newer structures is generally 30 dBA or more (Harris Miller Miller & Hanson Inc. 2006).

4.13.1.2 Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60- to 70-dBA range, and high, above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA, the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1.0 dBA cannot be perceived by humans.

- Outside of the laboratory, a 3.0-dBA change is considered a just-perceivable difference.
- A change in level of at least 5.0 dBA is required before any noticeable change in community response would be expected. An increase of 5.0 dBA is typically considered substantial.

A 10.0-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

4.13.1.3 Sensitive Noise Receptors

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, historic sites, cemeteries, and recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses.

The Project is proposed to be constructed at the Mendota Wildlife Area Headquarters, which contains seasonal housing for staff. Since the Project is proposing a solar generation system to improve this seasonal housing, the seasonal housing itself will not be evaluated as a noise-sensitive receptor. It is further acknowledged that the seasonal housing onsite serves as temporary housing for Mendota Wildlife Area Headquarters staff and does not accommodate permanent residents. The nearest permanent, off-site sensitive receptor to the Project Site is a single-family home, located approximately 12,485 feet distant.

4.13.1.4 Vibration Sources and Characteristics

Ground vibration can be measured several ways to quantify the amplitude of vibration produced, including through Peak Particle Velocity (PPV) or root mean square velocity. These velocity measurements measure maximum particle at one point or the average of the squared amplitude of the signal, respectively. Vibration impacts on people can be described as the level of annoyance and can vary depending on an individual's sensitivity. Generally, low-level vibrations may cause window rattling but do not pose any threats to the integrity of buildings or structures.

4.13.1.5 Existing Ambient Noise Environment

There are several significant noise sources in Fresno County. According to the Fresno County General Plan, examples of major noise sources existing within the County include roadway traffic, railroads, and airports. The Project Site is located in a rural, wildlife area not located in the vicinity of any of these types of land uses, though is affected by a certain amount of traffic noise on private roads. Beyond this source, the existing ambient noise environment at the Project Site is influenced by the typical sources of noise associated with rural land uses, such as overhead flying airplanes and agricultural equipment.

The American National Standards Institute (ANSI) Standard 12.9-2013/Part 3 "Quantities and Procedures for Description and Measurement of Environmental Sound – Part 3: Short-Term Measurements with an

Observer Present" provides a table of approximate background sound levels in Ldn, daytime L_{eq}, and nighttime L_{eq}, based on land use and population density. The ANSI standard estimation divides land uses into six distinct categories. Descriptions of these land use categories, along with the typical daytime and nighttime levels, are provided in Table 4.13-1. At times, one could reasonably expect the occurrence of periods that are both louder and quieter than the levels listed in the table. ANSI notes, "95% prediction interval [confidence interval] is on the order of +/- 10 dB." The majority of the Project Area would be considered ambient noise Category 6.

Table 4.13-1. ANSI Standard 12.9-2013/Part 3 A-weighted Sound Levels Corresponding to Land Use and Population Density

Category	Land Use	Description	People per Square Mile	dBA		
				Typical L_{dn}	Daytime L_{eq}	Nighttime L_{eq}
1	Noisy Commercial & Industrial Areas and Very Noisy Residential Areas	Very heavy traffic conditions, such as in busy, downtown commercial areas; at intersections for mass transportation or other vehicles, including elevated trains, heavy motor trucks, and other heavy traffic; and at street corners where many motor buses and heavy trucks accelerate.	63,840	67	66	58
2	Moderate Commercial & Industrial Areas and Noisy Residential Areas	Heavy traffic areas with conditions similar to Category 1, but with somewhat less traffic; routes of relatively heavy or fast automobile traffic, but where heavy truck traffic is not extremely dense.	20,000	62	61	54
3	Quiet Commercial, Industrial Areas and Normal Urban & Noisy Suburban Residential Areas	Light traffic conditions where no mass-transportation vehicles and relatively few automobiles and trucks pass, and where these vehicles generally travel at moderate speeds; residential areas and commercial streets, and intersections, with little traffic, compose this category.	6,384	57	55	49

Table 4.13-1. ANSI Standard 12.9-2013/Part 3 A-weighted Sound Levels Corresponding to Land Use and Population Density

Category	Land Use	Description	People per Square Mile	dBA		
				Typical L_{dn}	Daytime L_{eq}	Nighttime L_{eq}
4	Quiet Urban & Normal Suburban Residential Areas	These areas are similar to Category 3, but for this group, the background is either distant traffic or is unidentifiable; typically, the population density is one-third the density of Category 3.	2,000	52	50	44
5	Quiet Residential Areas	These areas are isolated, far from significant sources of sound, and may be situated in shielded areas, such as a small-wooded valley.	638	47	45	39
6	Very Quiet Sparse Suburban or rural Residential Areas	These areas are similar to Category 4 but are usually in sparse suburban or rural areas; and, for this group, there are few if any nearby sources of sound.	200	42	40	34

Note: ANSI = American National Standards Institute; dBA = A-weighted decibels; L_{dn} = Day-Night Average Sound Level; L_{eq} = Equivalent Noise Level
Source: The American National Standards Institute (ANSI) 2013

4.13.2 Noise (XIII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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.

As previously described, noise-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise sensitive and may warrant unique measures for protection from intruding noise. The Project is proposed to be constructed at the Mendota Wildlife Area Headquarters, which contains seasonal housing for staff. Since the Project is proposing a solar generation system to improve this seasonal housing, the seasonal housing

itself will not be evaluated as a noise-sensitive receptor. It is further acknowledged that the seasonal housing onsite serves as temporary housing for Mendota Wildlife Area Headquarters staff and does not accommodate permanent residents. The nearest permanent, offsite sensitive receptor to the Project Site is a single-family home, located approximately 12,485 feet distant.

4.13.2.1 Onsite Construction Noise Impacts

Construction noise associated with the Proposed Project would be temporary and would vary depending on the specific nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for onsite construction activities as well as construction vehicle traffic on area roadways. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., site preparation, excavation, paving). Noise generated by construction equipment, including earth movers, pile drivers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect sensitive land uses in the vicinity of the construction site.

The County does not promulgate a numeric threshold pertaining to the noise associated with construction. This is because construction noise is temporary, short term, intermittent in nature, and would cease on completion of the Project. Fresno County Municipal Code Section 8.40.060 states that noise associated with construction is exempt from noise standards Monday through Friday 6:00 a.m. to 9:00 p.m. and, Saturday and Sunday 7:00 a.m. to 5:00 p.m. The Project would be required to comply with this Municipal Code requirement.

To estimate the worst-case onsite construction noise levels that may occur at the nearest noise-sensitive receptors and in order to evaluate the potential health-related effects (physical damage to the ear) from construction noise, the construction equipment noise levels were calculated using the Federal Highway Administration's Roadway Noise Construction Model and compared against the construction-related noise level threshold established in the Criteria for a Recommended Standard: Occupational Noise Exposure prepared in 1998 by the National Institute for Occupational Safety and Health (NIOSH). A division of the U.S. Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The NIOSH construction-related noise level threshold starts at 85 dBA for more than 8 hours per day; for every 3-dBA increase, the exposure time is cut in half. This reduction results in noise level thresholds of 88 dBA for more than 4 hours per day, 92 dBA for more than 1 hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. For the purposes of this analysis, the lowest, more conservative threshold of 85 dBA L_{eq} is used as an acceptable threshold for construction noise at the nearby sensitive receptors.

The nearest sensitive receptor to the Project Site is a single-family home, located approximately 12,485 feet distant. The area surrounding the Project Site is very rural with little development and therefore there are very few noise-sensitive receptors. The anticipated short-term construction noise levels generated for the necessary equipment is presented in Table 4.13-2.

Table 4.13-2. Construction Average (dBA) Noise Levels at Nearest Residential Receptors			
Equipment	**Estimated Exterior Construction Noise Level at Existing Residences (dBA)**	**Construction Noise Standards (dBA L_{eq})**	**Exceeds Standards?**
Site Preparation	36.6	*85*	**No**
Grading	37.9	*85*	**No**
Building Construction	37.5	*85*	**No**

Notes: Construction equipment used during construction derived from the California Emissions Estimator Model (CalEEMod), version 2022.1. CalEEMod is designed to calculate air pollutant emissions from construction activity and contains default construction equipment and usage parameters for typical construction projects based on several construction surveys conducted in order to identify such parameters. The nearest sensitive receptor is approximately 12,485 feet to the west of the Project Site.
dBA = A-weighted decibels; L_{eq} = Equivalent Noise level;
L_{eq} = The equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
Source: Construction noise levels were calculated by ECORP Consulting using the FHWA Roadway Noise Construction Model (FHWA 2006). Refer to Appendix E for Model Data Outputs.

As shown in Table 4.13-2, Project onsite construction activities would not exceed the NIOSH threshold of 85 dBA L_{eq} at the nearest noise-sensitive receptors.

4.13.2.2 Offsite Construction Traffic Noise Impacts

Construction associated with the Project would result in additional traffic (e.g., worker commutes and material hauling) on adjacent roadways over the period that construction occurs. According to the CalEEMod, construction would instigate approximately 28 trips in a single day (up to 8 construction worker commute trips for site preparation, 10 construction worker commute trips for grading, and 10 construction worker commute trips for building construction trips). According to the Caltrans *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (2013), doubling of traffic on a roadway is required to result in an increase of 3 dB (outside of the laboratory, a 3-dBA change is considered a just-perceivable difference). The Project would not double the traffic on roadways. Additionally, it is noted that construction is temporary, and construction-related trips would cease upon completion of construction.

4.13.2.3 Operational Noise Impacts

The Project would result in the implementation of a solar PV power system. The main stationary operational noise associated with the Project would be from the proposed transformers, inverters, substation, and transmission lines. ECORP staff has conducted noise measurements at an existing solar energy generation facility in order to develop a sampling of potential noise levels associated with solar energy generation activities. These measurements were taken with a Larson Davis SoundExpert LxT precision sound level meter, which satisfies the ANSI for general environmental noise measurement

instrumentation. Prior to the measurements, the SoundExpert LxT sound level meter was calibrated according to manufacturer specifications with a Larson Davis CAL200 Class I Calibrator. Based on these measurements, a solar energy generation facility can be expected to generate noise levels of 47.1 dBA at the source, which is below the County of Fresno exterior *daytime* noise standard of 50 dBA contained in the County of Fresno Municipal Code Chapter 8.40 *Noise Control*.

As previously described, sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dBA for each doubling of distance from a stationary or point source (FHWA 2011), such as a solar energy generation system. Conservatively assuming no noise attenuation at 25 feet from the proposed solar energy generation system, Project noise levels would attenuate to 41.1 dBA at 50 feet from the solar energy generation system, which is below the County of Fresno exterior *nighttime* noise standard of 45 dBA contained in the County of Fresno Municipal Code Chapter 8.40 *Noise Control*. At 100 feet, noise levels would be reduced another 6 dBA to 35.1 dBA. At 200 feet, noise levels would be reduced to 29.1 dBA. Project noise would continue to attenuate and would be negligible at the closest receptor. There would be a less than significant impact.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Result in generation of excessive ground-borne vibration or ground-borne noise levels?	☐	☐	☒	☐

Less Than Significant Impact.

4.13.2.4 Construction Vibration Impacts

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to the Proposed Project would be primarily associated with short-term construction-related activities. Construction on the Project Site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. It is not anticipated that pile drivers would be necessary during Project construction. Vibration decreases rapidly with distance, and it is acknowledged that construction activities would occur throughout the Project Site and would not be concentrated at the point closest to sensitive receptors. Groundborne vibration levels associated with construction equipment are summarized in Table 4.13-3.

Table 4.13-3. Typical Construction Equipment Vibration Levels	
Equipment Type	**Peak Particle Velocity at 25 Feet (inches per second)**
Large Bulldozer	0.089
Pile Driver	0.170
Caisson Drilling	0.089
Loaded Trucks	0.076
Rock Breaker	0.089
Jackhammer	0.035
Small Bulldozer/Tractor	0.003
Vibratory Roller	0.210

Source: California Department of Transportation (Caltrans) 2020; Federal Transit Administration (FTA) 2018

Fresno County does not regulate vibrations associated with construction. However, a discussion of construction vibration is included for full disclosure purposes. For comparison purposes, the Caltrans (2020) recommended standard of 0.3 inches per second PPV with respect to the prevention of structural damage for older residential buildings is used as a threshold. This is also the level at which vibrations may begin to annoy people in buildings.

The nearest structure of concern to the construction site, with regard to groundborne vibrations, are water tanks located on MWA Headquarters, which is approximately 317 feet from the Project Site.

Based on the representative vibration levels presented for various construction equipment types in Table 4.13-3 and the construction vibration assessment methodology published by the FTA (2018), it is possible to estimate the potential project construction vibration levels. The FTA provides the following equation:

$$[PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}]$$

Table 4.13-4 presents the expected Project related vibration levels at a distance of 317 feet.

Table 4.13-4. Construction Vibration Levels at 317 Feet									
Receiver PPV Levels (in/sec)[1]							**Peak Vibration**	**Threshold**	**Exceed Threshold**
Large Dozer	**Pile Driver**	**Drilling & Rock Breaker**	**Loaded Trucks**	**Roller**	**Jack-hammer**	**Small Dozer**			
0.002	0.004	0.002	0.002	0.005	0.0008	0.00	0.005	*0.3*	**No**

Note: in/sec = inches per second

As shown in Table 4.13-4, groundborne vibrations attenuate rapidly from the source due to geometric spreading and material damping. Geometric spreading occurs because the energy is radiated from the

source and spreads over an increasingly large distance while material damping is a property of the friction loss which occurs during the passage of a vibration wave. Vibration as a result of construction activities would not exceed 0.3 PPV. Thus, Project construction would not exceed the recommended threshold. This impact is less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project Area to excessive noise levels?	☐	☐	☐	☒

No Impact.

The Project Site is located approximately 6.0 miles south of the William Robert Johnston Municipal Airport. Aircraft noise does not significantly impact the Project Site area and would not expose people visiting or working on the Project Site to excess airport noise levels. No impact would occur.

4.13.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.14 Population and Housing

4.14.1 Environmental Setting

The proposed Project is located at CDFW Mendota Wildlife Area, Fresno County, California. The CDFW MWA is east of Interstate 5, approximately 3 miles south of the City of Mendota and 30 miles west of the City of Fresno. The CDFW MWA is surrounded by public/institutional, and agricultural land uses.

As of April 2020, the County of Fresno had a population of 1,008,654 (California Department of Finance 2023). CDFW MWA is designated as a Public Lands and Open Space land use under Fresno County's General Plan (Fresno County 2000). The CDFW MWA opened in 1954 as a wildlife preserve to "protect agricultural crops from Waterfowl depredation, Waterfowl wintering habitat, and a desire to accommodate public Waterfowl hunting." CDFW MWA currently houses seven of its eight employees; five employees reside in five individual residences at the WA and two employees reside at an onsite bunkhouse.

4.14.2 Population and Housing (XIV) Environmental Checklist and Discussion

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)?	☐	☐	☐	☒

No Impact.

The proposed Project would not directly or indirectly induce population growth in unincorporated Fresno County. There would not be an increase in employees or visitors as a result of the installation of solar panels. The development of these utilities would be within the CDFW MWA boundaries and would serve electrical demand at the facility. Consequently, the proposed Project would not induce population growth in Fresno County.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

No Impact.

The proposed Project would be constructed within the CDFW MWA property on undeveloped land. No displacement of people or existing housing units would result, and the Project will not require the construction of replacement housing elsewhere. No impact would occur.

4.14.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.15 Public Services

4.15.1 Environmental Setting

Public services include fire protection, police protection, parks and recreation, and schools. Generally, impacts in these areas are related to an increase in population from residential development. Fresno County General Plan Policy PF-G.2 provides Sheriff's Department staffing levels for sworn Sheriff Deputies in order to provide quality law enforcement services in the County. Further, Policy PF-H.8 states that the County shall encourage local fire protection agencies in the county to maintain the following as minimum standards for average first alarm response times to emergency calls: a. 5 minutes in urban areas; b. 15 minutes in suburban areas; and c. 20 minutes in rural areas. (Fresno County 2000).

4.15.1.1 Police Services

The Fresno County Sheriff's Department serves unincorporated areas of Fresno County (Fresno County 2000). The closest sheriff's substation to CDFW Mendota at 219925 Manning Avenue, San Joaquin, CA and is approximately 11.5 miles from the MWA. However, at the CDFW MWA, CDFW Wardens or the California Highway Patrol (CHP) are responsible for the overall security of the facility; the responding agency depends upon the nature of the infraction (Brueggemann, 2023). The closest California Highway facilities are the Central Division Headquarters at 5179 N. Gates Avenue, Fresno and CHP Station #435 at 1380 E. Fortune Avenue, Fresno. In addition, the CDFW MWA is approximately 20 miles from Exit 368 (Panoche Road) of Interstate 5, which is regularly patrolled by CHP.

4.15.1.2 Fire Services

The closest fire station to the CDFW MWA is Fresno County Fire Station 96 of Fresno County Fire Battalion 15, at 101 McCabe Ave, Mendota CA 93640. This fire station is approximately 6 miles from MWA. This fire station provides firefighting services to the CDFW MWA. As part of the next update to the Fresno County Multi-Hazard Mitigation Plan, the County, under Policy HS-B.20 would be working with emergency service agencies, shall evaluate evacuation route capacity, safety, and viability under a range of emergency scenarios to facilitate fire, law enforcement, and ambulance access and resident egress, consistent with the existing goals and objective of the Fresno County Multi-Hazard Mitigation Plan (Fresno County 2023).

4.15.1.3 Schools

School services are provided by Mendota Unified School District (California Department of Education 2006). There are 4 schools located approximately 5 miles from the Project Site: Mendota High School; Mendota Junior High School; Tranquility High School; and Tranquility Junior High School.

4.15.1.4 Parks

There are no federal, state or county parks in the vicinity of the CDFW MWA. The CDFW Alkali Sink Ecological Reserve is a 930-acre state ecological reserve adjacent to and immediately north of the CDFW MWA, and the 1800-acre CDFW Kerman Ecological Reserve is approximately 9 miles east of the northern boundary of CDFW MWA.

4.15.2 Public Services (XV) Environmental Checklist and Discussion

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

Less Than Significant Impact.

4.15.2.1 Fire Protection

Implementation of the Proposed Project would not result in an increased demand for fire protection and emergency services. The Project Site is located approximately six miles northwest of the County's nearest fire station. The Project Site is currently served by the Fresno County Fire Department (FCFD) for fire protection and the installation of the proposed solar array would not increase the response time required for a FCFD response. Therefore, this impact is less than significant.

4.15.2.2 Police Services

The Project Site is currently served by CDFW wardens or CHP for law enforcement services; the nearest CHP office is the Fresno Office located at 1380 E. Fortune Avenue in Fresno, approximately 32 miles east of the Project Site. The installation of the proposed solar array would not increase the need for these law enforcement services. Therefore, this impact is less than significant.

4.15.2.3 Schools

The Proposed Project would not result in an increase in the existing student population. The Project proposes the installation of a new clean energy solar array to service the CDFW MWA and would not increase the County's population that would require school services. This impact would be less than significant.

4.15.2.4 Parks

The Proposed Project would not increase the overall population of the County that would result in the need for expanded parkland. Therefore, the Project's impacts relating to parks would be less than significant.

4.15.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.16 Recreation

4.16.1 Environmental Setting

The Project Area is located within the Mendota Wildlife Area. The formation of this wildlife preserve began as part of a series of meetings to establish California State-owned waterfowl management areas in 1949. (CDFW 2023) states the purposes of these kind of wildlife management areas for waterfowl is to "protect agricultural crops from waterfowl depredation, waterfowl wintering habitat, and a desire to accommodate public waterfowl hunting." In 1954, the State of California purchased 6,100 acres in the Mendota Pools Area. Fish and Game Commission designated this land to wildlife, and it became the Mendota Wildlife Area. Today, it spans 11,800 acres, consisting of flatlands and floodplains and home to a variety of migratory waterfowl, pheasants and many more (CDFW 2023).

4.16.2 Recreation (XVI) Materials Checklist

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?	☐	☐	☐	☒

No Impact.

The Proposed Project is a solar array designed to offset the electrical demand at the WA; the primary demand for electricity at this Site is to operate the 60 water pumps that move water through the wetland system at the facility. These wetlands and riparian environs are used for various types of recreation, such as hunting waterfowl, wildlife viewing and nature study. The wetland water management system and MWA will not be expanded as a result of the Proposed Project; rather, the Project will offer reduced electrical grid-demand for the on-going operational requirements of the existing facilities. Implementation of the Project will not impact 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.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☒	☐

Less Than Significant Impact.

The Project includes the construction of a clean energy solar array system for the CDFW MWA just south of the City of Mendota; the MWA is an existing recreational facility. The Project itself does not include any recreational facilities nor occupancies that would require the construction or expansion of these existing recreational facilities. In essence, the Project is the creation of an on-site clean energy source to offset the current electrical power grid demand of an existing recreational facility's electrical needs; however, the implementation of the Project, once completed, would not require the construction or expansion of additional recreational facilities. Therefore, Project impacts relating to construction or expansion of recreational facilities would be less than significant.

4.16.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.17 Transportation

4.17.1 Environmental Setting

Existing Highway Network

CDFW MWA is located at 4333 Santa Fe Grade, Mendota, CA. Access to the CDFW MWA is provided by a gravel road off Santa Fe County Road on the western side of the facility. Highway access is provided by SR-180 (West Whitesbridge Avenue) south of the City of Mendota.

4.17.2 Transportation (XVII) Environmental Checklist and Discussion

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?	☐	☐	☒	☐

Less Than Significant Impact.

The proposed Project would not conflict with public transportation programs, plans, or policies. Traffic could increase during construction but would be temporary and under thresholds considered to pose a significant impact to transportation. Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☒	☐

Less Than Significant Impact.

The Proposed Project would generate short-term construction-related vehicle trips. During construction, workers would access the work site on a daily basis using the WA headquarters entrance located on the west side of the facility on Santa Fe County Road. Depending upon the construction phase (site preparation/grading or construction of structures), a construction crew of 35 to 50 crew members would generate 70 to 100 vehicle trips per day to arrive and depart from the Project Site for the duration of construction-related activities (approximately 75 days of construction). In addition, there would be an estimated 6 vehicle trips per day for transporting construction supplies.

CEQA Guidelines Section 15064.3 subdivision (b) addresses the criteria for analyzing transportation impacts and establishes the vehicle miles traveled metric as the most appropriate measure of transportation impacts in a CEQA document. However, according to the Governor's Office of Planning and Research Technical Advisory on Evaluating Transportation Impacts in CEQA (California Governor's Office of Planning and Research 2018), "projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than significant transportation impact." The Proposed Project estimates approximately 106 trips per day during construction.

Additionally, the Proposed Project would generate a low level of long-term operational vehicle trips for maintenance and cleaning – estimated to be less than one round trip per day. The Project would not result in any changes to the transportation system and would not impede any transportation improvements or control measures. Traffic generated by the construction of the Project would be temporary and would not conflict with the Transportation and Circulation Elements of the Fresno County General Plan (Fresno County 2023). Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) 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 not substantially increase hazards due to a design feature. The proposed solar PV power generation systems would be located on the western boundary of CDFW MWA property; the Project Area is characterized by a ruderal annual grassland. No roadway modifications are proposed as part of the project. No impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Result in inadequate emergency access?	☐	☐	☐	☒

No Impact.

The Project Site is located on the western boundary of CDFW MWA property. All construction-related vehicles and equipment would be located within a staging area at the MWA headquarters where there is adequate space for construction vehicle movement and parking. The proposed Project would not prohibit or alter emergency access to CDFW MWA. No impact would occur.

4.17.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.18 Tribal Cultural Resources

This section describes the affected environment and regulatory setting for TCRs in the project area. The following analysis of the potential environmental impacts related to TCRs is derived primarily from the following sources:

- California Native American Heritage Commission's Sacred Lands File Search, March 1, 2023.
- Archaeological and Architectural History Resources Inventory Report for the Mendota Wildlife Area Solar Project, Prepared for ForeFront Power, LLC, June 2023.
- Ethnographic overview of the Yokuts by Wallace (1978).
- Archaeological site records obtained from the Southern San Joaquin Valley Information Center of the CHRIS at California State University, Bakersfield on March 1, 2023.

4.18.1 Regulatory Setting

Effective July 1, 2015, Assembly Bill (AB) 52 amended CEQA to require that: 1) a lead agency provide notice to any California Native American tribes that have requested notice of projects proposed by the lead agency; and 2) for any tribe that responded to the notice within 30 days of receipt with a request for consultation, the lead agency must consult with the tribe. Topics that may be addressed during consultation include tribal cultural resources, the potential significance of project impacts, type of

environmental document that should be prepared, and possible mitigation measures and project alternatives.

Pursuant to AB 52, Section 21073 of the Public Resources Code defines California Native American tribes as "a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of the Statutes of 2004." This includes both federally and non-federally recognized tribes.

Section 21074(a) of the Public Resource Code defines Tribal Cultural Resources for the purpose of CEQA as:

1) Sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

    a. included or determined to be eligible for inclusion in the California Register of Historical Resources; and/or

    b. included in a local register of historical resources as defined in subdivision (k) of Section 5020.1; and/or

    c. 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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Because criteria a and b also meet the definition of a Historical Resource under CEQA, a Tribal Cultural Resource may also require additional consideration as a Historical Resource. Tribal Cultural Resources may or may not exhibit archaeological, cultural, or physical indicators.

Recognizing that California tribes are experts in their tribal cultural resources and heritage, AB 52 requires that CEQA lead agencies initiate consultation with tribes at the commencement of the CEQA process to identify Tribal Cultural Resources. Furthermore, because a significant effect on a Tribal Cultural Resource is considered a significant impact on the environment under CEQA, consultation is required to develop appropriate avoidance, impact minimization, and mitigation measures.

4.18.2 Environmental Setting

Prior to the arrival of European Americans in the region, indigenous groups speaking more than 100 different languages and occupying a variety of ecological settings inhabited California. Kroeber and others (Appendix C) recognized the uniqueness of California's indigenous groups and classified them as belonging to the California culture area. Kroeber (Appendix C) further subdivided California into four subculture areas: Northwestern, Northeastern, Southern, and Central.

When the first European explorers entered the regions between 1772 and 1821, an estimated 100,000 people, about one third of the state's native population, lived in the Central Valley (Appendix C). At least seven distinct languages of Penutian stock were spoken among these populations: Wintu, Nomlaki, Konkow, River Patwin, Nisenan, Miwok, and Yokuts. Common linguistic roots and similar cultural and technological characteristics indicate that these groups shared a long history of interaction (Appendix C). The Central area (as defined by Kroeber 1925) encompasses the Project Area and includes the Yokuts.

Ethnographically, the predominant Native American group occupying the region at the time of European contact in the late 18th century was the Penutian-speaking Yokuts. The Yokuts, (meaning *person* or *people*) Penutian-Yokutsan speakers were divided into three distinct groups: the Northern Valley Yokuts, the Southern Valley Yokuts, and the Foothills Yokuts. These groups spoke different dialects and were separated by topography (Appendix C). The Project Area falls within the southern portion of the Northern Valley Yokuts territory. The southern San Joaquin Valley was originally covered by sloughs and marshes surrounding three shallow lakes: Tulare, Buena Vista, and Kern. The lakes were fed by rivers flowing from the Sierras such as the Kern River. Areas away from the lakes, rivers, and sloughs were dry since the valley receives less than 10 inches of rain per year on average. The Northern Valley Yokuts obtained fish, freshwater mussels, turtles, and Waterfowl from the lakes and marshes. Fishing was carried out year-round. Elk and pronghorn antelope were hunted from blinds when they came to the lakes to drink. Grass and tule seeds were important plant foods. Since oak trees were not as prevalent on the valley floor, acorns were not an important staple food (Appendix C).

The Yokuts lived in year-round villages near lakes, sloughs, and rivers. However, groups of people left the village and lived in temporary camps while collecting seeds in the spring. Single family houses consisted of wood frames covered with tule mats. There were also large multi-family communal residences that were long, rectangular structures with steep pitched roofs covered with tule mats. These structures were divided into sections so that each family had their own fireplace and entryway. A shade porch, where cooking took place, ran along the front of the building. Seeds, roots, and dried fish were stored in mat-covered granaries raised off the ground. Each village also had an earthen sweathouse used by men. Tule was used to make baskets and cradles. Wood and stone were obtained through trade with groups outside of the valley. Marine shells obtained from coastal people were made into beads by the Yokuts. Clamshell disks circulated as a form of currency, and Olivella beads and abalone pendants were strung for necklaces. Canoes and rafts were made out of tule and used for Water transportation (Appendix C).

4.18.3 Sacred Lands File Coordination Methods

In addition to the records search, ECORP contacted the California Native American Heritage Commission (NAHC) on March 1, 2023 to request a search of the Sacred Lands File for the Project Area (Appendix B). This search determines whether the California Native American tribes within the Project Area have recorded Sacred Lands, because the Sacred Lands File is populated by members of the Native American community with knowledge about the locations of tribal resources. In requesting a search of the Sacred Lands File, ECORP solicited information from the Native American community regarding TCRs, but the responsibility to formally consult with the Native American community lies exclusively with the federal and local agencies under applicable state and federal laws. The lead agencies do not delegate government-to-government authority to any private entity to conduct tribal consultation.

4.18.4 Tribal Cultural Resources within the Project Area

A Cultural Resources Inventory Report was prepared by ECORP (2023c) for the Proposed Project to determine if cultural resources, including tribal cultural resources, were present in or adjacent to the Project Area and assess the sensitivity of the Project Area for undiscovered or buried cultural resources. The information provided below is an abridged version of this report and is provided here to afford a brief context of the potential cultural resources in the Project Area.

The CHRIS records search indicated that the property has not been previously surveyed for cultural resources, and therefore, a pedestrian survey of the Project Area was warranted. One previous cultural resource investigation has been conducted within 0.5 mile of the Project Area, covering approximately 10 percent of the total area surrounding the property within the records search radius.

The records search also determined that one previously recorded pre-contact cultural resource is located within 0.5 mile of the Project Area. This resource is believed to be associated with Native American occupation of the vicinity. The site record for this previously recorded resource describes it as an isolated find of artifacts; no other information is provided.

To date, the State has not received formal request for AB52 consultation within this area. In absence of a formal request, ECORP contacted the NAHC on March 1, 2023, to request a search of the Sacred Lands File for the Area of Project Effects (APE). In requesting a search of the Sacred Lands File, ECORP solicited information from the Native American community regarding TCRs, but the responsibility to formally consult with the Native American community lies exclusively with the federal and local agencies under applicable state and federal laws. The lead agencies do not delegate government-to-government authority to any private entity to conduct tribal consultation. On June 27, 2023, general request for information letters were sent to the following representative listed for the tribes on the NAHC response letter: Berry Creek Rancheria of Maidu Indians, Cold Springs Rancheria of Mono Indians, Dumna Wo-Wah Tribal Government, Kings River Choinumni Farm Tribe, Northern Valley Yokuts Tribe, Santa Rosa Rancheria Tachi, Table Mountain Rancheria, Traditional Choinumni Tribe, Tule River Indian Tribe, and Wuksache Indian Tribe/Eshom Valley. To date the project has not received responses.

4.18.5 Tribal Cultural Resources (XVIII) Environmental Checklist and Discussion

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:				

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or	☐	☒	☐	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.	☐	☒	☐	☐

Less Than Significant With Mitigation Incorporated.

As conveyed in the *Cultural Resources Inventory Report* conducted by ECORP Consulting, Inc., no known tribal cultural resources were identified at the Project Site or within a 0.5-mile radius during the records search and literature review performed. On March 27, 2023, ECORP performed a field investigation of the Project Site and APE, which concluded that no cultural resources were observed onsite. Additionally, the NAHC records search of the NAHC Sacred Lands File was completed for the Proposed Project revealing a negative search result for sacred lands within the Project Site. On June 27, 2023, general request for information letters were sent to each representative listed for the tribes on the NAHC response letter; to date, the project has not received a response.

No known tribal cultural resources have been identified within the Project Site. The Project Site has not been identified as either a site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native American tribe. However, unanticipated, and accidental discovery of California Native American tribal cultural resources are possible during Project implementation, especially during excavation, and have the potential to impact unique cultural resources. As such, mitigation measure CUL-1, CUL-2 and TCR-1, have been included to reduce the potential for impacts to tribal cultural resources to a less than significant level.

4.18.6 Mitigation Measures

TCR-1: Tribal Cultural Resources - Cultural Awareness Training

The following mitigation measure is intended to address the cultural sensitivity of the project area by including a Worker Environmental Awareness Program for relevant project personnel and construction workers.

- The lead agency shall require the applicant/Contractor to provide a tribal cultural resources sensitivity and awareness training program (Worker Environmental Awareness Program [WEAP]) for all personnel involved in project construction, including field consultants and construction workers, at their own expense. The WEAP shall be developed in coordination with interested Native American Tribes.
- The WEAP shall be conducted before any project-related construction activities begin at the project site. The WEAP will include relevant information regarding sensitive cultural resources and tribal cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations. The WEAP will also describe appropriate avoidance and impact minimization measures for cultural resources and tribal cultural resources that could be located at the project site and will outline what to do and who to contact if any potential cultural resources or tribal cultural resources are encountered. The WEAP will emphasize the requirement for confidentiality and culturally appropriate treatment of any discovery of significance to Native Americans and will discuss appropriate behaviors and responsive actions, consistent with Native American tribal values. The training may be done in coordination with the project archaeologist.
- All ground-disturbing equipment operators shall be required to receive the training and sign a form that acknowledges receipt of the training.

Timing/Implementation: *Prior to ground disturbance activities*

Implementation/Responsibility/Verification: *Developer and Department of General Services*

4.19 Utilities and Service Systems

4.19.1 Environmental Setting

The CDFW MWA uses a combination of on-site facilities (treatment of irrigation water, on-site septic system and propane storage tank) and contracted service contracts (irrigation Water delivery, solid Waste disposal, electrical supply and propane delivery) for its utility requirements. The MWA is not part of any municipal utility services district.

4.19.1.1 Water Service

Westland Irrigation District supplies the surface water via a pipeline to the WA for its facilities maintenance activities and its Water delivery for the wetlands. The WA has an on-site water treatment facility for the Water required by its maintenance activities. Potable Water is supplied in bottles for WA employee housing, the office and shop.

4.19.1.2 Wastewater

The WA utilizes an on-site septic system for Wastewater disposal. This system is sized for the needs of the headquarters facilities which include 5 employee houses, an office, and a maintenance shop.

4.19.1.3 Solid Waste

Mid Valley Disposal provides weekly solid Waste disposal and recycling for the WA headquarters; on site there are two dumpsters for the disposal of solid Waste.

4.19.1.4 Electricity and Propane

Electrical power is supplied by PG&E. There is no natural gas facilities or supply lines at the WA; one 1000-gallon propane tank at the WA headquarters is filled approximately 3 times per year for domestic and operational needs.

4.19.1.5 Electricity

CDFW MWA uses a significant amount of electricity to run the 16 pumps (15-100 HP) for delivering Water to the wetlands of the WA. Average 40 HP. Approximately 27,000-acre feet of which 3000 acres is gravity flow. 6000 AF of tailwater is pumped off of the WA. The volume of water is for maintaining the WA wetlands, for irrigating upland wildlife habitat and soil management. The majority of the pumping occurs in September, pumping is from August – December.

The purpose of the Project is to offset a portion of the electricity demand at the WA.

CDFW MWA receives its electric service from PG&E. PG&E's power is generated in fossil-fueled plants, hydroelectric powerhouses, geothermal generators, a nuclear power plant, and ten combustion turbines. PG&E also buys power from independent power producers and other utilities. PG&E provides service to approximately 5.1 million customers in Northern and Central California and has approximately 106,681 circuit miles of electric distribution lines and 18,466 circuit miles of interconnected transmission lines (PG&E 2023).

PG&E's services are provided in accordance with California Public Utilities Commission rules and regulations. Electric connections would be provided to the site from the existing transmission network in the Project vicinity. The Project applicant would be responsible for the costs associated with extension of electrical service infrastructure to the Project Site.

4.19.2 Utilities and Service Systems (XIX) Environmental Checklist and Discussion

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?	☐	☐	☒	☐

Less Than Significant Impact.

The Project is a new electrical power generation source. Construction Watering for dust control. SWPPP. The proposed Project would not require the construction of new Water and Wastewater connections. As previously mentioned in section 2.3 Operations and Maintenance, there would be 75 construction days requiring the use of a 3,000-gallon Water truck. Approximately one truckload a day is anticipated for dust control. Total Water demand during construction is estimated to be 3,000 gallons per day for 75 days, totaling 225,000 gallons. The Water would come from the WA Water supply from the Westlands Irrigation District. Maintenance of the solar PV panels would require cleaning approximately twice a year. Cleaning of the PV panels would be conducted with a pressure washer with Water brought from on-site. New Water or Wastewater facilities would not be required to accommodate the project. No impact would occur. No mitigation necessary.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Have sufficient Water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒	☐

Less Than Significant Impact.

Water demand for the project would primarily be associated with dust control during project construction. It has been estimated that approximately 45,000 gallons would be required. Water would either be supplied from onsite supplies or provided by the contractor. Once construction is complete, water demand would be limited to occasional cleaning of the panels and would require minimal quantities. The project would not have an appreciable impact on local water supplies and this impact would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☐	☒

No Impact.

The Proposed Project would not require or impact wastewater service. No mitigation necessary.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☒	☐

Less Than Significant Impact.

Any construction waste would be disposed of at the B & J Landfill or other local landfill permitted to accept construction waste. The small increase in Waste would not be expected to affect the permitted capacity of these landfills. A less than significant impact would occur. No mitigation necessary.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid Waste?	☐	☐	☐	☒

No Impact.

waste generated by the proposed Project would comply with statutes and regulations related to solid waste. No impact would occur. No mitigation necessary.

4.19.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.20 Wildfire

4.20.1 Environmental Setting

The risk of wildfire is related to a variety of parameters, including fuel loading (vegetation), fire weather (e.g., winds, temperatures, humidity levels and fuel moisture contents), and topography (degree of slope). Steep slopes contribute to fire hazard by intensifying the effects of wind and making fire suppression difficult. Fuels such as grass are highly flammable because they have a high surface area-to-mass ratio and require less heat to reach the ignition point, while fuels such as trees have a lower surface area-to-mass ratio and require more heat to reach the ignition point.

Aside from the component of the Site that includes the electrical conduit trench and connection to the CDFW headquarters' existing electrical panel, the Project Site is relatively flat and dominated by vacant undeveloped land. As discussed in Section 4.16, the area is not designated as a Very High Fire Hazard Severity Zone (VHFHSZ [CAL FIRE 2023]).

The CDFW MWA is located in the Fresno County Fire Protection District Zone 2 and the area is not designated by the California Department of Forestry and Fire Protection (CAL FIRE) as a VHFHSZ [CAL FIRE 2023]). The Project Site is flat and dominated by vacant ruderal annual grassland within the 200-acre MWA Headquarters. The proposed new connection from the solar array to the WA's existing electrical power system is an underground electrical conduit trench crossing an existing gravel road within the MWA headquarters, passing between vacant ruderal grassland adjacent to employee housing and MWA shop facilities. The WA staff manages the vegetation fuel load of the proposed area of the solar array via mowing and the use of herbicides. construction of the solar array field would require complete vegetation clearing 10 feet outside of the perimeter of the fenced area as per California Fire Code (CFC) 1204.4, regular maintenance (keeping the vegetation from growing), and if in a remote location, the construction of roadways for access (fire breaks).

4.20.2 Wildfire (XX) Environmental Checklist and Discussion

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?	☐	☐	☐	☒

No Impact.

The Project Site is not in an area designated by CAL FIRE as a VHFHSZ. Furthermore, no VHFHSZs are located nearby. Also, the Project Site is not located in a State Responsibility Area (SRA) (CAL FIRE 2023). The implementation of the Project would not have substantially impair an adopted emergency response plan or emergency evacuation plan.

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
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 uncontrolled spread of a wildfire?	☐	☐	☐	☒

No Impact.

The Project Site is not in an area designated by CAL FIRE as a VHFHSZ. Furthermore, no VHFHSZs are located nearby. Also, the Project Site is not located in a SRA (CAL FIRE 2023). The implementation of the Project would not exacerbate wildfire risks, and thereby expose Project occupants to, pollutant concentrations from, a wildfire or the uncontrolled spread of a wildfire impact on SRAs or VHFHSZs due to slope, prevailing winds and other factors.

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
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?	☐	☐	☐	☒

No impact.

The Project Site is not in an area designated by CAL FIRE as a VHFHSZ. Furthermore, no VHFHSZs are located nearby. Also, the Project Site is not located in a SRA (CAL FIRE 2023). The implementation of the Project would have not 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.

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
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?	☐	☐	☐	☒

No Impact.

The Project Site is not in an area designated by CAL FIRE as a VHFHSZ. Furthermore, no VHFHSZs are located nearby. Also, the Project Site is not located in a SRA (CAL FIRE 2023). The implementation of the Project would have not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

4.20.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required

4.21 Mandatory Findings of Significance

4.21.1 Mandatory Findings of Significance (XXI) Environmental Checklist and Discussion

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?	☐	☒	☐	☐

Less Than Significant Impact With Mitigation Incorporated.

With Mitigation measures described in Section 4.4 Biological Resources, 4.5 Cultural Resources,4.7 Geology and Soils, and 4.18 Tribal Cultural Resources, the Project would not have a significant impact on fish and wildlife species or their habitat or eliminate important examples of major periods of California history or prehistory.

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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)?	☐	☒	☐	☐

Less Than Significant With Mitigation Incorporated.

As described in the impact analysis of this IS/MND, potentially significant impacts to biological resources, cultural resources, geology, and tribal cultural resources have been identified and mitigation measures have been proposed to offset any project specific contribution to cumulative impacts. Current and proposed projects in the project area would also implement mitigation as necessary. All other impacts from the Proposed Project are short term in nature and associated with construction activities on the project site and, therefore, would not be cumulatively considerable. No other cumulative impacts were identified.

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Less Than Significant Impact

Direct and indirect impacts to human beings would be less than significant with the implementation of mitigation measures listed in this IS/MND.

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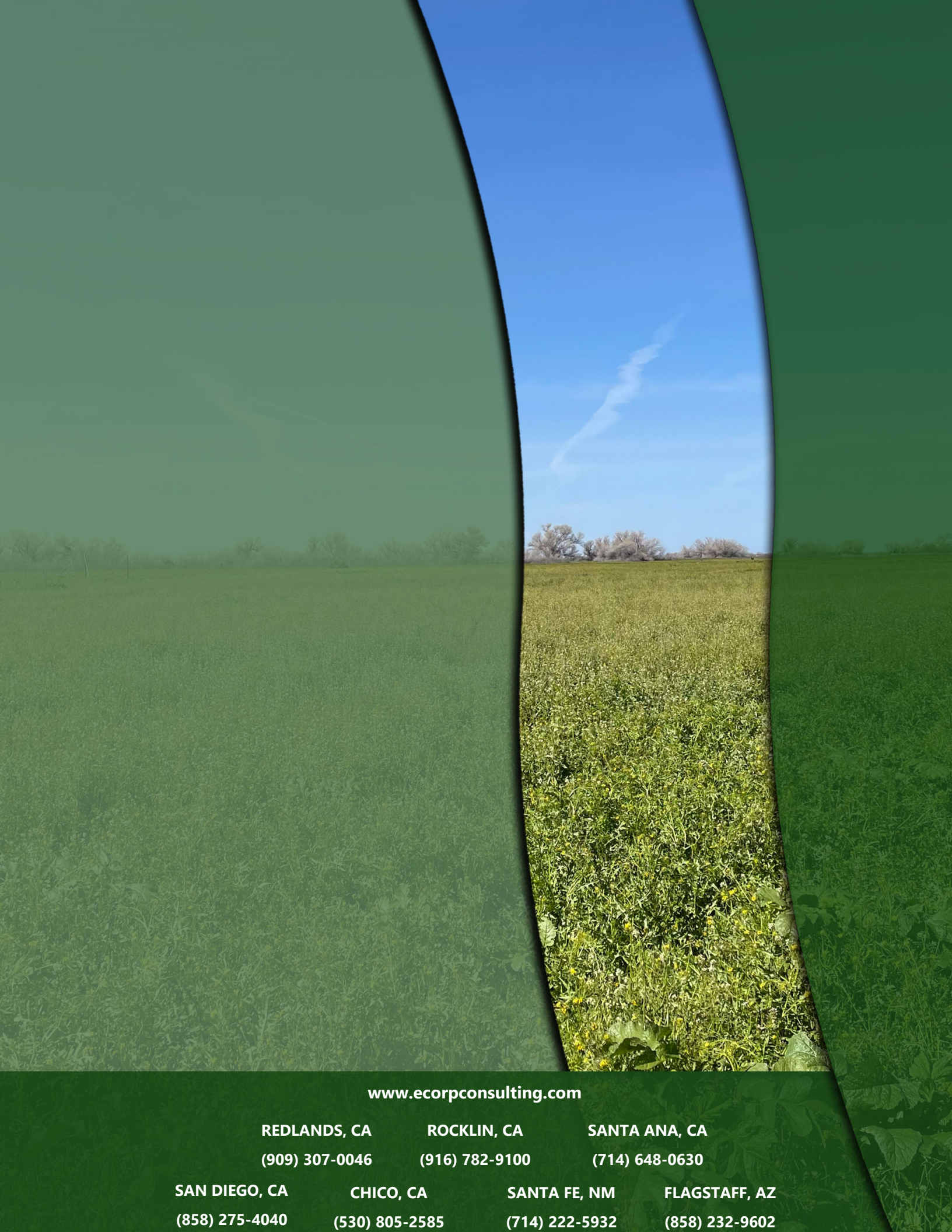

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LIST OF APPENDICES

APPENDIX A

Emissions and Greenhouse Gas for Mendota Wildlife Area Solar Project
ECORP Consulting, Inc.
March 23, 2023

APPENDIX A1 - PROJECT EMISSIONS MODELING OUTPUTS

Mendota Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Mendota
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.90
Precipitation (days)	21.2
Location	36.681975, -120.343252
County	Fresno
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2525
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Non-Asphalt Surfaces	1.75	Acre	1.75	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.66	1.39	10.8	12.0	0.02	0.44	0.05	0.49	0.40	0.01	0.42	—	2,070	2,070	0.09	0.02	0.25	2,078
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.16	1.82	17.6	16.6	0.02	0.83	2.82	3.65	0.77	1.35	2.12	—	2,509	2,509	0.10	0.02	0.01	2,519
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.74	0.62	4.85	5.35	0.01	0.20	0.20	0.31	0.18	0.09	0.19	—	926	926	0.04	0.01	0.05	929
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.14	0.11	0.88	0.98	< 0.005	0.04	0.04	0.06	0.03	0.02	0.03	—	153	153	0.01	< 0.005	0.01	154
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	10.0	10.0	100	—	—	—	15.0	—	—	15.0	—	—	—	—	—	—	—
Unmit.	—	No	No	No	—	—	—	No	—	—	No	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.66	1.39	10.8	12.0	0.02	0.44	0.05	0.49	0.40	0.01	0.42	—	2,070	2,070	0.09	0.02	0.25	2,078
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	2.16	1.82	17.6	16.6	0.02	0.83	2.82	3.65	0.77	1.35	2.12	—	2,509	2,509	0.10	0.02	0.01	2,519
2024	1.66	1.38	10.8	11.9	0.02	0.44	0.05	0.49	0.40	0.01	0.42	—	2,063	2,063	0.08	0.02	0.01	2,071
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.32	0.27	2.33	2.33	< 0.005	0.11	0.20	0.31	0.10	0.09	0.19	—	376	376	0.02	< 0.005	0.02	378
2024	0.74	0.62	4.85	5.35	0.01	0.20	0.02	0.22	0.18	0.01	0.19	—	926	926	0.04	0.01	0.05	929
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.06	0.05	0.43	0.42	< 0.005	0.02	0.04	0.06	0.02	0.02	0.03	—	62.3	62.3	< 0.005	< 0.005	< 0.005	62.5
2024	0.14	0.11	0.88	0.98	< 0.005	0.04	< 0.005	0.04	0.03	< 0.005	0.03	—	153	153	0.01	< 0.005	0.01	154

3. Construction Emissions Details

3.1. Site Preparation (2023) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.84	1.54	15.1	13.7	0.02	0.72	—	0.72	0.66	—	0.66	—	2,063	2,063	0.08	0.02	—	2,070
Dust From Material Movement	—	—	—	—	—	—	2.44	2.44	—	1.17	1.17	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	1.00	0.90	< 0.005	0.05	—	0.05	0.04	—	0.04	—	136	136	0.01	< 0.005	—	136
Dust From Material Movement	—	—	—	—	—	—	0.16	0.16	—	0.08	0.08	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.18	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	22.5	22.5	< 0.005	< 0.005	—	22.5
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.27	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	42.1	42.1	< 0.005	< 0.005	0.01	42.7

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.87	2.87	< 0.005	< 0.005	0.01	2.91
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.48
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2023) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.12	1.78	17.5	16.3	0.02	0.83	—	0.83	0.77	—	0.77	—	2,453	2,453	0.10	0.02	—	2,462
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.19	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	26.9	26.9	< 0.005	< 0.005	—	27.0
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.45	4.45	< 0.005	< 0.005	—	4.47
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.36	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	56.1	56.1	< 0.005	< 0.005	0.01	57.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.64	0.64	< 0.005	< 0.005	< 0.005	0.65
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.11	0.11	< 0.005	< 0.005	< 0.005	0.11
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2023) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.70	1.42	11.2	11.7	0.02	0.49	—	0.49	0.45	—	0.45	—	2,008	2,008	0.08	0.02	—	2,015
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.14	1.19	< 0.005	0.05	—	0.05	0.05	—	0.05	—	204	204	0.01	< 0.005	—	205
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.21	0.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	33.8	33.8	< 0.005	< 0.005	—	34.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.36	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	56.1	56.1	< 0.005	< 0.005	0.01	57.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.91	5.91	< 0.005	< 0.005	0.01	6.01
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.98	0.98	< 0.005	< 0.005	< 0.005	1.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2024) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.61	1.34	10.8	11.6	0.02	0.44	—	0.44	0.40	—	0.40	—	2,009	2,009	0.08	0.02	—	2,015

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.61	1.34	10.8	11.6	0.02	0.44	—	0.44	0.40	—	0.40	—	2,009	2,009	0.08	0.02	—	2,015
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	0.60	4.83	5.20	0.01	0.20	—	0.20	0.18	—	0.18	—	900	900	0.04	0.01	—	903
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.88	0.95	< 0.005	0.04	—	0.04	0.03	—	0.03	—	149	149	0.01	< 0.005	—	150
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.02	0.41	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	61.9	61.9	< 0.005	< 0.005	0.25	63.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.33	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	55.0	55.0	< 0.005	< 0.005	0.01	55.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.15	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	25.5	25.5	< 0.005	< 0.005	0.05	25.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.22	4.22	< 0.005	< 0.005	0.01	4.30
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	10/3/2023	11/3/2023	5.00	24.0	—
Grading	Grading	11/4/2023	11/9/2023	5.00	4.00	—

Building Construction	Building Construction	11/10/2023	8/16/2024	5.00	200	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	7.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	6.00	367	0.29
Building Construction	Forklifts	Diesel	Average	1.00	6.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Building Construction	Trenchers	Diesel	Average	1.00	8.00	40.0	0.50

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	7.70	LDA,LDT1,LDT2

Site Preparation	Vendor	—	4.00	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	7.70	LDA,LDT1,LDT2
Grading	Vendor	—	4.00	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	10.0	7.70	LDA,LDT1,LDT2
Building Construction	Vendor	0.00	4.00	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	22.5	0.00	—

Grading	—	—	4.00	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Non-Asphalt Surfaces	1.75	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	204	0.03	< 0.005
2024	0.00	204	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	29.6	annual days of extreme heat
Extreme Precipitation	0.10	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score

Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	71.8
AQ-PM	50.3
AQ-DPM	10.2
Drinking Water	78.4
Lead Risk Housing	69.9
Pesticides	89.6
Toxic Releases	28.0
Traffic	0.70
Effect Indicators	—
CleanUp Sites	53.4
Groundwater	84.7
Haz Waste Facilities/Generators	69.4
Impaired Water Bodies	43.8
Solid Waste	35.7
Sensitive Population	—
Asthma	49.6
Cardio-vascular	71.8
Low Birth Weights	46.3
Socioeconomic Factor Indicators	—

Education	99.3
Housing	32.3
Linguistic	98.7
Poverty	95.1
Unemployment	85.5

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	2.96419864
Employed	8.417810856
Median HI	6.749647119
Education	—
Bachelor's or higher	3.836776594
High school enrollment	20.46708585
Preschool enrollment	19.49185166
Transportation	—
Auto Access	18.65776979
Active commuting	26.34415501
Social	—
2-parent households	19.87681252
Voting	7.083279867
Neighborhood	—
Alcohol availability	64.18580778
Park access	22.57153856
Retail density	2.104452714

Supermarket access	46.72141666
Tree canopy	1.129218529
Housing	—
Homeownership	31.64378288
Housing habitability	38.73989478
Low-inc homeowner severe housing cost burden	16.33517259
Low-inc renter severe housing cost burden	80.44398819
Uncrowded housing	22.82817914
Health Outcomes	—
Insured adults	7.789041447
Arthritis	0.0
Asthma ER Admissions	46.2
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	34.6
Cognitively Disabled	80.8
Physically Disabled	63.7
Heart Attack ER Admissions	11.9
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	62.8
Physical Health Not Good	0.0

Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	12.9
Elderly	75.4
English Speaking	3.3
Foreign-born	84.5
Outdoor Workers	0.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	88.0
Traffic Density	1.7
Traffic Access	0.0
Other Indices	—
Hardship	95.5
Other Decision Support	—
2016 Voting	32.2

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	83.0
Healthy Places Index Score for Project Location (b)	3.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes

Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	No demolition, paving, or architectural coating.
Construction: Off-Road Equipment	Conduits and wires would be buried in trenches that run between rows.
Construction: Trips and VMT	Trips added to reflect trips for solar panel installation

APPENDIX A2 – SJVAPCD HEALTH RISK SCREENING TOOL

Name		Prioritization Calculator						
Applicability		Use to provide a Prioritization score based on the emission potency method. Entries required in yellow areas output in gray areas.						
Author or updater		Anaya Ward		*Last Update*	March 20, 2023			
Facility:		Fore Front Solar - Mendota						
ID#:		CEQA						
Project #:		2022-112.03						
Unit and Process#		Construction						
Operating Hours hr/yr		1,320.00						
Receptor Proximity and Proximity Factors		**Cancer Score**	**Chronic Score**	**Acute Score**	**Max Score**	Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.		
0< R<100	**1.000**				0.00E+00			
100≤R<250	**0.250**				0.00E+00			
250≤R<500	**0.040**				0.00E+00			
500≤R<1000	**0.011**				0.00E+00			
1000≤R<1500	**0.003**				0.00E+00			
1500≤R<2000	**0.002**				0.00E+00			
2000<R	**0.001**	3.16E-01	3.11E-03	0.00E+00	3.16E-01			
Construction		Enter the unit's CAS# of the substances emitted and their amounts.				Prioritzation score for each substance generated below. Totals on last row.		
Substance	**CAS#**	**MW Correction**	**Annual Emissions (lbs/yr)**	**Maximum Hourly (lbs/hr)**		**Annual Emissions (lbs/yr)**	**Maximum Hourly (lbs/hr)**	**Average Hourly (lbs/hr)**
Diesel engine exhaust, particulate matter (Diesel PM)	**9901**	**1.0000**	1.37E+02	3.45E-02		1.37E+02	3.45E-02	1.04E-01
Carbon Monoxide [Criteria Pollutant]	**42101**	**1.0000**	2.74E+03	6.92E-01		2.74E+03	6.92E-01	2.08E+00
Oxides of Nitrogen	**42603**	**1.0000**	2.90E+03	7.33E-01		2.90E+03	7.33E-01	2.20E+00
Reactive Organic Gas	**16113**	**1.0000**	3.00E+02	7.58E-02		3.00E+02	7.58E-02	2.28E-01
Oxides of sulfur	**42401**	**1.0000**	3.30E+00	8.33E-04		3.30E+00	8.33E-04	2.50E-03
Particulate Matter	**11101**	**1.0000**	6.02E+02	1.52E-01		6.02E+02	1.52E-01	4.56E-01
Particulate Matter 2.5 Microns or less	**88101**	**1.0000**	6.93E+01	8.83E-02		6.93E+01	8.83E-02	5.25E-02

APPENDIX B

Biological Resource Assessment for Mendota Wildlife Area Solar Project
ECORP Consulting, Inc.
November 2023

Biological Resources Assessment

Mendota Solar Ground Mount Project

Fresno County, California

Prepared for:

State of California Department of General Services
Real Estate Services Division

November 16, 2023

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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LIST OF ACRONYMS AND ABBREVIATIONS

Term	Definition
AC	Alternating current
BCC	Birds of Conservation Concern
BRA	Biological Resources Assessment
CARI	California Aquatic Resources Inventory
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DGS	State Department of General Services
ESA	Endangered Species Act
HCP	Habitat Conservation Plan
LSAA	Lake or Streambed Alteration Agreement
MBTA	Migratory Bird Treaty Act
MSL	Mean sea level
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
Plan	Management Plan for the Mendota Wildlife Area
Project	Mendota Solar Ground Mount Project
RWQCB	Regional Water Quality Control Board
SSC	Species of Special Concern
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WBWG	Western Bat Working Group

1.0 INTRODUCTION

On behalf of the State of California Department of General Services (DGS), ECORP Consulting, Inc. conducted a Biological Resources Assessment (BRA) for the proposed Mendota Solar Ground Mount Project (Project) located in Fresno County, California. The purpose of the assessment was to collect information on the biological resources present and evaluate the potential for special-status species and their habitats to occur in the Study Area; assess potential biological impacts related to Project activities; and identify potential avoidance, minimization, or mitigation measures to inform the Project's California Environmental Quality Act (CEQA) documentation for biological resources.

1.1 Study Area Location

The approximately 1.95-acre Study Area includes the impact limits of the Project (Project Area) plus a 25-foot buffer around the trenching area and a 50-foot buffer around the solar array area. All components of the Study Area are depicted on Figure 1. *Study Area Components*.

The Study Area is located within and adjacent to the Mendota Wildlife Area Headquarters, located at 4333 Santa Fe Grade, near the city of Mendota in Fresno County, California (Figure 2. *Study Area Location and Vicinity*). The Study Area corresponds to a portion of Section 28, Township 14 South, Range 15 East (Mount Diablo Base and Meridian) within the "Tranquillity, California" 7.5-minute quadrangle (U.S. Geological Survey [USGS] 1956 [photorevised 1984]). The approximate center of the Study Area is located at latitude 36.681975° and longitude -120.343252° (NAD83). The Study Area is within the Upper Dry watershed (Hydrologic Unit Code #18030009) (Natural Resources Conservation Service [NRCS] et al. 2016).

1.2 Project Description

DGS is proposing to install a solar photovoltaic power generation system for the Mendota Wildlife Area facility. The system would include ground-mounted solar arrays that would convert sunlight to direct current (DC) electrical power. The DC electrical power would then be converted to alternating current (AC) by string inverters before being delivered to the Pacific Gas & Electric Company distribution system.

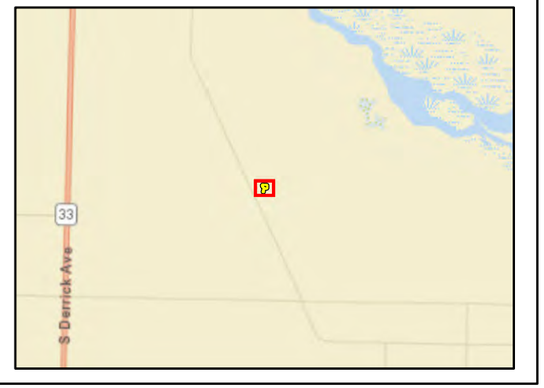
The solar system would be configured into generally contiguous arrays that are laid out to minimize impacts to natural resources. The solar system would utilize either fixed-tilt or single-axis tracking mounting technology to optimize efficiency and performance. Single-axis trackers are designed to rotate the arrays in the east-to-west plane to track the sun's movement across the horizon. Once installed, the ground-mounted solar arrays would be approximately eight feet in height depending on the time of day to the extent a tracking system is utilized. A security fence would be installed around the solar arrays.

Solar panel wiring (also known as stringing) would be buried trenches that run between rows and/or installed above grade to connect the output of each string to an inverter. Trenching would either be excavated and backfilled, pending the final conduit size and equipment utilized, or wiring may be directionally drilled to avoid any existing natural resources or infrastructure features.

Map Features

- Study Area - 1.95 ac.
- Buffer Area 1.31 acres
- Project Area - 0.64 acres

Base Source: NAIP 2020



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Map Date: 3/12/2021

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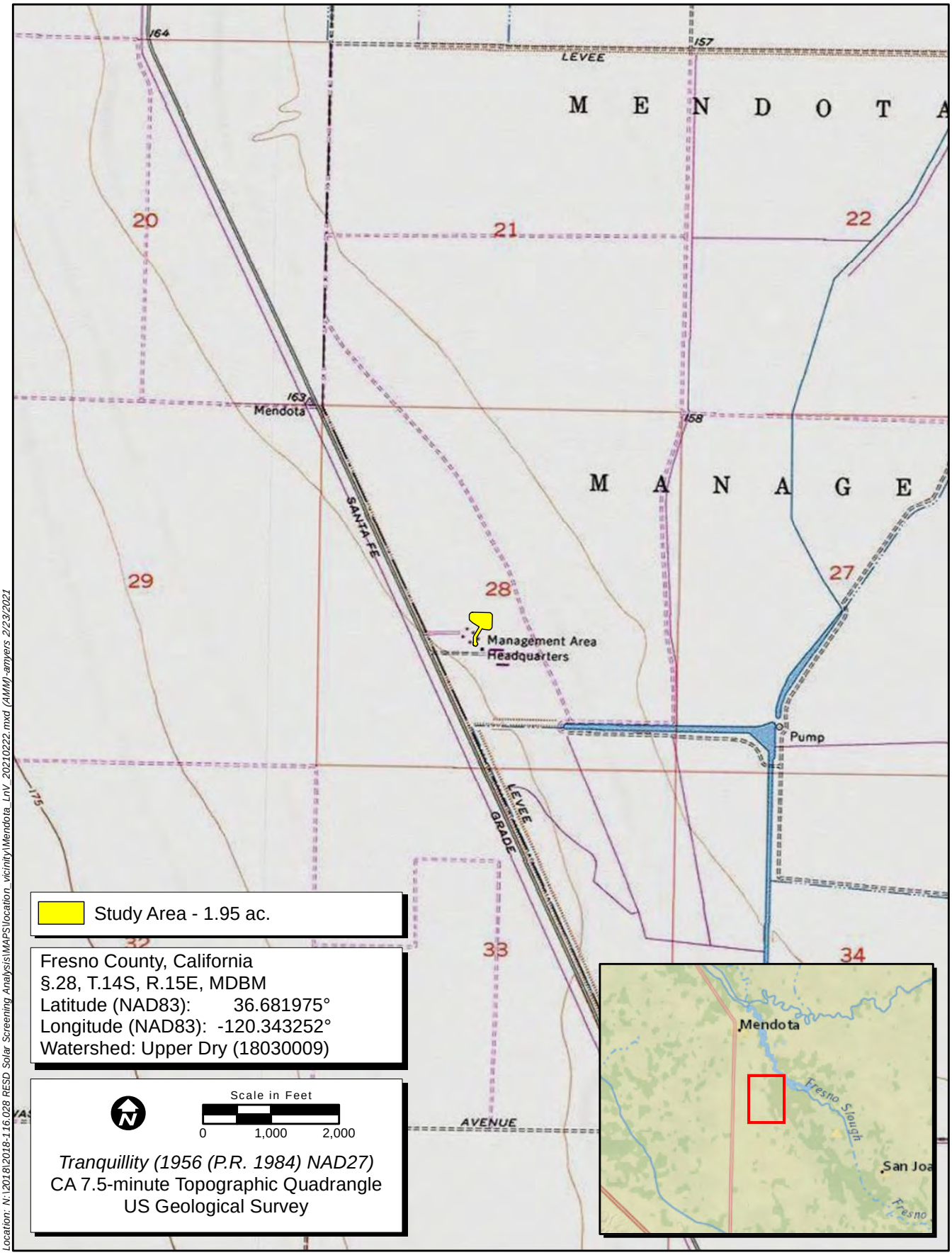
Scale in Feet
0 100

Figure 1. Study Area Components

2018-116.028/003 RESD - Screening Analysis - Solar: Mendota



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Map Date: 2/23/2021

Figure 2. Study Area Location and Vicinity

2018-116.028/003 RESD - Screening Analysis - Solar: Mendota

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Prior to installation of the solar arrays, the Project site would be cleared of debris and vegetation. Minimal site grading would be required for the installation of the system. Construction equipment would include the following: bobcat or tractor with mower attachment, dump truck, grader, water truck, backhoe, forklift, pile driving rig, and generator. Dust generation would be minimized by use of the water truck.

All staging would occur within the Project Area as depicted on Figure 1 or within existing roadways or developed areas. The Project would utilize existing roads for access.

Once construction is completed, primary production-related monitoring would be done remotely. No employees would be based at the Project site. The public would not have access to the facility. Access to the area would be infrequent and limited to authorized personnel only.

1.3 Purpose of this Biological Resources Assessment

The purpose of this BRA is to assess the potential for occurrence of special-status plant and animal species or their habitats, and sensitive habitats such as wetlands within the Study Area. This assessment does not include determinate presence-absence field surveys for special-status species conducted according to agency-promulgated protocols. The conclusions and recommendations presented in this report are based upon a review of the available literature and site reconnaissance.

For the purposes of this assessment, special-status species are defined as plants or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA);
- are listed or candidates for future listing as threatened or endangered under the California ESA;
- meet the definitions of endangered or rare under Section 15380 of CEQA Guidelines;
- are identified as a Species of Special Concern (SSC) by the California Department of Fish and Wildlife (CDFW);
- are birds identified as Birds of Conservation Concern (BCC) by the U.S. Fish and Wildlife Service (USFWS);
- are plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (California Rare Plant Rank [CRPR] 1 and 2), plants listed by CNPS as species about which more information is needed to determine their status (CRPR 3), and plants of limited distribution (CRPR 4);
- are plants listed as rare under the California Native Plant Protection Act (NPPA; California Fish and Game Code, § 1900 et seq.); or
- are fully protected in California in accordance with the California Fish and Game Code, §§ 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

Only species that fall into one of the above-listed groups were considered for this assessment. Other species without special status that are sometimes found in database or literature searches were not included in this analysis.

2.0 REGULATORY SETTING

2.1.1 Federal Regulations

2.1.2 Federal Endangered Species Act

The federal ESA protects plants and animals that are listed as endangered or threatened by the USFWS or the National Marine Fisheries Service (NMFS). Section 9 of the ESA prohibits the taking of listed wildlife, where take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 Code of Federal Regulations [CFR] 17.3). For plants, the ESA prohibits removing or possessing any listed plant on federal land, maliciously damaging or destroying any listed plant in any area, or removing, cutting, digging up, damaging, or destroying any such species in knowing violation of state law (16 U.S. Code 1538). Under Section 7 of ESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its designated Critical Habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of a listed species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. Section 10 of the ESA provides for issuance of incidental take permits where no other federal actions are necessary provided a Habitat Conservation Plan (HCP) is developed.

2.1.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. The protections of the MBTA extend to disturbances that result in abandonment of a nest with eggs or young. As authorized by the MBTA, the USFWS may issue permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits.

2.1.4 Federal Clean Water Act

The purpose of the federal Clean Water Act (CWA) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into Waters of the U.S. without a permit from the U.S. Army Corps of Engineers (USACE). The definition of Waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas:

> "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 7b).

The U.S. Environmental Protection Agency also has authority over wetlands and may override a USACE permit.

Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

2.2 State Regulations

2.2.1 California Endangered Species Act

The California ESA (California Fish and Game Code §§ 2050-2116) generally parallels the main provisions of the federal ESA, but unlike its federal counterpart, the California ESA applies the take prohibitions to species proposed for listing (called *candidates* by the state). Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. *Take* is defined in Section 86 of the California Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Section 2081 allows CDFW to authorize incidental take permits if species-specific minimization and avoidance measures are incorporated to fully mitigate the impacts of the project.

2.2.2 Fully Protected Species

The state of California first began to designate species as *fully protected* prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the state and/or federal ESAs. Previously, the regulations that implement the Fully Protected Species Statute (California Fish and Game Code § 4700 for mammals, § 3511 for birds, § 5050 for reptiles and amphibians, and § 5515 for fish) provided that fully protected species may not be taken or possessed at any time. However, on July 10, 2023, Senate Bill 147 (SB147) was signed into law, authorizing CDFW to issue take permits under the California ESA for fully protected species for qualifying projects through 2033. Qualifying projects include:

- A maintenance, repair, or improvement project to the State Water Project, including existing infrastructure, undertaken by the Department of Water Resources.
- A maintenance, repair, or improvement project to critical regional or local water agency infrastructure.
- A transportation project, including any associated habitat connectivity and wildlife crossing project, undertaken by a state, regional, or local agency, that does not increase highway or street capacity for automobile or truck travel.

- A wind project and any appurtenant infrastructure improvement, and any associated electric transmission project carrying electric power from a facility that is located in the state to a point of junction with any California based balancing authority.
- A solar photovoltaic project and any appurtenant infrastructure improvement, and any associated electric transmission project carrying electric power from a facility that is located in the state to a point of junction with any California-based balancing authority.

CDFW may also issue licenses or permits for take of these species for necessary scientific research or live capture and relocation, and may allow incidental take for lawful activities carried out under an approved Natural Community Conservation Plan within which such species are covered.

2.2.3 Native Plant Protection Act

The Native Plant Protection Act (NPPA) of 1977 was created with the intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA is administered by CDFW and provided in California Fish and Game Code §§ 1900-1913. The Fish and Wildlife Commission has the authority to designate native plants as *endangered* or *rare* and to protect endangered and rare plants from take. The California ESA of 1984 (California Fish and Game Code §§ 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the California Fish and Game Code.

2.2.4 California Fish and Game Code Special Protections for Birds

Sections 3503, 3513, and 3800 of the California Fish and Game Code specifically protect birds. Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Subsection 3503.5 prohibits the take, possession, or destruction of any birds in the orders Strigiformes (owls) or Falconiformes (hawks and eagles), as well as their nests and eggs. Section 3513 prohibits the take or possession of any migratory nongame bird as designated in the MBTA. Section 3800 states that, with limited exceptions, it is unlawful to take any nongame bird, defined as all birds occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds. These provisions, along with the federal MBTA, serve to protect all nongame birds and their nests and eggs, except as otherwise provided in the code.

2.2.5 Lake or Streambed Alteration Agreements

Section 1602 of the California Fish and Game Code requires that a Notification of Lake or Streambed Alteration be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." The notification must incorporate proposed measures to protect affected fish and wildlife resources. During their review, CDFW may suggest additional protective measures. A Lake or Streambed Alteration Agreement (LSAA) is the final proposal mutually agreed upon by CDFW and the applicant. Projects that require an LSAA often also require a permit from the USACE under Section 404 of the CWA. The conditions of the Section 404 permit and the LSAA frequently overlap in these instances.

2.2.6 Porter-Cologne Water Quality Act

The RWQCB implements water quality regulations under the federal CWA and the Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of storm water runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan. Under the Porter-Cologne Water Quality Act, the RWQCB also regulates actions that would involve "discharging waste, or proposing to discharge waste, within any region that could affect the water of the state" (Water Code 13260(a)). Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050(e)). The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into Waters of the State, that are not regulated by the USACE due to a lack of connectivity with a navigable water body. The RWQCB may require issuance of a Waste Discharge Requirements for these activities.

2.2.7 California Environmental Quality Act

Per CEQA Guidelines Section 15380, a species not protected on a federal or state list may be considered rare or endangered if the species meets certain specified criteria. These criteria follow the definitions in the federal and California ESAs, and Sections 1900-1913 of the California Fish and Game Code, which deal with rare or endangered plants or animals. Section 15380 was included in the CEQA Guidelines primarily to deal with situations where a project under review may have a significant effect on a species that has not yet been listed by either the USFWS or CDFW.

CEQA Significance Criteria

Sections 15063-15065 of the CEQA Guidelines address how an impact is identified as significant. Generally, impacts to listed (rare, threatened, or endangered) species are considered significant. Assessment of "impact significance" to populations of non-listed species (e.g., SSC) usually considers the proportion of the species' range that will be affected by a project, impacts to habitat, and the regional and population level effects.

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines. Pursuant to Appendix G, impacts to biological resources would normally be considered significant if the project 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 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 CDFW or USFWS;

- have a substantial adverse effect on federally protected Waters of the U.S. including wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, and coastal) 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 HCP, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA because although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish or result in the permanent loss of an important resource on a population-wide or region-wide basis.

Species of Special Concern

The CDFW defines SSC as a species, subspecies, or distinct population of an animal native to California that are not legally protected under ESA, the California ESA or the California Fish and Game Code, but currently satisfy one or more of the following criteria:

- The species has been completely extirpated from the state or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role.
- The species is listed as federally (but not state) threatened or endangered, and meets the state definition of threatened or endangered but has not formally been listed.
- The species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status.
- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for state threatened or endangered status.

SSC are typically associated with threatened habitats. Projects that result in substantial impacts to SSC may be considered significant under CEQA.

USFWS Bird of Conservation Concern

The 1988 amendment to the Fish and Wildlife Conservation Act mandates the USFWS "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation

actions, are likely to become candidates for listing under ESA." To meet this requirement, the USFWS published a list of BCC (USFWS 2021) for the U.S. The list identifies the migratory and nonmigratory bird species (beyond those already designated as federally threatened or endangered) that represent USFWS' highest conservation priorities. Depending on the policy of the lead agency, projects that result in substantial impacts to BCC may be considered significant under CEQA.

Watch List Species

The CDFW maintains a list consisting of taxa that were previously designated as *Species of Special Concern* but no longer merit that status, or which do not yet meet SSC criteria, but for which there is concern and a need for additional information to clarify status.

Depending on the policy of the lead agency, projects that result in substantial impacts to species on the Watch List may be considered significant under CEQA.

California Rare Plant Ranks

The CNPS maintains the *Rare Plant Inventory* (CNPS 2023a), which provides a list of plant species native to California that are threatened with extinction, have limited distributions, or low populations. Plant species meeting one of these criteria are assigned to one of six CRPRs. The rank system was developed in collaboration with government, academia, non-governmental organizations, and private sector botanists, and is jointly managed by CDFW and the CNPS. The CRPRs are currently recognized in the California Natural Diversity Database (CNDDB). The following are definitions of the CNPS CRPRs:

- Rare Plant Rank 1A – presumed extirpated in California and either rare or extinct elsewhere
- Rare Plant Rank 1B – rare, threatened, or endangered in California and elsewhere
- Rare Plant Rank 2A – presumed extirpated in California, but more common elsewhere
- Rare Plant Rank 2B – rare, threatened, or endangered in California but more common elsewhere
- Rare Plant Rank 3 – a review list of plants about which more information is needed
- Rare Plant Rank 4 – a watch list of plants of limited distribution

Additionally, the CNPS has defined Threat Ranks that are added to the CRPR as an extension. Threat Ranks designate the level of threat on a scale of 0.1 through 0.3, with 0.1 being the most threatened and 0.3 being the least threatened. Threat Ranks are generally present for all plants ranked 1B, 2B, or 4, and for the majority of plants ranked 3. Plant species ranked 1A and 2A (presumed extirpated in California), and some species ranked 3, which lack threat information, do not typically have a Threat Rank extension. The following are definitions of the CNPS Threat Ranks:

- Threat Rank 0.1 – Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
- Threat Rank 0.2 – Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
- Threat Rank 0.3 – Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Rank; and differences in Threat Ranks do not constitute additional or different protection (CNPS 2023a). Depending on the policy of the lead agency, substantial impacts to plants ranked 1A, 1B, 2A, or 2B are typically considered significant under CEQA Guidelines Section 15380. Significance under CEQA is typically evaluated on a case-by-case basis for plants ranked 3 or 4.

Sensitive Natural Communities

Sensitive natural communities (SNCs) are vegetation communities that are imperiled or vulnerable to environmental effects of projects. CDFW maintains the California Natural Community List (CDFW 2022), which provides a list of vegetation alliances, associations, and special stands as defined in *A Manual of California Vegetation Online* (CNPS 2023b), along with their respective state and global rarity ranks, if applicable. Natural communities with a state rarity rank of S1, S2, or S3 are considered SNCs. Depending on the policy of the lead agency, impacts to SNCs may be considered significant under CEQA.

Wildlife Movement Corridors and Nursery Sites

Impacts to wildlife movement corridors or nursery sites may be considered significant under CEQA. As part of the California Essential Habitat Connectivity Project, CDFW and Caltrans maintain data on Essential Habitat Connectivity areas. This data is available in the CNDDB. The goal of this project is to map large intact habitat or natural landscapes and potential linkages that could provide corridors for wildlife. In urban settings, riparian vegetated stream corridors can also serve as wildlife movement corridors. Nursery sites include but are not limited to concentrations of nest or den sites such as heron rookeries, bat maternity roosts, and mule deer critical fawning areas. These data are available through CDFW's Biogeographic Information and Observation System database or as occurrence records in the CNDDB and are supplemented with the results of the field reconnaissance.

2.3 Local Plans and Ordinances

2.3.1 Management Plan for the Mendota Wildlife Area

The draft Management Plan for the Mendota Wildlife Area (Plan; California Department of Fish and Game [CDFG] 1994) defines the goals and objectives for management of the wildlife area, functions as a guidance manual for managing habitat and species and describes the area's biological resources, management constraints, and environmental impacts associated with management of the area.

3.0 METHODS

3.1 Literature Review

The following resources were reviewed to determine the special-status species that have been documented within or in the vicinity of the Study Area.

- CDFW CNDDB data for the "Tranquillity, California" 7.5-minute USGS quadrangle and the nine surrounding USGS quadrangles (CDFW 2023a).
- USFWS Information, Planning, and Consultation System Resource Report List for the Study Area (USFWS 2023).

- CNPS' electronic Rare Plant Inventory was queried for the "Tranquillity, California" 7.5-minute USGS quadrangles and the nine surrounding quadrangles (CNPS 2023a).
- NMFS Resources data for the "Tranquillity, California" 7.5-minute USGS quadrangle (National Oceanic and Atmospheric Administration [NOAA] 2016).
- Draft Management Plan for the Mendota Wildlife Area (CDFG 1994).

The results of the database queries are included in Attachment A. No NMFS-protected resources occur in the vicinity of the Study Area (NOAA 2016).

Aerial imagery and site or species-specific background information, as cited throughout this document, were reviewed to determine the potential for occurrence of sensitive biological resources within or in the vicinity of the Study Area.

3.2 Field Surveys Conducted

3.2.1 Site Reconnaissance

ECORP Biologist Hannah Stone conducted a reconnaissance-level field survey for the Study Area on February 24, 2021. The Study Area was surveyed on foot using an Eos Arrow Global Positioning System unit, topographic maps, and aerial imagery to ensure total site coverage. Special attention was given to identifying those portions of the Study Area with the potential to support special-status species and sensitive habitats. During the field survey, biological communities occurring onsite were characterized and the following biological resource information was collected:

- Potential aquatic resources;
- Vegetation communities;
- Plant and animal species directly observed;
- Animal evidence (e.g., scat, tracks);
- Existing active raptor nest locations;
- Special habitat features; and
- Representative photographs (Attachment B).

3.2.2 Special-Status Plant Survey

ECORP biologists conducted a special-status plant survey within the Study Area on April 27 and August 2, 2023. The biologists walked meandering transects throughout the Study Area during the survey, including all suitable habitat for target species, and identified all plant species to the lowest possible taxonomic level required to assess rarity. No special-status plant species were observed. Additional details are provided in Attachment C.

3.3 Special-Status Species Considered for the Study Area

Based on database queries, a list of special-status species that are considered to have the potential to occur within the vicinity of the Study Area was generated (Table 1). Each of the species was evaluated for its potential to occur within the Study Area through the literature review and field observations, and categorized based on the following criteria:

- **Present** - Species was observed during the site visit or is known to occur within the Study Area based on documented occurrences within the CNDDB or other literature.
- **Potential to Occur** - Habitat (including soils and elevation requirements) for the species occurs within the Study Area.
- **Low Potential to Occur** - Marginal or limited amounts of habitat occurs and/or the species is not known to occur within the vicinity of the Study Area based on CNDDB records and other available documentation.
- **Absent** - No suitable habitat (including soils and elevation requirements) and/or the species is not known to occur within the vicinity of the Study Area based on CNDDB records and other documentation.

4.0 RESULTS

4.1 Existing Condition

4.1.1 Site Characteristics and Land Use

The Study Area is located within relatively flat terrain situated at an elevational range of approximately 155 to 160 feet above mean sea level (MSL) in the San Joaquin Valley subregion of the California floristic province (Jepson eFlora 2021). The average winter low temperature in the vicinity of the Study Area is 37.2 degrees Fahrenheit and the average summer high temperature is 93.9℉. Average annual precipitation is approximately 12.23 inches, which falls as rain (NOAA 2023).

The Study Area is on State-owned land within and adjacent to the Mendota Wildlife Area Headquarters. The majority of the Study Area is a sparsely vegetated annual grassland that is regularly disced for fire safety. The Study Area also includes portions of access roads.

The Study Area is directly adjacent to lands that are either developed or disturbed. Lands further north and east of the Study Area are part of the Mendota Wildlife Area and mostly consist of riparian habitat, alkali sink scrub, and seasonally flooded wetlands managed mostly to provide wintering habitat for migratory birds. Lands further east and south of the Study Area are used for agriculture.

Representative photographs of the Study Area are included in Attachment B.

4.1.2 Soils

According to the Web Soil Survey (NRCS 2023), one map unit, or soil type, has been mapped within the Study Area (Figure 3. *Natural Resources Conservation Service Soil Types*):

- 375 – Lethent silt loam, 0 to 1 percent slopes, poorly drained, MRLA 17

This map unit consists of 85 percent Lethent silt loam, poorly drained, and similar soils, and 15 percent minor components. The Lethent series is described as very deep, moderately well-drained soils on low lying alluvial fans, fan remnants, basins, and basin rims. These soils formed in mixed alluvium dominantly from sedimentary and/or igneous rocks. The Lethent silt loam, poorly drained soil type is strongly saline and has a hydric soil rating. Additionally, one minor component (Lillis, clay) is rated as hydric (NRCS 2023).

No soil units derived from serpentinite or other ultramafic parent materials have been reported to occur within the Study Area or its immediate vicinity (Horton 2017; Jennings et al. 1977; NRCS 2023).

4.1.3 Vegetation Communities and Land Cover Types

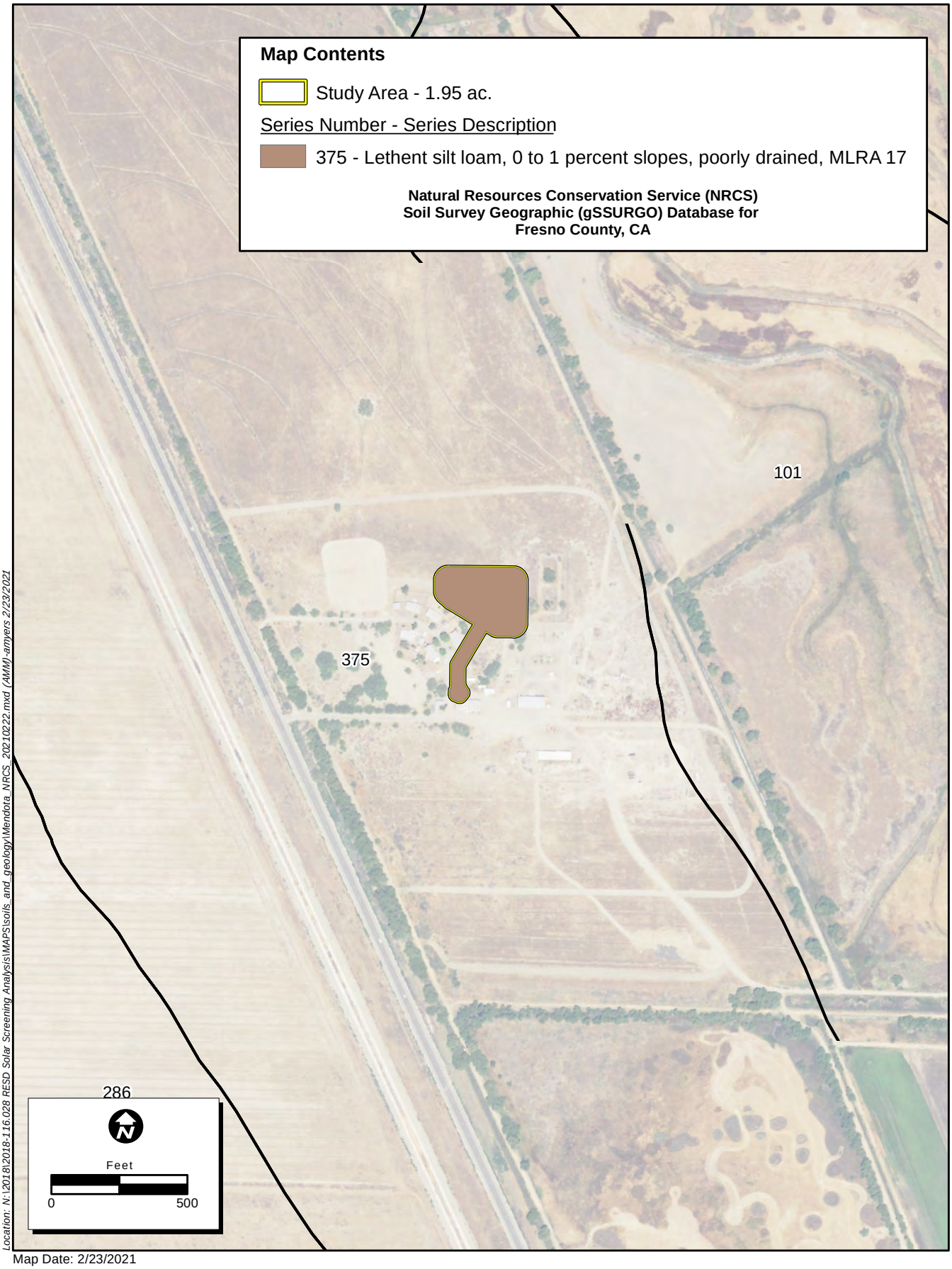
The only vegetation communities or land cover types observed within the Study Area include annual grassland and developed/disturbed areas. These are described in the following sections.

Annual Grassland

The annual grassland is located within the solar array area and is annually disced for fire safety (Figure 1). The annual grassland is located within a flat, open area and was sparsely vegetated at the time of the site reconnaissance. The area consisted of dry, cracked, alkaline soils with sparse, patchy vegetation. The grassland appeared to be dominated by brome (*Bromus* sp.), although the annual grasses had just started to sprout, and remnant grasses from the previous year's growing season were not in a condition conducive to identification. Scattered forb seedlings growing among grasses included red-stemmed filaree (*Erodium cicutarium*), clover (*Trifolium* sp.), and English plantain (*Plantago lanceolata*). The site reconnaissance was not conducted during the optimum identifiable period for most plant species and the annual grassland could not be positively keyed to the alliance-level; however, the annual grassland did not have characteristics of a sensitive alliance and is not expected to be a sensitive natural community.

Disturbed/Developed

The trenching alignment is within an area that is either disturbed or developed. This area includes portions of unpaved, dirt or gravel one-lane access roads and disturbed areas adjacent to these roads. The disturbed/developed portion of the Study Area was largely devoid of vegetation at the time of the site reconnaissance. One honey mesquite (*Prosopis glandulosa*) shrub was observed within the disturbed portion of the Study Area.



Map Date: 2/23/2021
Photo Source: NAIP 2018

Figure 3. Natural Resources Conservation Service Soil Types

4.1.4 Aquatic Resources

A preliminary aquatic resources assessment to identify potential Waters of the U.S. and State was conducted within the Study Area concurrent with the reconnaissance-level field survey. No potential aquatic resources were observed within the Study Area, and no aquatic resources are mapped within the Study Area in the California Aquatic Resources Inventory (CARI) data (San Francisco Estuary Institute 2017) (Figure 4). The CARI is a statewide dataset of surface waters and related habitats that combines multiple national and regional datasets, including the National Wetlands Inventory and the National Hydrography Dataset.

The nearest aquatic resource to the Study Area mapped in the CARI data is a depressional seasonal natural emergent wetland located approximately 300 feet east of the Study Area (Figure 4).

4.1.5 Wildlife Observations

Wildlife observed within or in the vicinity of the Study Area during the site reconnaissance includes killdeer (*Charadrius vociferus*), red-tailed hawk (*Buteo jamaicensis*), and California ground squirrel (*Otospermophilus beecheyi*). Sign of coyote (*Canis latrans*) and rabbit or hare (*Leporidae* sp.) was also observed.

4.2 Evaluation of Species Identified in the Literature Search

Table 1 lists all the special-status plant and wildlife species (as defined in Section 1.3) identified in the literature review as potentially occurring within the vicinity of the Study Area. Included in this table are the listing status for each species, a brief habitat description, and an evaluation on the potential for each species to occur within the Study Area.

Following the table is a brief description and discussion of each special-status species that was determined to have potential to occur onsite.

Location: N:\2018\2018-116.028 RESD Solar Screening Analysis\MAPS\jurisdictional_delineation\Mendota_CARI_20210222.mxd (AMM)-amyers 2/22/2021

Map Date: 2/22/2021
Photo Source: NAIP 2018

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Figure 4. California Aquatic Resources Inventory

2018-116.028/003 RESD - Screening Analysis - Solar: Mendota

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	FESA	CESA	Other			
Plants						
Heartscale *(Atriplex cordulata* var. *cordulata)*	–	–	1B.2	Alkaline or saline valley and foothill grasslands, meadows and seeps, and chenopod scrub communities (0'–1,835').	April–October	Low potential to occur. The disturbed annual grassland within the Study Area may provide marginal habitat for this species. However, this species was not observed during the special-status plant survey.
Earlimart orache *(Atriplex cordulata var. erecticaulis)*	–	–	1B.2	Valley and foothill grassland (130'–330').	August–September	Low potential to occur. The disturbed annual grassland within the Study Area may provide marginal habitat for this species. However, this species was not observed during the special-status plant survey.
Lost Hills crownscale (*Atriplex coronata* var. *vallicola*)	–	–	1B.2	Alkaline soils in valley and foothill grasslands and alkaline vernal pools (165'–2,085').	April–September	Low potential to occur. The disturbed annual grassland within the Study Area may provide marginal habitat for this species. However, this species was not observed during the special-status plant survey.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	FESA	CESA	Other			
Brittlescale *(Atriplex depressa)*	–	–	1B.2	Alkaline and clay soils within chenopod scrub, meadows and seeps, playas, valley and foothill grasslands, and vernal pools (5'–1,050').	April–October	Low potential to occur. The disturbed annual grassland within the Study Area may provide marginal habitat for this species. However, this species was not observed during the special-status plant survey.
Lesser saltscale *(Atriplex minuscula)*	–	–	1B.1	Alkaline, sandy soils in chenopod scrub, playas, and valley and foothill grassland (50'–655').	May–October	Low potential to occur. The disturbed annual grassland within the Study Area may provide marginal habitat for this species. However, this species was not observed during the special-status plant survey.
Vernal pool smallscale *(Atriplex persistens)*	–	–	1B.2	Alkaline vernal pools (35'–375').	June–October	Absent. No suitable habitat within Study Area.
Subtle orache (*Atriplex subtilis*)	–	–	1B.2	Alkaline valley and foothill grasslands (130'–330').	June–September	Low potential to occur. The disturbed annual grassland within the Study Area may provide marginal habitat for this species. However, this species was not observed during the special-status plant survey.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	FESA	CESA	Other			
Palmate-bracted bird's-beak *(Chloropyron palmatum)*	FE	CE	1B.1	Alkaline areas in chenopod scrub and valley and foothill grassland (15'–510').	May–October	Low potential to occur. The disturbed annual grassland within the Study Area may provide marginal habitat for this species. However, this species was not observed during the special-status plant survey.
Recurved larkspur *(Delphinium recurvatum)*	–	–	1B.2	Chenopod scrub, cismontane woodland, and valley and foothill grasslands (10'–2,590').	March–June	Low potential to occur. The disturbed annual grassland within the Study Area may provide marginal habitat for this species. However, this species was not observed during the special-status plant survey.
Hoover's eriastrum *(Eriastrum hooveri)*	–	–	4.2	Sometimes gravelly soils of chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland (165'–3,000').	March–July	Low potential to occur. The disturbed annual grassland within the Study Area may provide marginal habitat for this species. However, this species was not observed during the special-status plant survey.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	FESA	CESA	Other			
Cottony buckwheat (*Eriogonum gossypinum*)	–	–	4.2	Clay soils in chenopod scrub and valley and foothill grassland (330'–1,805').	March–September	Low potential to occur. The disturbed annual grassland within the Study Area may provide marginal habitat for this species. However, this species was not observed during the special-status plant survey.
Spiny-sepaled button-celery *(Eryngium spinosepalum)*	–	–	1B.2	Vernal pools and valley and foothill grassland (260'–3,200').	April–June	Low potential to occur. The disturbed annual grassland within the Study Area may provide marginal habitat for this species. However, this species was not observed during the special-status plant survey.
Golden goodmania (*Goodmania luteola*)	–	–	4.2	Alkaline or clay soils of Mojavean desert scrub, meadows and seeps, playas, and valley and foothill grassland (65'–7,220').	April–August	Low potential to occur. The disturbed annual grassland within the Study Area may provide marginal habitat for this species. However, this species was not observed during the special-status plant survey.
Alkali-sink goldfields (*Lasthenia chrysantha*)	–	–	1B.1	Alkaline vernal pools (0–655').	February–April	Absent. No suitable habitat within Study Area.
Ferris' goldfields *(Lasthenia ferrisiae)*	–	–	4.2	Alkaline and clay vernal pools (65'–2,295').	February–May	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	FESA	CESA	Other			
Munz's tidy tips *(Layia munzii)*	–	–	1B.2	Alkaline clay soils in chenopod scrub and valley and foothill grasslands (490'–2,295').	March–April	Low potential to occur. The disturbed annual grassland within the Study Area may provide marginal habitat for this species. However, this species was not observed during the special-status plant survey.
Panoche pepper-grass (*Lepidium jaredii* ssp. *album*)	–	–	1B.2	Steep slopes, clay and sometimes alkaline soils of valley and foothill grassland (605'–2,445').	February–June	Low potential to occur. The disturbed annual grassland within the Study Area may provide marginal habitat for this species. However, this species was not observed during the special-status plant survey.
San Joaquin woollythreads *(Monolopia congdonii)*	FE	–	1B.2	Chenopod scrub and sandy soils of valley and foothill grassland (195'–2,625').	February–May	Low potential to occur. The disturbed annual grassland within the Study Area may provide marginal habitat for this species. However, this species was not observed during the special-status plant survey.
California alkali grass (*Puccinellia simplex*)	–	–	1B.2	Alkaline, vernally mesic areas in sinks, flats and lake margins in chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools (5'–3,050').	March–May	Absent. No suitable habitat within Study Area.
Sanford's arrowhead *(Sagittaria sanfordii)*	–	–	1B.2	Shallow marshes and freshwater swamps (0'–2,135').	May–October	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	FESA	CESA	Other			
San Joaquin bluecurls *(Trichostema ovatum)*	–	–	4.2	Chenopod scrub and valley and foothill grassland (215'–1,050').	July–October	Low potential to occur. The disturbed annual grassland within the Study Area may provide suitable habitat for this species. However, this species was not observed during the special-status plant survey.
Invertebrates						
Longhorn fairy shrimp *(Branchinecta longiantenna)*	FE	-	-	Vernal pools/wetlands.	November – April	Absent. No suitable habitat within Study Area.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	-	-	Vernal pools/wetlands.	November-April	Absent. No suitable habitat within Study Area.
Monarch butterfly - California overwintering population *(*Danaus plexippus plexippus pop 1*)*	FC	–	–	Overwinters along coastal California in wind-protected groves of eucalyptus, Monterey pine and cypress with nearby nectar and water sources; disperses in spring throughout California. Adults breed and lay eggs during the spring and summer, feeding on a variety of nectar sources; eggs are laid exclusively on milkweed plants.	Any season	Absent. No suitable overwintering habitat within Study Area.
Amphibians						
Western spadefoot (*Spea hammondii*)	-	-	SSC	California endemic species of vernal pools, swales, wetlands and adjacent grasslands throughout the Central Valley.	March-May	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	FESA	CESA	Other			
Reptiles						
Northwestern pond turtle (*Actinemys marmorata*)	FPT	-	SSC	Requires basking sites and upland habitats up to 0.5 km from water for egg laying. Uses ponds, streams, detention basins, and irrigation ditches.	April-September	Low potential to occur. The disturbed annual grassland within the Study Area may provide very marginal upland habitat for this species.
Northern legless lizard (*Anniella pulchra*)	-	-	SSC	The most widespread of California's *Anniella* species. Occurs in sandy or loose soils under sparse vegetation from Antioch south coastally to Ventura. Bush lupine is often an indicator plant, and two melanistic populations are known.	Generally spring, but depends on location and conditions	Low potential to occur. The disturbed annual grassland within the Study Area may provide very marginal habitat for this species.
Blunt-nosed leopard lizard *(Gambelia sila)*	FE	CE	CFP	Occurs in sparsely vegetated alkali scrub habitats in the southern San Joaquin Valley. Uses mammal burrows, shrubs and other structures for shade.	April - July	Low potential to occur. The disturbed annual grassland within the Study Area may provide very marginal habitat for this species.
Blainville's ("Coast") horned lizard (*Phrynosoma blainvillii*)	-	-	SSC	Formerly a wide-spread horned lizard found in a wide variety of habitats, often in lower elevation areas with sandy washes and scattered low bushes. Also occurs in Sierra Nevada foothills. Requires open areas for basking, but with bushes or grass clumps for cover, patches of loamy soil or sand for burrowing and an abundance of ants (Stebbins and McGinnis 2012).	Apr-Oct	Low potential to occur. The disturbed annual grassland within the Study Area may provide marginal habitat for this species.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	FESA	CESA	Other			
San Joaquin coachwhip *(Coluber flagellum ruddocki)*	-	-	SSC	Occurs in open, dry, usually flat habitats in Valley Grassland and Saltbush Scrub with little to no shrub cover in the San Joaquin Valley. A dietary generalist.	March-October	Low potential to occur. The disturbed annual grassland within the Study Area may provide very marginal habitat for this species.
Giant garter snake (*Thamnophis gigas*)	FT	CT	-	Freshwater ditches, sloughs, and marshes in the Central Valley. Almost extirpated from the southern parts of its range.	April-October	Absent. No suitable habitat within Study Area. The Study Area is not near aquatic habitat.
Two-striped gartersnake (*Thamnophis hammondii*)	-	-	SSC	Found in or near permanent fresh water, often along streams with rocky beds and riparian growth in coastal California from vicinity of Salinas to northwest Baja California at elevations ranging from sea level to 7,000 feet (CDFW 2023a).	February-November	Absent. The Study Area is outside of the geographic range for this species.
Birds						
White-faced ibis *(Plegadis chihi)*	-	-	CDFW WL	Colonial nester; Nests in shallow marshes with islands of emergent vegetation, flooded shoals and mangrove swamps.	May-August	Absent. No suitable nesting habitat within Study Area.
Clark's grebe *(Aechmophorus clarkii)*	-	-	BCC	Winters on salt or brackish bays, estuaries, sheltered sea coasts, freshwater lakes, and rivers. Breeds on freshwater to brackish marshes, lakes, reservoirs and ponds, with a preference for large stretches of open water fringed with emergent vegetation.	June-August (breeding)	Absent. No suitable nesting habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	FESA	CESA	Other			
Swainson's hawk (*Buteo swainsoni*)	-	CT	BCC	Nesting occurs in trees in agricultural, riparian, oak woodland, scrub, and urban landscapes. Forages over grassland, agricultural lands, particularly during disking/harvesting, irrigated pastures	March-August	Potential to occur. No suitable nesting habitat, but annual grasslands within the Study Area may provide suitable foraging habitat for this species.
Nuttall's woodpecker *(Dryobates nuttallii)*	-	-	BCC	Resident from northern California south to Baja California. Nests in tree cavities in oak woodlands and riparian woodlands.	April-July	Absent. No suitable nesting habitat within Study Area.
Merlin *(Falco columbarius)*	-	-	CDFW WL	Breeds in Oregon, Washington north into Canada. Winters in southern Canada to South America, including California. Breeds near forest openings, fragmented woodlots, and riparian areas. Wintering habitat includes wide variety, open forests, grasslands, tidal flats, plains, and urban settings.	September-April (wintering in the Central Valley); does not breed in California	Absent. No suitable habitat within Study Area.
Yellow-billed cuckoo (*Coccyzus americanus*)	FT	CE	–	Breeding habitat is generally open woodland with clearings and low, dense, scrubby vegetation associated with watercourses, and includes desert riparian woodlands with willow, Fremont's cottonwood, alder, walnut, box-elder, and dense mesquite. Nests are generally found in deciduous hardwoods with thick bushes, vines, or hedgerows providing dense foliage within 10 meters (33 feet) of ground; prefer riparian patches of at least 81 hectares (200 acres) (Hughes 2020). Winters in South America.	June 15-August 15	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	FESA	CESA	Other			
Mountain plover (*Charadrius montanus*)	-	-	BCC, SSC	Breeds in the Great Plains/Midwestern US; winters in California, Arizona, Texas, and Mexico; wintering habitat in California includes tilled fields, heavily grazed open grassland, burned fields, and alfalfa fields.	September-March (wintering)	Low potential to occur. Due to the proximity to development, the annual grassland within the Study Area may only provide marginal winter foraging habitat for this species.
Long-billed curlew (*Numenius americanus*)	-	-	BCC	Breeds east of the Cascades in Washington, Oregon, northeastern California (Siskiyou, Modoc, Lassen counties), east-central California (Inyo County), through Great Basin region into Great Plains. Winters in California, Texas, and Louisiana. Wintering habitat includes tidal mudflats and estuaries, wet pastures, sandy beaches, salt marsh, managed wetlands, evaporation ponds, sewage ponds, and grasslands.	September-March (wintering)	Low potential to occur. Due to the proximity to development, the annual grassland within the Study Area may only provide marginal winter foraging habitat for this species.
Willet (*Tringa semipalmata*)	-	-	BCC	Breeds locally in interior of western North America. In California, breeding range includes the Klamath Basin and Modoc Plateau and portions of Mono and possibly Inyo counties. Breeding habitat includes prairies, Breeds in wetlands and grasslands on semiarid plains; in uplands near brackish or saline wetlands; prefers temporary, seasonal, and alkali wetlands over semipermanent and permanent wetlands.	April-August	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	FESA	CESA	Other			
California gull (nesting colony) *(Larus californicus)*	–	–	BCC, CDFW WL	Nesting occurs in the Great Basin, Great Plains, Mono Lake, and south San Francisco Bay. Breeding colonies located on islands on natural lakes, rivers, or reservoirs. Winters along Pacific Coast from southern British Columbia south to Baja California and Mexico. In California, winters along coast and inland (Central Valley, Salton Sea).	April-August	Absent. No suitable habitat within Study Area.
Black tern *(Chlidonias niger)*	–	–	BCC, SSC	Breeding range includes northeastern California, Central Valley, Great Plains of U.S. and Canada; winters in Central and South America; nesting habitat includes shallow freshwater marsh with emergent vegetation, prairie sloughs, lake margins, river islands, and cultivated rice fields.	May-August	Absent. No suitable habitat within Study Area.
Burrowing owl *(Athene cunicularia)*	-	-	BCC, SSC	Nests in burrows or burrow surrogates in open, treeless, areas within grassland, steppe, and desert biomes. Often with other burrowing mammals (e.g., prairie dogs, California ground squirrels). May also use human-made habitat such as agricultural fields, golf courses, cemeteries, roadside, airports, vacant urban lots, and fairgrounds.	February-August	Low potential to occur. Ground squirrel burrows were observed within the annual grassland of the Study Area; however, due to annual discing, the grassland may only provide marginal nesting habitat for this species.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	FESA	CESA	Other			
Short-eared owl (*Asio flammeus*)	-	-	SSC	Nests in large expanses of prairie, coastal grasslands, heathlands, shrub-steppe, tundra, and agricultural areas.	March-July (breeding); August-March (wintering in Central Valley)	Low potential to occur. Due to the proximity to development, the annual grassland within the Study Area may only provide marginal foraging habitat for this species. This species does not nest in the region.
California horned lark (*Eremophila alpestris actia*)	-	-	CDFW WL	San Joaquin Valley, coast range from Sonoma County south to Baja California; grassland, agricultural.	March-July	Low potential to occur. Due to annual discing, the annual grassland within the Study Area may only provide marginal nesting habitat for this species.
Bank swallow (*Riparia riparia*)	-	CT	-	Nests colonially along coasts, rivers, streams, lakes, reservoirs, and wetlands in vertical banks, cliffs, and bluffs in alluvial, friable soils. May also nest in sand, gravel quarries and road cuts. In California, breeding range includes northern and central California.	May-July	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	FESA	CESA	Other			
Lawrence's goldfinch (*Spinus lawrencei*)	-	-	BCC	Breeds in Sierra Nevada and inner Coast Range foothills surrounding the Central Valley and the southern Coast Range to Santa Barbara County east through southern California to the Mojave Desert and Colorado Desert into the Peninsular Range. Nests in arid and open woodlands with chaparral or other brushy areas, tall annual weed fields, and a water source (e.g., small stream, pond, lake), and to a lesser extent riparian woodland, coastal scrub, evergreen forests, pinyon-juniper woodland, planted conifers, and ranches or rural residences near weedy fields and water.	March-September	Absent. No suitable habitat within Study Area.
Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)	–	CE	BCC	Resident coastally from Point Conception south into Baja California; coastal salt marsh.	Year-round resident; nests March-August	Absent. No suitable habitat within Study Area.
Tricolored blackbird (*Agelaius tricolor*)	-	CT	BCC, SSC	Breeds locally west of Cascade-Sierra Nevada and southeastern deserts from Humboldt and Shasta counties south to San Bernardino, Riverside and San Diego counties. Central California, Sierra Nevada foothills and Central Valley, Siskiyou, Modoc and Lassen counties. Nests colonially in freshwater marsh, blackberry bramble, milk thistle, triticale fields, weedy (mustard, mallow) fields, giant cane, safflower, stinging nettles, tamarisk, riparian scrublands and forests, fiddleneck and fava bean fields.	March-August	Potential to occur. No suitable nesting habitat, but annual grasslands within the Study Area may provide suitable foraging habitat for this species.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	FESA	CESA	Other			
Bullock's oriole (*Icterus bullockii*)	–	–	BCC	Breeding habitat includes riparian and oak woodlands.	March-July	Absent. No suitable habitat within Study Area.
Saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*)	-	-	BCC, SSC	Breeds in salt marshes of San Francisco Bay; winters San Francisco south along coast to San Diego County.	March-July	Absent. Study Area is outside of distributional range of this subspecies and there is no suitable habitat.
Mammals						
Western red bat (*Lasiurus blossevillii*)	-	-	SSC	Roosts in foliage of trees or shrubs; Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores) (WBWG 2023).	April-September	Low potential to occur. The honey mesquite shrub within the disturbed/developed portion of the Study Area and adjacent habitats may provide marginal roosting habitat for this species. This species may forage within the Study Area.
Western mastiff bat (*Eumops perotis californicus*)	-	-	SSC	Roosts in crevices in cliff faces, high buildings, trees, and tunnels in many open, semi-arid to arid habitats including chaparral, coniferous and hardwood woodlands, coastal scrub, and grasslands (CDFW 2023a)		Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	FESA	CESA	Other			
Nelson's antelope squirrel (*Ammospermophilus nelsoni*)	-	CT	-	Dry, sparsely vegetated areas with loam soils in chenopod scrub habitats in the Western San Joaquin Valley from 200-1200 feet in elevation. Needs widely scattered shrubs, forbs, and grasses in broken terrain with gullies and washes (CDFW 2023a).	Any season	Low potential to occur. The Study Area is outside of the known geographical range for this species (CDFW 2023b); however, it is in close proximity and the disturbed annual grassland may provide marginal habitat for this species.
Giant kangaroo rat (*Dipodomys ingens*)	FE	CE	-	Annual grasslands on the western side of the San Joaquin Valley. Marginal habitat in alkali scrub. Needs level terrain and sandy loam soils for burrowing.	Any Season	Low potential to occur. The Study Area is outside of the known geographical range for this species (CDFW 2023a); however, it is in close proximity and the disturbed annual grassland may provide marginal habitat for this species
Fresno kangaroo rat *(Dipodomys nitratoides exilis)*	FE	CE	-	Elevated grassy patches on alkali plains or in grassy terrain with scattered alkali patches. Friable soils for burrow digging and annual and native forbs and grasses for foraging are necessary habitat components. Distribution is limited to the flat San Joaquin Valley floor from Merced County to the northern border of Kings County (USFWS 2010a).	Any Season	Absent. The disturbed annual grassland may provide very marginal potential habitat, but there are no known extant populations within the historical geographic range for this species in Merced, Madera and Fresno counties (USFWS 2010a).

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description[1]	Survey Period	Potential to Occur Onsite
	FESA	CESA	Other			
Tulare grasshopper mouse (*Onychomys torridus tularensis*)	-	-	SSC	Hot valleys and scrub deserts of chenopod scrub habitats in the southern San Joaquin Valley. Requires abundant supply of insects.	Any Season	Low potential to occur. The disturbed annual grassland within the Study Area may provide marginal habitat for this species.
San Joaquin kit fox *(Vulpes macrotis mutica)*	FE	CT	-	Grasslands, sagebrush scrub.	April 15 - July 15, September 1 - December 1	Low potential to occur. No potential dens were observed, but the disturbed annual grassland within the Study Area may provide marginal movement and foraging habitat for this species.
American badger *(Taxidea taxus)*	-	-	SSC	Drier open stages of most shrub, forest, and herbaceous habitats with friable soils.	Any season	Low potential to occur. No potential dens were observed, but the annual grassland within the Study Area may provide marginal movement and foraging habitat for this species.

[1]Habitat descriptions for plant species are from the CNPS Inventory of Rare and Endangered Plants (CNPS 2023a), unless otherwise stated.

Status Codes:

ESA	Federal Endangered Species Act
CESA	California Endangered Species Act
FE	ESA listed, Endangered.
FT	ESA listed, Threatened.
FPT	Proposed for ESA listing as Threatened
FC	Candidate for ESA listing as Threatened or Endangered
FE	ESA listed, Endangered
BCC	USFWS Bird of Conservation Concern
CT	CESA- or NPPA-listed, Threatened.
CE	CESA or NPPA listed, Endangered.
CFP	California Fish and Game Code Fully Protected Species (§ 3511-birds, § 4700-mammals, §5 050-reptiles/amphibians).
CDFW WL	CDFW Watch List
SSC	CDFW Species of Special Concern (CDFW, updated July 2017).
1B	CRPR/Rare or Endangered in California and elsewhere.
4	CRPR/Plants of Limited Distribution – A Watch List.
0.1	Threat Rank/Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2	Threat Rank/Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

4.2.1 Plants

A total of 21 special-status plant species were identified as having potential to occur in the vicinity of the Study Area based on the literature review (Table 1). Of those, five species are considered to be absent from the Study Area due to the lack of suitable habitat (Table 1). No further discussion of those species is provided in this assessment. A brief description of the remaining 16 species that have potential or low potential to occur within the Study Area is presented below.

Heartscale

Heartscale (*Atriplex cordulata* var. *cordulata*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual found within valley and foothill grasslands with sandy soils, meadows and seeps, and chenopod scrub communities, sometimes within alkaline or saline habitats. Heartscale flowers from April through October and is known to occur at elevations ranging from 0 to 1,835 feet above MSL. Heartscale is endemic to California. The current range of this species includes Alameda, Butte, Contra Costa, Colusa, Fresno, Glenn, Kern, Madera, Merced, San Joaquin, Solano, Stanislaus, Tulare, and Yolo counties; however, it is presumed extirpated from San Joaquin, Stanislaus, and Yolo counties (CNPS 2023a).

There are two CNDDB occurrences of heartscale within five miles of the Study Area (CDFW 2023a). The disturbed annual grassland within the Study Area may provide marginal habitat; however, this species was not observed during the special-status plant survey. Heartscale has low potential to occur within the Study Area.

Earlimart Orache

Earlimart orache (*Atriplex cordulata* var. *erecticaulis*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species (CNPS 2023a). This species is an herbaceous annual that occurs on saline or alkaline soils within valley and foothill grasslands (CNPS 2023a; Zacharias 2013;). Earlimart orache flowers from August through September and is known to occur at elevations ranging from 130 to 330 feet above MSL. Earlimart orache is endemic to California; the current range of this species includes Fresno, Kern, Kings, and Tulare counties (CNPS 2023a).

There are no CNDDB occurrences of Earlimart orache within five miles of the Study Area (CDFW 2023a). The disturbed annual grassland within the Study Area may provide marginal; however, this species was not observed during the special-status plant survey. Earlimart orache has low potential to occur within the Study Area.

Lost Hills Crownscale

Lost Hills crownscale (*Atriplex coronata* var. *vallicola*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. Alkaline soils in chenopod scrub, valley and foothill grassland, and alkaline vernal pools are potential habitat for this plant species. Lost Hills crownscale differs from heartscale primarily in the shape and size of the fruiting bracts. Lost Hills crownscale is an herbaceous annual that flowers from April through September and is known to occur at elevations ranging from 165 feet to 2,085 feet above MSL. Lost Hills crownscale is endemic to California; the current range of this species includes Fresno, Kings, Kern, Merced, Monterey, San Benito, San Luis Obispo, and Tulare counties (CNPS 2023a).

There are two CNDDB occurrences of Lost Hills crownscale within five miles of the Study Area (CDFW 2023a). The disturbed annual grassland within the Study Area may provide marginal habitat; however, this species was not observed during the special-status plant survey. Lost Hills crownscale has low potential to occur within the Study Area.

Brittlescale

Brittlescale (*Atriplex depressa*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs on alkaline and clay soils within chenopod scrub, meadows and seeps, playas, valley and foothill grassland, and vernal pools. Brittlescale blooms from April through October and is known to occur at elevations ranging from five to 1,050 feet above MSL. Brittlescale is endemic to California; the current range of this species includes Alameda, Contra Costa, Colusa, Fresno, Glenn, Kings, Merced, Solano, Tulare, and Yolo counties (CNPS 2023a).

There is one CNDDB occurrence of brittlescale within five miles of the Study Area (CDFW 2023a). The disturbed annual grassland within the Study Area may provide marginal habitat; however, this species was not observed during the special-status plant survey. Brittlescale has low potential to occur within the Study Area.

Lesser Saltscale

Lesser saltscale (*Atriplex minuscula*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in alkaline and sandy soils in chenopod scrub, playas, and valley and foothill grassland. Lesser saltscale blooms from May through October, and is known to occur at elevations ranging from 50 to 655 feet above MSL. Lesser saltscale is endemic to California. The current range of this species includes Alameda, Butte, Fresno, Kern, Kings, Madera, Merced, Stanislaus, and Tulare counties; however, it is likely extirpated from Stanislaus County (CNPS 2023a).

There is one CNDDB occurrence of lesser saltscale within five miles of the Study Area (CDFW 2023a). The disturbed annual grassland within the Study Area may provide marginal habitat; however, this species was not observed during the special-status plant survey. Lesser saltscale has low potential to occur within the Study Area.

Subtle Orache

Subtle orache (*Atriplex subtilis*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in alkaline valley and foothill grasslands. Subtle orache blooms from June through September and is known to occur at elevations ranging from 130 to 330 feet above MSL. Subtle orache is endemic to California; the current range of this species includes Butte, Fresno, Kings, Kern, Madera, Merced, Stanislaus, and Tulare counties (CNPS 2023a).

There are no CNDDB occurrences of subtle orache within five miles of the Study Area (CDFW 2023a). The disturbed annual grassland within the Study Area may provide marginal habitat; however, this species was not observed during the special-status plant survey. Subtle orache has low potential to occur within the Study Area.

Palmate-bracted Bird's-beak

Palmate-bracted bird's-beak (*Chloropyron palmatum*) is listed as endangered pursuant to both the federal and California ESAs, and is designated as a CRPR 1B.1 species. This species is an herbaceous, hemiparasitic annual that occurs in alkaline areas in chenopod scrub and valley and foothill grassland. Palmate-bracted bird's-beak blooms from May through October and is known to occur at elevations ranging from 15 to 510 feet above MSL. Palmate-bracted bird's-beak is endemic to California. The current range of this species includes Alameda, Colusa, Fresno, Glenn, Madera, San Joaquin, and Yolo counties; however, it is presumed extirpated from San Joaquin County (CNPS 2023a).

There are two CNDDB occurrence of palmate-bracted bird's-beak within five miles of the Study Area (CDFW 2023a). The disturbed annual grassland within the Study Area may provide marginal habitat; however, this species was not observed during the special-status plant survey. Palmate-bracted bird's-beak has low potential to occur within the Study Area.

Recurved Larkspur

Recurved larkspur (*Delphinium recurvatum*) is not listed pursuant to either the federal or California ESAs, but is designated a CRPR 1B.2 species. This species is an herbaceous perennial that occurs in alkaline substrates in chenopod scrub, cismontane woodland, and valley and foothill grasslands. Recurved larkspur blooms from March through June and is known to occur at elevations ranging from 10 to 2,590 feet above MSL. Recurved larkspur is endemic to California; the current range of this species includes Alameda, Butte, Contra Costa, Fresno, Kern, Kings, Madera, Merced, Monterey, San Benito, San Joaquin, San Luis Obispo, Santa Barbara, Solano, Sutter, and Tulare, and Yuba counties. The species is presumed extirpated from Butte County (CNPS 2023a).

There are no CNDDB occurrences of recurved larkspur within five miles of the Study Area (CDFW 2023a). The disturbed annual grassland within the Study Area may provide marginal habitat; however, this species was not observed during the special-status plant survey. Recurved larkspur has low potential to occur within the Study Area.

Hoover's Eriastrum

Hoover's eriastrum (*Eriastrum hooveri*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is an herbaceous annual that occurs in chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland; sometimes on gravelly substrates. Hoover's eriastrum blooms from March through July and is known to occur at elevations ranging from 165 to 3,000 feet above MSL. Hoover's eriastrum is endemic to California; the current range of this species includes Fresno, Kings, Kern, San Luis Obispo, and Santa Barbara counties (CNPS 2023a).

There are two CNDDB occurrences of Hoover's eriastrum within five miles of the Study Area (CDFW 2023a). The disturbed annual grassland within the Study Area may provide marginal habitat; however, this species was not observed during the special-status plant survey. Hoover's eriastrum has low potential to occur within the Study Area.

Cottony Buckwheat

Cottony buckwheat (*Eriogonum gossypinum*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is an herbaceous annual that occurs on clay

soils in chenopod scrub and valley and foothill grassland. Cottony buckwheat blooms from March through September and is known to occur at elevations ranging from 330 to 1,805 feet above MSL. Cottony buckwheat is endemic to California; the current range of this species includes Fresno, Kern, Kings, San Luis Obispo, and Ventura counties (CNPS 2023a).

There are no CNDDB occurrences of Cottony buckwheat within the "Tranquillity, California" 7.5-minute quadrangle (CDFW 2023b). The disturbed annual grassland within the Study Area may provide marginal habitat; however, this species was not observed during the special-status plant survey. Cottony buckwheat has low potential to occur within the Study Area.

Spiny-sepaled Button-celery

Spiny-sepaled button-celery (*Eryngium spinosepalum*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual/perennial that occurs in valley and foothill grassland and vernal pools. Spiny-sepaled button-celery blooms from April through June and is known to occur at elevations ranging from 260 to 3,200 feet above MSL. Spiny-sepaled button-celery is endemic to California; the current range of this species includes Calaveras, Contra Costa, Fresno, Kern, Madera, Mariposa, Merced, San Luis Obispo, Stanislaus, Tulare, and Tuolumne counties (CNPS 2023a).

There are no CNDDB occurrences of spiny-sepaled button-celery within five miles of the Study Area (CDFW 2023a). The disturbed annual grassland within the Study Area may provide marginal habitat; however, this species was not observed during the special-status plant survey. Spiny-sepaled button-celery has low potential to occur within the Study Area.

Golden Goodmania

Golden goodmania (*Goodmania luteola*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is an herbaceous annual that occurs on alkaline or clay soils in Mojavean desert scrub, meadows and seeps, playas, and valley and foothill grassland. Golden goodmania blooms from April through August and is known to occur at elevations ranging from 65 to 7,220 feet above MSL. The current range of this species in California includes Fresno, Inyo, Kern, Los Angeles, Madera, Mono, and Tulare counties (CNPS 2023a).

There is at least one CNDDB occurrence of golden goodmania within the "Tranquillity, California" 7.5-minute quadrangle (CDFW 2023b). The disturbed annual grassland within the Study Area may provide marginal habitat for this species; however, this species was not observed during the special-status plant survey. Golden goodmania has low potential to occur within the Study Area.

Munz's Tidy Tips

Munz's tidy tips (*Layia munzii*) is not listed pursuant to either the federal or California ESAs, but is designated a CRPR 1B.2 species. This species is an herbaceous annual that occurs on alkaline clay soils in chenopod scrub, and valley and foothill grasslands. Munz's layia blooms from March through April and is known to occur at elevations ranging from 490 to 2,295 feet above MSL. Munz's layia is endemic to California; the current range of this species includes Fresno, Kern, Madera, Merced, San Benito, San Luis Obispo, and Ventura counties (CNPS 2023a).

There are two CNDDB occurrences of Munz's tidy tips within five miles of the Study Area (CDFW 2023a). The disturbed annual grassland within the Study Area may provide marginal habitat; however, this species was not observed during the special-status plant survey. Munz's tidy tips has low potential to occur within the Study Area.

Panoche Pepper-grass

Panoche pepper-grass (*Lepidium jaredii* ssp. *album*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs on steep slopes, clay soils, and sometimes alkaline soils within valley and foothill grasslands. Panoche pepper-grass blooms from February through June and is known to occur at elevations ranging from 605 to 2,445 feet above MSL. Panoche pepper-grass is endemic to California; the current range of this species includes Fresno, Merced, and San Benito counties (CNPS 2023a).

There are no CNDDB occurrences of panoche pepper-grass within five miles of the Study Area (CDFW 2023a). The disturbed annual grassland within the Study Area may provide marginal habitat; however, this species was not observed during the special-status plant survey. Panoche pepper-grass has low potential to occur within the Study Area.

San Joaquin Woollythreads

San Joaquin woollythreads (*Monolopia congdonii*) is listed as endangered pursuant to the federal ESA, is not listed pursuant to the California ESA, and is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in chenopod scrub and sandy substrates in valley and foothill grassland. San Joaquin woollythreads blooms from February through May and is known to occur at elevations ranging from 195 to 2,625 feet above MSL. San Joaquin woollythreads is endemic to California. The current range of this species includes Fresno, Kern, Kings, San Benito, San Luis Obispo, Santa Barbara, and Tulare counties; however, it is presumed extirpated in Tulare County (CNPS 2023a).

There is one CNDDB occurrence of San Joaquin woollythreads within five miles of the Study Area (CDFW 2023a). The disturbed annual grassland within the Study Area may provide marginal habitat; however, this species was not observed during the special-status plant survey. San Joaquin woollythreads has low potential to occur within the Study Area.

San Joaquin Bluecurls

San Joaquin bluecurls (*Trichostema ovatum*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is an herbaceous annual that occurs in disturbed sites, chenopod scrub, and valley and foothill grassland (CNPS 2023a; Lewis 2012). San Joaquin bluecurls blooms from July through October and is known to occur at elevations ranging from 215 to 1,050 feet above MSL. San Joaquin bluecurls is endemic to California; the current range of this species includes Fresno, Kern, Kings, San Benito, San Luis Obispo, Santa Barbara, Sonoma, Tulare, and Ventura counties (CNPS 2023a).

There is at least one CNDDB occurrence of San Joaquin bluecurls within the "Tranquillity, California" 7.5-minute quadrangle (CDFW 2023b). The disturbed annual grassland within the Study Area may provide suitable habitat; however, this species was not observed during the special-status plant survey. San Joaquin bluecurls has low potential to occur within the Study Area.

4.2.2 Invertebrates

Three special-status invertebrate species were identified as having potential to occur in the vicinity of the Study Area based on the literature review (Table 1). However, upon further analysis, all three species are considered to be absent from the Study Area due to the lack of suitable habitat. No further discussion of special-status invertebrates is provided within this assessment.

4.2.3 Amphibians

One special-status amphibian species, western spadefoot, was identified as having potential to occur in the vicinity of the Study Area based on the literature review (Table 1). However, upon further analysis, western spadefoot is considered to be absent from the Study Area due to the lack of suitable habitat (Table 1). No further discussion of special-status amphibians is provided within this assessment.

4.2.4 Reptiles

Seven special-status reptiles were identified as having potential to occur in the vicinity of the Study Area based on the literature review (Table 1). Of those, two species (giant garter snake, two-striped gartersnake) are considered to be absent from the Study Area due to the lack of suitable habitat (Table 1). No further discussion of those species is provided in this assessment. A brief description of the remaining five species that have low potential to occur within the Study Area is presented below.

Northwestern Pond Turtle

The northwestern pond turtle is proposed for listing as Threatened under the Federal ESA and is designated as a CDFW SSC. Northwestern pond turtles occur in a variety of fresh and brackish water habitats including marshes, lakes, ponds, and slow-moving streams (Jennings and Hayes 1994). This species is primarily aquatic; however, they can leave aquatic habitats to nest, disperse between wetlands, and to overwinter (Jennings and Hayes 1994). Deep, still water with abundant emergent woody debris, overhanging vegetation, and rock outcrops is optimal for basking and thermoregulation. Although adults are habitat generalists, hatchlings and juveniles and hatchlings require shallow edgewater with relatively dense submergent or short emergent vegetation in which to forage. Northwestern pond turtles are typically active between March and November. Mating generally occurs during late April and early May and eggs are deposited between late April and early August (Jennings and Hayes 1994). Eggs are deposited within excavated nests in upland areas, in substrates having high clay or silt fractions (Jennings and Hayes 1994). The majority of nesting sites are located within 650 feet (200 meters) of aquatic sites; however, nests have been documented as far as 1,310 feet (400 meters) from aquatic habitat.

There are four CNDDB occurrences of northwestern pond turtle within five miles of the Study Area (CDFW 2023a). There is no aquatic habitat within the Study Area, but there is aquatic habitat nearby. The disturbed annual grassland within the Study Area may provide very marginal upland habitat for this species. Northwestern pond turtle has low potential to occur within the Study Area.

Northern California Legless Lizard

The Northern California legless lizard (*Anniella pulchra*) is not listed pursuant to either the federal or California ESAs, but it is designated as a CDFW SSC. The Northern California legless lizard is one of five species of legless lizard in California (Papenfuss and Parham 2013). Although CDFW only recognizes two subspecies (*A. p. pulchra* and *A. p. nigra*), all California legless lizards are considered SSC.

Although lacking legs, the legless lizards (*Anniella*) are decidedly lizards as shown by their eyelids, which are lacking in all snakes. Like snakes, however, these species lack external ear openings. The Northern California legless lizard has the largest range of all California *Anniella,* ranging from sites in and around Antioch, in the East Bay, south to northern San Luis Obispo County. Two disjunct segments of this species range occur: one in the eastern foothills of Tulare and Fresno counties, and another at the western edge of the Antelope Valley in Kern and Los Angeles counties. A large area of undetermined species status connects those populations to areas occupied by Southern Sierra legless lizard (*A. campi*), Bakersfield legless lizard (*A. grinnelli*), Temblor legless lizard (*A. alexanderae*), and Southern California legless lizard (*A. stebbinsi*). Although not recognized by taxonomists, a melanistic form of *A. pulchra* that exists in Monterey Bay is considered to be the subspecies *A. p. nigra* by CDFW.

There are no CNDDB occurrences of Northern California legless lizard within five miles of the Study Area (CDFW 2023a). The disturbed annual grassland within the Study Area may provide very marginal habitat for this species. Northern California legless lizard has low potential to occur within the Study Area.

Blunt-nosed Leopard Lizard

The blunt-nosed leopard lizard (*Gambelia sila*) is listed as endangered pursuant to both the federal and California ESAs, and is designated a California fully protected species. A recovery strategy for this species was detailed in the Recovery Plan for Upland Species of the San Joaquin Valley, California (USFWS 1998), and a five-year review of the species' status was completed in 2010 (USFWS 2010b). Critical habitat has not been designated for this species.

Blunt-nosed leopard lizards were historically found throughout the San Joaquin Valley and adjacent foothills, from San Joaquin County to eastern San Luis Obispo County (Stebbins and McGinnis 2012). They currently occupy scattered undeveloped areas on the San Joaquin Valley floor and in the eastern foothills of the Coast Range (Stebbins and McGinnis 2012).

Population declines are attributable to the elimination of approximately 95 percent of formerly occupied habitat in the San Joaquin Valley by agricultural conversion and urbanization (Stebbins and McGinnis 2012). The use of agricultural pest control programs; intensive grazing; and petroleum and mineral extraction have also contributed to the decline in blunt-nosed leopard lizard populations (USFWS 1998).

Blunt-nosed leopard lizards are found in sparsely vegetated plains, alkali flats, grasslands, low foothills, canyon floors, and large washes (Hansen et al. 1994). They prefer areas with sandy soils and scattered vegetation, and are usually absent from thickly vegetated habitats (Hansen et al. 1994). Their breeding season is from late April through May (Zeiner et al. 1988); and breeding females can be easily identified by the orange or reddish spots on their sides (Stebbins 2003). They feed on a variety of insects, as well as other small lizards, and can even be cannibalistic (Stebbins and McGinnis 2012). Their diet can vary, depending on the availability of prey.

There are two CNDDB occurrences of blunt-nosed leopard lizard within five miles of the Study Area (CDFW 2023a). The disturbed annual grassland within the Study Area may provide very marginal habitat for this species. Blunt-nosed leopard lizard has low potential to occur within the Study Area.

Blainville's Horned Lizard

Blainville's horned lizard (*Phrynosoma blainvillii*) is not listed pursuant to the federal or California ESAs, but is designated a CDFW SSC. This diurnal species can occur within a variety of habitats including scrubland, annual grassland, valley-foothill woodlands and coniferous forests, though it is most common along lowland desert sandy washes and chaparral (Stebbins 2003).

Blainville's horned lizard is found in open microhabitats such as sandy washes with scattered shrubs or firebreaks in chaparral, where they forage for ants, small beetles, and other insects (Jennings and Hayes 1994). Horned lizards (*Phrynosoma*) are native ant specialists and daily activities are centered on above ground activity patterns of ants, with lizards active generally in mornings and later in the afternoon in the summer. They generally emerge from hibernation in March or April, and are active until September or later. Mating takes place in April through early May (Jennings and Hayes 1994), and eggs are laid from April to June (Stebbins and McGinnis 2012). Hatchlings emerge from July through September (Stebbins and McGinnis 2012). Periods of daily or seasonal inactivity are spent within rodent burrows or underneath the soil or surface objects (CDFG 1988).

There are two CNDDB occurrences of Blainville's horned lizard within five miles of the Study Area (CDFW 2023a). The disturbed annual grassland within the Study Area may provide marginal habitat for this species. Blainville's horned lizard has low potential to occur within the Study Area.

San Joaquin Coachwhip

The San Joaquin coachwhip (*Coluber flagellum ruddocki*) is not listed pursuant to the federal or California ESAs, but is designated a CDFW SSC. The San Joaquin coachwhip is found in dry, open areas (e.g., grassland and saltbush scrub [Jennings and Hayes 1994]) in the western San Joaquin Valley from Colusa County, south along the west side of the San Joaquin Valley to the Grapevine in Kern County and west to the inner South Coast ranges. An isolated population has been identified in the Sutter Buttes (Hayes and Cliff 1982). San Joaquin coachwhip populations have declined throughout much of their historical range due to loss of habitat associated with agricultural and urban development.

The San Joaquin coachwhip, like other *C. flagellum* subspecies, maintains a higher active body temperature than many other snakes (Brattstrom 1965). It will not emerge from its burrow until temperatures reach 28ºC; therefore, it does not emerge from the burrow until late in the season (April/May) and late in the day (Hammerson 1977). This snake uses mammal burrows for refuge and for nesting sites. The San Joaquin coachwhip feeds on lizards, small birds, and small mammals and may eat carrion (Jennings and Hayes 1994). This species needs large, open areas with little tree cover (Morafka and Banta 1976), and mating occurs in May, with oviposition occurring in June or July (Jennings and Hayes 1994).

There are no CNDDB occurrences of San Joaquin coachwhip within five miles of the Study Area (CDFW 2023a). The disturbed annual grassland within the Study Area may provide very marginal habitat for this species. San Joaquin coachwhip has low potential to occur within the Study Area.

4.2.5 Birds

A total of 24 special-status bird species were identified as having the potential to occur within the Study Area based on the literature review (Table 1). Of those, 17 species were determined to be absent from the Study Area due to the lack of suitable habitat and/or because it is outside of the known geographic range for these species. No further discussion of those species is provided in this assessment. A brief description of the remaining seven species that have potential or low potential to occur within the Study Area is presented below.

Swainson's Hawk

The Swainson's hawk (*Buteo swainsoni*) is not listed pursuant to the federal ESA, is listed as threatened pursuant to the California ESA, and is designated as a USFWS BCC. This species nests in North America (Canada, western U.S., and Mexico) and typically winters from South America north to Mexico. However, a small population has been observed wintering in the Sacramento-San Joaquin River Delta (Bechard et al. 2020). In California, the nesting season for Swainson's hawk ranges from mid-March to late August.

Swainson's hawks nest within tall trees in a variety of wooded communities including riparian, oak woodland, roadside landscape corridors, urban areas, and agricultural areas, among others. Foraging habitat includes open grassland, savannah, low-cover row crop fields, and livestock pastures. In the Central Valley, Swainson's hawks typically feed on a combination of California vole (Microtus californicus), California ground squirrel (Spermophilus beecheyi), ring-necked pheasant (Phasianus colchicus), many passerine birds, and grasshoppers (*Melanoplus* species). Swainson's hawks are opportunistic foragers and will readily forage in association with agricultural mowing, harvesting, disking, and irrigating (Estep 1989). The removal of vegetative cover by such farming activities results in more readily available prey items for this species.

There are four CNDDB occurrences of Swainson's hawk within five miles of the Study Area (CDFW 2023a). There is no nesting habitat, but the annual grassland within the Study Area may provide suitable foraging habitat for this species. Swainson's hawk has potential to occur within the Study Area.

Mountain Plover

The mountain plover (*Charadrius montanus*) is not listed pursuant to either the California or federal ESAs; however, it is designated as a BCC by the USFWS and an SSC by the CDFW. This species' breeding range includes Montana, eastern Colorado, Wyoming, New Mexico, Texas, and Oklahoma; and the wintering range extends from north-central California to Mexico (Knopf and Wunder 2020). Within their wintering (September through March) range, which consists primarily of the Sacramento, San Joaquin, and Imperial valleys, mountain plovers can be found in plowed fields, heavily grazed annual grassland, and burned fields (Knopf and Rupert 1995; Knopf and Wunder 2021). Mountain plovers do not nest in California but may occasionally forage within grassland communities (or plowed agricultural fields) during winter.

There are two CNDDB occurrences of mountain plover within five miles of the Study Area (CDFW 2023a). Due to the proximity to development, the annual grassland within the Study Area may only provide marginal foraging habitat for this species during winter. Mountain plover has low potential to occur within the Study Area.

Long-billed Curlew

The long-billed curlew (*Numenius americanus*) is not listed pursuant to either the federal or California ESAs, but is designated as a USFWS BCC and a CDFW "watch list" species. The breeding range of this species includes the Great Plains, Great Basin, and intermontane valleys of the western U.S., and southwestern Canada (Dugger and Dugger 2021). In the U.S., their wintering range includes California, Louisiana, and Texas. Winter foraging habitat includes rice fields (flooded and unflooded), managed wetlands, evaporation ponds, sewage ponds, and grasslands (Dugger and Dugger 2021).

There are no CNDDB occurrences of long-billed curlew within the "Tranquillity, California" 7.5-minute quadrangle (CDFW 2023b). Long-billed curlew do not nest in the region; but may occasionally forage within the grassland of the Study Area during winter. The proximity to development reduces suitability of potential foraging habitat. Long-billed curlew has low potential to occur within the Study Area.

Burrowing Owl

The burrowing owl (*Athene cunicularia*) is not listed pursuant to either the federal or California ESAs, but it is designated as a USFWS BCC and a CDFW SSC. Burrowing owls inhabit dry open rolling hills, grasslands, desert floors, and open bare ground with gullies and arroyos. They can also inhabit developed areas such as golf courses, cemeteries, roadsides within cities, airports, vacant lots in residential areas, school campuses, and fairgrounds (Poulin et al. 2021). This species typically uses burrows created by fossorial mammals, most notably the California ground squirrel but may also use manufactured structures such as concrete culverts or pipes; concrete, asphalt, or wood debris piles; or openings beneath concrete or asphalt pavement (CDFG 2012). The breeding season typically occurs between February 1 and August 31 (California Burrowing Owl Consortium 1993; CDFG 2012).

There are four CNDDB occurrences of burrowing owl within five miles of the Study Area (CDFW 2023a). California ground squirrels and their burrows were observed within the annual grassland in the Study Area. However, no sign of burrowing owl was observed, and the site is disced annually. Due to the regular disturbance, the annual grassland within the Study Area may only provide marginal nesting habitat for this species. Burrowing owl has low potential to occur within the Study Area.

Short-eared Owl

The short-eared owl (*Asio flammeus*) is not listed pursuant to either the federal or California ESAs, but it is designated as a CDFW SSC. The breeding range of this species extends from Alaska south to central California, including the San Francisco Bay region and irregularly in the Sacramento Valley (Wiggins et al. 2021). In the Central Valley, short-eared owls are a wintering species. Wintering habitat includes large open areas within woodlots, weedy areas, stubble fields, and marsh and shrub thickets. Nesting occurs during March through July.

There are no CNDDB occurrences of short-eared owl within five miles of the Study Area (CDFW 2023a). Due to the proximity to development, the annual grassland within the Study Area may only provide marginal foraging habitat for this species. Short-eared owl has low potential to occur within the Study Area.

California Horned Lark

The California horned lark (*Eremophila alpestris*) is not listed pursuant to either the federal or California ESAs, but is designated as a CDFW "watch list" species. This species is widely distributed throughout North America with 21 recognized subspecies (American Ornithologists' Union 1957). The California horned lark (*E. a. actia*) is one of approximately nine subspecies that breeds and/or winters in California, and is found in the Coast Range and southern San Joaquin Valley south into northern Baja California (Beason 2021). The California horned lark is resident and non-migratory. They are found in grasslands and other open habitats with sparse vegetation. Nests are grass-lined and built on the ground. Breeding season includes March through July, with a peak of activity in May.

There are no CNDDB occurrences of California horned lark within five miles of the Study Area (CDFW 2023a). Due to annual discing, the annual grassland within the Study Area may only provide marginal nesting habitat for this species. California horned lark has low potential to occur within the Study Area.

Tricolored Blackbird

The tricolored blackbird (*Agelaius tricolor*) is not listed pursuant to the federal ESA but was granted emergency listing for protection under the California ESA in December 2014. The listing status was not renewed in June 2015; however, after an extensive status review, the California Fish and Game Commission listed tricolored blackbirds as a threatened species in 2018. In addition, the tricolored blackbird is currently considered a USFWS BCC and a CDFW SSC. This colonial nesting species is distributed widely throughout the Central Valley, Coast Range, and into Oregon, Washington, Nevada, and Baja California (Beedy et al. 2021). Tricolored blackbirds nest in colonies that can range from several pairs to several thousand pairs, depending on prey availability, the presence of predators, or level of human disturbance. Tricolored blackbird nesting habitat includes emergent marsh, riparian woodland/scrub, blackberry thickets, densely vegetated agricultural and idle fields (e.g., wheat, triticale, safflower, fava bean fields, thistle, mustard, cane, and fiddleneck), usually with some nearby standing water or ground saturation (Beedy et al. 2021). They feed mainly on grasshoppers during the breeding season, but may also forage upon a variety of other insects, grains, and seeds in open grasslands, wetlands, feedlots, dairies, and agricultural fields (Beedy et al. 2021). The nesting season is generally from March through August.

There are six CNDDB occurrences of tricolored blackbird within five miles of the Study Area (CDFW 2023a). There is no suitable nesting habitat within the Study Area, but the annual grassland within the Study Area may provide suitable foraging habitat for this species. Tricolored blackbird has potential to forage within the Study Area.

Other Protected Birds

In addition to the above-listed special-status birds, all native or naturally occurring birds and their occupied nests/eggs are protected under the California Fish and Game Code and the MBTA. The Study Area supports potential nesting habitat for a variety of native birds protected under these regulations.

4.2.6 Mammals

Eight special-status mammal species were identified as having potential to occur in the vicinity of the Study Area based on the literature review (Table 1). Of those, two species (western mastiff bat, Fresno

kangaroo rat) were determined to be absent from the Study Area due to the lack of suitable habitat or because there are no known extant populations in its vicinity (Table 1). No further discussion of those species is provided in this assessment. A brief description of the remaining six species that have low potential to occur within the Study Area is presented below.

Western Red Bat

The western red bat (*Lasiurus blossevillii*) is not listed pursuant to either the federal or California ESAs, but is designated as a CDFW SSC. The western red bat is easily distinguished from other western bat species by its distinctive red coloration. This species is broadly distributed, its range extending from southern British Columbia in Canada through Argentina and Chile in South America and including much of the western U.S. This solitary species day-roosts primarily in the foliage of trees or shrubs in edge habitats bordering streams or open fields, in orchards, and occasionally urban areas. They may be associated with intact riparian habitat, especially with willows, cottonwoods, and sycamores. This species may occasionally utilize caves for roosting as well. Western red bats feed on a variety of insects, and generally begin to forage one to two hours after sunset. This species is considered highly migratory. However, the timing of migration and the summer ranges of males and females may be different. Winter behavior of this species is poorly understood (WBWG 2023).

There is one CNDDB occurrence of western red bat within five miles of the Study Area (CDFW 2023a). There is one shrub within the disturbed/developed portion of the Study Area that may provide marginal roosting habitat for this species. The species may also roost in the shrub and adjacent habitats and forage within the Study Area. Western red bat has low potential to occur within the Study Area.

Nelson's Antelope Squirrel

The Nelson's antelope squirrel (*Ammospermophilus nelsoni*) is not listed pursuant to the federal ESA, but is listed as threatened pursuant to the California ESA. The Nelson's antelope squirrel is a permanent resident of western San Joaquin Valley from 200 to 1,200 feet in elevation on dry, sparsely vegetated, loam soils and is found from southern Merced County south to Kern, Kings, and Tulare counties and portions of eastern San Luis Obispo and Santa Barbara counties (CDFW 2005). Suitable habitat has widely scattered shrubs, annual forbs and grasses, and is distributed over broken terrain with small gullies and washes and slopes ranging from zero to 20 degrees (Harris and Stearns 1991).

Nelson's antelope squirrels feed on insects, green vegetation, seeds (which may be cached underground), and occasionally on small vertebrates (Hawbecker 1947). Nelson's antelope squirrels are diurnal, but adult squirrels may aestivate in summer to avoid hot midday temperatures. Nelson's antelope squirrels live in family groups and dig burrows or use kangaroo rat burrows. Breeding occurs from February into May, peaking in April, and nests are constructed in the burrows (CDFW 2005).

There is one CNDDB occurrence of Nelson's antelope squirrel within five miles of the Study Area (CDFW 2023a). The Study Area is outside of the known geographical range for this species (CDFW 2023b); however, it is in close proximity and the disturbed annual grassland may provide marginal habitat for this species. Nelson's antelope squirrel has low potential to occur within the Study Area.

Giant Kangaroo Rat

The giant kangaroo rat (*Dipodomys ingens*) is listed as endangered pursuant to both the federal and California ESAs. The historic distribution of the giant kangaroo rat included the foothills of the western San Joaquin Valley, the Carrizo and Elkhorn plains, and the Cuyama Valley, where gentle sloping hills and plains meet the coastal range (Grinnell 1932).

Continuing loss of habitat to agriculture and other land-modifying actions is the primary reason for the decline in giant kangaroo rat populations. Intensive livestock grazing and the use of rodenticides may also contribute to the continued decline of this species (Williams 1992).

The preferred habitat of the giant kangaroo rats is gently sloping annual grasslands with relatively sparse vegetation and few or no shrubs, although a few populations of giant kangaroo rats can be found in shrub communities but these are considered marginal habitat. Giant kangaroo rats consume primarily seeds of annual grasses and forbs for most of the year, but also consume invertebrates, and green plant material when it is available. Individuals harvest and then dry forage in the sun, which prevents molding, prior to moving it into underground caches or pits. Giant kangaroo rats forage on the ground during sunset and sunrise, although most activity takes place in the evening (USFWS 2020).

Giant kangaroo rats spend the majority of time underground to avoid hot daytime temperatures, emerging for only a few moments to forage. A such, kangaroo rats require habitats with specific soil composition, which allows for stable, deep burrows to be built. Kangaroo rats are solitary, territorial, and typically live alone in their burrow, although they live nearby to one another. Each territory, or precinct, contains two to four burrow openings and a shallow underground system of complex (USFWS 2020).

There are no CNDDB occurrence of giant kangaroo rat within five miles of the Study Area (CDFW 2023a). The Study Area is outside of the known geographical range for this species (CDFW 2023b); however, it is in close proximity and the disturbed annual grassland may provide marginal habitat for this species. Giant kangaroo rat has low potential to occur within the Study Area.

Tulare Grasshopper Mouse

The Tulare grasshopper mouse (*Onychomys torridus tularensis*) is not listed pursuant to either the federal of California ESAs, but is designated as a CDFW SSC. The historical range of the Tulare grasshopper mouse extended along the foothills and floor of the southern San Joaquin Valley. The Tulare grasshopper mouse is known to inhabit low, open scrub and semi scrub habitats. Based on information from other subspecies of *Onychomys torridus*, the Tulare grasshopper mouse appears to be mostly nocturnal and is active year-round. Grasshopper mice are largely insectivorous. They occur at low densities and have relatively large home ranges and are capable of breeding year-round. The Tulare grasshopper mouse may construct nests in burrows that they excavate, but typically constructs nests in burrows that have been abandoned by other rodents (Bolster 1998).

There are no CNDDB occurrences of Tulare grasshopper mouse within five miles of the Study Area (CDFW 2023a). However, the disturbed annual grassland within the Study Area may provide marginal habitat for this species. Tulare grasshopper mouse has low potential to occur within the Study Area.

San Joaquin Kit Fox

The San Joaquin kit fox (*Vulpes macrotis*) is listed as endangered pursuant to the federal ESA and threatened pursuant to the California ESA. Although the precise historical range of the San Joaquin kit fox is unknown, Grinnell et al. (1937) believed that prior to 1930 San Joaquin kit fox occupied most of the San Joaquin Valley from southern Kern County north to Tracy, San Joaquin County, on the west side, and near La Grange, Stanislaus County, on the east side. Since then the San Joaquin kit fox population has declined primarily as a result of habitat loss to agricultural, urban, industrial, and mineral development in the San Joaquin Valley. San Joaquin kit fox has been listed as endangered for over 30 years, yet despite the loss of habitat and apparent decline in numbers since the early 1970s, there has never been a comprehensive survey of its entire range or habitat that was once thought to be occupied (Morrell 1975; USFWS 1983). Despite the lack of a comprehensive data set, local surveys, research projects and incidental sightings indicate that kit foxes currently inhabit some areas of suitable habitat on the San Joaquin Valley floor and in the surrounding foothills of the coastal ranges, Sierra Nevada, and Tehachapi Mountains, from southern Kern County north to Contra Costa, Alameda, and San Joaquin counties on the west, and near La Grange, Stanislaus County on the east side of the valley (Williams 1990), and some of the larger scattered islands of natural land on the valley floor in Kern, Tulare, Kings, Fresno, Madera, and Merced counties (USFWS 1998).

In the southern portion of the range, kit foxes are commonly associated with Valley Sink Scrub, Valley Saltbush Scrub, Upper Sonoran Subshrub Scrub, and Annual Grassland. Kit foxes also inhabit grazed grasslands, petroleum fields (Morrell 1971; O'Farrell 1980), and survive adjacent to tilled or fallow fields (Jensen 1972; Ralls and White 1991). In the central portion of the range, which includes Madera County, the kit fox is associated with Valley Sink Scrub, Interior Coast Range Saltbush Scrub, Upper Sonoran Subshrub Scrub, Annual Grassland, and the remaining native grasslands. Agriculture dominates this region where kit foxes mostly inhabit grazed, non-irrigated grasslands, but also live next to and forage in tilled or fallow fields, irrigated row crops, orchards, and vineyards (USFWS 1998). In the northern portion of their range, kit foxes are commonly associated with annual grassland (Hall 1983) and Valley Oak Woodland (Bell 1994). Kit foxes inhabit grazed grasslands, grasslands with wind turbines, and also live adjacent to and forage in tilled and fallow fields, and irrigated row crops (Bell 1994). They usually inhabit areas with loose-textured (friable) soils, suitable for den excavation (USFWS 1983). Where soils make digging difficult, the foxes frequently use and modify burrows built by other animals (Orloff et al. 1986). Structures such as culverts, abandoned pipelines, and well casings also may be used as den sites (USFWS 1983).

Kit foxes are primarily nocturnal and carnivorous, but are commonly seen during the day in the late spring and early summer (Orloff et al. 1986). Major prey includes kangaroo rats, black-tailed hares, desert cottontails, deer mice, California ground squirrels, ground-nesting birds, and insects (Scrivner et al. 1987).

There is one CNDDB occurrence of San Joaquin kit fox within five miles of the Study Area (CDFW 2023a). No potential dens were observed, but the disturbed annual grassland within the Study Area may provide marginal movement and foraging habitat for this species. San Joaquin kit fox has low potential to occur within the Study Area.

American Badger

The American badger (*Taxidea taxus*) is not listed pursuant to either the federal of California ESAs, but is designated as a CDFW SSC. The species historically ranged throughout much of the state, except in humid coastal forests. Badgers were once numerous in the Central Valley; however populations now occur in low numbers in the surrounding peripheral parts of the valley and in the adjacent lowlands of eastern Monterey, San Benito, and San Luis Obispo counties (Williams 1986).

Badgers occupy a variety of habitats, including grasslands and savannas. The principal requirements seem to be significant food supply, friable soils, and relatively open, uncultivated ground (Williams 1986).

There is one CNDDB occurrence of American badger within five miles of the Study Area (CDFW 2023a). No potential dens were observed within the Study Area, but the annual grassland may provide marginal movement and foraging habitat for this species. American badger has low potential to occur within the Study Area.

4.3 Critical Habitat and Essential Fish Habitat

There is no designated critical habitat or Essential Fish Habitat mapped within the Study Area (NOAA 2023a; USFWS 2023).

4.4 Riparian Habitats and Sensitive Natural Communities

Two sensitive natural communities were identified as having potential to occur within the vicinity of the Study Area based on the literature review (CDFW 2023a). These include Coastal and Valley Freshwater Marsh and Valley Sink Scrub.

Based on the site reconnaissance, no sensitive natural communities or riparian habitats are located within the Study Area. Riparian habitats and sensitive natural communities will not be discussed further in this analysis.

4.5 Wildlife Movement/Corridors and Nursery Sites

The Study Area does not fall within an Essential Habitat Connectivity area mapped by the CDFW (CDFW 2023b). The Study Area is a small area within and adjacent to a developed facility. While the Study Area may provide movement corridors for wildlife, it is not expected to support critical wildlife movement corridors.

For the purposes of this analysis, nursery sites include but are not limited to concentrations of nest or den sites such as heron rookeries or bat maternity roosts. This data is available through CDFW's Biogeographic Information and Observation System database or as occurrence records in the CNDDB and is supplemented with the results of the site reconnaissance. No nursery sites have been documented within the Study Area (CDFW 2023a) and none were observed during the site reconnaissance.

5.0 IMPACT ANALYSIS

This section evaluates potential impacts on biological resources in accordance with the Appendix G environmental checklist of the CEQA Guidelines.

As described in Sections 4.3 and 4.4, no designated critical habitat, riparian habitat, or sensitive natural communities are located within the Study Area. Therefore, the Project would not impact those biological resources and they are not discussed further in this analysis.

5.1 Special Status Species

Would the Project result in effects, either directly or through habitat modifications, to species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?

No special-status species are known to occur within the Study Area and the majority of the site is repeatedly disturbed by disking. However, there is a possibility that special-status species could be present or could move into the Study Area prior to construction. Potential effects to special-status species are summarized in the following sections.

5.1.1 Plants

There is low potential for two federally and/or State-listed plant species (palmate-bracted bird's-beak and San Joaquin woollythreads), and 14 other non-listed special-status plant species to occur (Table 1). Special-status plant surveys were conducted, and no special-status plant species were observed; however, plant populations are not static and species with potential habitat may be present in future years.

In the unlikely event that special-status plants occur onsite, they may be directly or indirectly impacted by the Project. Additionally, a small amount of potential habitat would be removed or altered in the footprint of the solar array.

Implementation of recommendations BIO1, BIO4, and BIO5 described in Section 6.0 would avoid and/or minimize potential effects on special-status plants. These include a pre-construction plant survey, avoidance measures if necessary, worker awareness environmental training, and demarcation of Project limits to avoid offsite impacts. With implementation of these measures, the Project is not expected to significantly impact special-status plants.

5.1.2 Reptiles

There is low potential for one federally and State-listed reptile, blunt-nosed leopard lizard, and one candidate for federal listing, northwestern pond turtle, to occur in the Study Area. Additionally, there is low potential for three non-listed CDFW SSC to occur (Table 1).

In the unlikely event that special-status reptiles occur onsite, they may be temporarily displaced by Project construction and may be directly or indirectly impacted by the Project. Additionally, a small amount of very marginal potential habitat would be removed or altered in the footprint of the solar array.

Implementation of recommendations BIO3 through BIO7 described in Section 6.0 would avoid or minimize potential effects on special-status reptiles. These include a pre-construction wildlife survey, necessary avoidance measures, worker awareness environmental training, demarcation of Project limits to avoid offsite impacts, and measures to avoid impacts to wildlife during construction such as burrow

avoidance, speed limits, and practices to prevent entrapment. With implementation of these measures, the Project is not expected to significantly impact special-status reptiles.

5.1.3 Birds

There is potential foraging habitat for two State-listed bird species, Swainson's hawk and tricolored blackbird, within the Study Area. Additionally, there is marginal potential nesting habitat for two non-listed special-status bird species (burrowing owl and California horned lark), marginal potential foraging habitat for three other non-listed special-status bird species (mountain plover, long-billed curlew, and short-eared owl), and potential nesting habitat for a variety of other birds that are protected under the MBTA and the California Fish and Game Code.

Birds may be temporarily displaced from the Project Area during construction and nesting birds within or in the vicinity of the Project may be directly or indirectly impacted by the Project. Additionally, a small amount of marginal potential nesting habitat would be removed or altered in the footprint of the solar array. Due to the small footprint of the solar arrays and the short duration of the Project, mortality of special-status birds due to collisions is not expected.

Implementation of recommendations BIO2, BIO4, and BIO5 described in Section 6.0 would avoid or minimize potential effects on special-status birds and other protected birds. These include a pre-construction nesting-bird survey, necessary avoidance measures, worker awareness environmental training, and demarcation of Project limits to avoid offsite impacts. With implementation of these measures, the Project is not expected to significantly impact special-status birds.

5.1.4 Mammals

Three federally and/or State-listed mammals (Nelson's antelope squirrel, giant kangaroo rat, and San Joaquin kit fox) have low potential to occur in the Study Area. Additionally, there is potential or low potential for three CDFW SSC (western red bat, Tulare grasshopper mouse, American badger) to occur.

In the unlikely event that special-status mammals occur onsite they may be temporarily displaced by Project construction and may be directly or indirectly impacted by the Project. Additionally, a small amount of marginal potential habitat would be removed or altered in the footprint of the solar array.

Implementation of recommendations BIO3 through BIO8 described in Section 6.0 would avoid and/or minimize potential effects on special-status mammals. These include a pre-construction wildlife survey, avoidance measures if, worker awareness environmental training, demarcation of Project limits to avoid offsite impacts, and measures to avoid impacts to wildlife during construction such as burrow avoidance, speed limits, and practices to prevent entrapment of mammals and attraction of mammals to the Project site. With implementation of these measures, the Project is not expected to significantly impact special-status mammals.

5.2 Aquatic Resources, Including Waters the U.S. and State

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

Based on the preliminary aquatic resources assessment, there are no potential aquatic resources within the Study Area. Therefore, the Project is not expected to have a substantial adverse effect on protected aquatic resources.

5.3 Wildlife Movement/Corridors

Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Project construction is likely to temporarily disturb and displace most wildlife from the Study Area. Some wildlife such as birds or nocturnal species are likely to continue to use the habitats opportunistically for the duration of construction. Once construction is complete, wildlife movements are expected to resume. Therefore, the Project is not expected to substantially interfere with wildlife movement.

There are no documented nursery sites and no nursey sites were observed within the Study Area during the site reconnaissance. Therefore, the Project is not expected to impact wildlife nursery sites.

5.4 Local Policies, Ordinances, and Other Plans

Does the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Project is within the Mendota Wildlife Area on land owned by CDFW. The only known local policies relevant to the Project are outlined in the draft Management Plan for the Mendota Wildlife Area (CDFG 1994). The Project is not expected to conflict with goals and objectives outlined within the Plan.

Does the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The Study Area is not covered by any local, regional, or State conservation plan. Therefore, the Project would not conflict with any plans.

6.0 RECOMMENDATIONS

The following measures are recommended to avoid and/or minimize potential impacts to biological resources from the proposed Project:

BIO1: Perform floristic plant surveys according to USFWS, CDFW, and CNPS protocols within 2 years prior to construction. Surveys shall be conducted by a qualified biologist and timed according to the appropriate phenological stage for identifying target species. Known reference populations shall be visited and/or local herbaria records shall be reviewed, if available, prior to surveys to confirm the phenological stage of the target species. If no special-status plants are found within the Project site, no further measures pertaining to

special-status plants are necessary. If special-status plants are identified within 25-feet of the Project impact area, implement the following measures:

- If avoidance of special-status plants is feasible, establish and clearly demarcate avoidance zones for special-status plant occurrences prior to construction and designate them as environmentally sensitive areas. Avoidance zones shall include the extent of the special-status plants plus a 25-foot buffer, unless otherwise determined by a qualified biologist, and shall be maintained until the completion of construction. A qualified biologist or biological monitor shall be present if work must occur within the avoidance buffer to ensure special-status plants are not impacted by the work.
- If avoidance of special-status plants is not feasible, mitigation for significant impacts to special-status plants may be required. Mitigation measures shall be developed in consultation with CDFW. Mitigation measures may include restoration or permanent preservation of onsite or offsite habitat for special-status plants and/or translocation of plants or seeds from impacted areas to unaffected habitats.

BIO2: If construction is to occur during the nesting season (generally February 1 - August 31), conduct a pre-construction nesting-bird survey of all suitable nesting habitat within 14 days prior to construction. The survey shall be conducted within a 500-foot radius of Project work areas for raptors and within a 100-foot radius for other nesting birds. If any active nests are observed, these nests shall be designated an environmentally sensitive area and protected by an avoidance buffer established in coordination with CDFW until the breeding season has ended or until a qualified biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival.

BIO3: A qualified biologist shall conduct a pre-construction special-status wildlife survey in the Project Area (including impacts areas, access roads, and staging areas) between 30 and 15 days prior to ground- or vegetation-disturbing construction activities. The survey shall be conducted within 200 feet of all areas of ground or vegetation disturbance and shall be conducted for the following species: northwestern pond turtle, Northern California legless lizard, blunt-nosed leopard lizard, Blainville's horned lizard, San Joaquin coachwhip, western red bat, Nelson's antelope squirrel, giant kangaroo rat, Tulare grasshopper mouse, San Joaquin kit fox, and American badger. The survey shall follow accepted procedures for these species and shall map any occurrences or habitat features (i.e., dens or burrows) with sign of special-status species. If no special-status species are detected, construction may proceed in unoccupied habitat. If special-status species are detected, the following measures shall apply:

- If a special-status species is detected within or near the Project Area during the pre-construction survey and there is potential for Project activities to impact the species, a qualified biological monitor shall be present during all activities that may impact the species (e.g., ground or vegetation disturbance).
- Special-status wildlife detected prior to or during construction shall be allowed to move out of the work area of their own volition. If an individual must be relocated, a qualified biologist with any required permits or approvals must relocate the

individual out of harm's way to the nearest suitable habitat at least 100 feet from the Project work area where it was found.

- If a kit fox or badger den is detected within 200 feet of the work area, it shall be designated an environmentally sensitive area and protected by an avoidance buffer of 200 feet for non-natal dens. A buffer distance for natal dens shall be established in consultation with USFWS and CDFW. Avoidance buffers shall be maintained until a qualified biologist determines the den is no longer active. Any demarcation of the dens or avoidance zone shall not prevent access to the den by kit foxes or badgers.

BIO4: A qualified biologist shall conduct mandatory worker environmental awareness training for all contractors, work crews, and any onsite personnel to aid workers in recognizing special-status species and other sensitive biological resources that may occur onsite. The training shall include identification of the special-status species with potential to occur and their habitats, a description of the regulatory status of sensitive resources, and review of the limits of construction, environmentally sensitive areas, and Measures required to reduce impacts to biological resources. The Project shall retain a qualified biologist with any required permits on an as-needed basis to assist with potential biological issues that may arise during construction (i.e., wildlife relocation).

BIO5: The Project impact limits shall be clearly demarcated prior to construction and all workers shall be made aware of the impact limits and avoided areas. If orange construction fencing is to be used, it shall be placed such that there is a one-foot gap between the ground and the bottom of the fencing to prevent ground-dwelling animals from being caught in the fencing. No work shall occur outside of the Project impact limits. All vehicles and equipment shall be restricted to the Project impact limits and/or existing designated access roads and staging areas. Project-related vehicles shall observe a speed limit of 20 miles per hour during the day and 10 miles per hour at night in construction areas and on access roads where it is safe and feasible to do so, except on county roads and State and federal highways.

BIO6: To prevent inadvertent entrapment of special-status wildlife during construction, all excavated, steep-walled holes or trenches more than two-feet deep shall be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks shall be installed. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals. In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape or the USFWS/CDFW should be contacted for guidance.

Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of four-inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way.

BIO7: Existing burrows may provide habitat for listed reptiles and mammals. Any existing burrow that is within 50 feet of the Project and was determined to provide habitat for special-status wildlife during the preconstruction survey shall be designated an environmentally sensitive area and protected by an avoidance buffer that has a minimum 50-foot radius from the burrow entrance. If Project activities will take place within 50 feet of avoided burrow entrances and, in the judgment of a qualified biologist, the combination of soil hardness and activity impact is not expected to collapse those burrows, then those Project activities shall be allowed to take place under the supervision of a qualified biological monitor. If burrows that provide habitat for special-status wildlife cannot be avoided, they shall be carefully dug out by hand under the supervision of a qualified biologist in a manner that avoids direct mortality of wildlife within the burrow to ensure that they are not occupied by special-status species.

BIO8: To avoid attracting special-status mammals to the Project site, all food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a week from the Project site during construction.

7.0 SUMMARY

A total of 33 special-status species have potential or low potential to occur within the Study Area, 9 of which are federally and/or State listed (or proposed for listing). Federally or State-listed (or proposed) species with potential habitat within the Study Area include two plants (palmate-bracted bird's-beak and San Joaquin woollythreads), two reptiles (blunt-nosed leopard lizard and northwestern pond turtle), two birds (Swainson's hawk and tricolored blackbird), and three mammals (Nelson's antelope squirrel, giant kangaroo rat, and San Joaquin kit fox).

In addition, various birds protected under the MBTA and the California Fish and Game Code have potential to nest within the Study Area.

With implementation of recommendations described in Section 6.0, the Project is not expected to have a significant effect on biological resources.

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LIST OF ATTACHMENTS

ATTACHMENT A

Results of Database Queries

Selected Elements by Element Code

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Jamesan (3612062) OR Gravelly Ford (3612072) OR San Joaquin (3612052) OR Tranquillity (3612063) OR Coit Ranch (3612064) OR Mendota Dam (3612073) OR Firebaugh (3612074) OR Levis (3612054) OR Cantua Creek (3612053))

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AAABF02020	***Spea hammondii*** western spadefoot	None	None	G2G3	S3S4	SSC
ABNGE02020	***Plegadis chihi*** white-faced ibis	None	None	G5	S3S4	WL
ABNKC19070	***Buteo swainsoni*** Swainson's hawk	None	Threatened	G5	S4	
ABNKD06030	***Falco columbarius*** merlin	None	None	G5	S3S4	WL
ABNNB03100	***Charadrius montanus*** mountain plover	None	None	G3	S2	SSC
ABNRB02022	***Coccyzus americanus occidentalis*** western yellow-billed cuckoo	Threatened	Endangered	G5T2T3	S1	
ABNSB10010	***Athene cunicularia*** burrowing owl	None	None	G4	S2	SSC
ABNSB13040	***Asio flammeus*** short-eared owl	None	None	G5	S2	SSC
ABPAT02011	***Eremophila alpestris actia*** California horned lark	None	None	G5T4Q	S4	WL
ABPAU08010	***Riparia riparia*** bank swallow	None	Threatened	G5	S3	
ABPBXB0020	***Agelaius tricolor*** tricolored blackbird	None	Threatened	G1G2	S2	SSC
AMACC01020	***Myotis yumanensis*** Yuma myotis	None	None	G5	S4	
AMACC05032	***Lasiurus cinereus*** hoary bat	None	None	G3G4	S4	
AMACC05080	***Lasiurus frantzii*** western red bat	None	None	G4	S3	SSC
AMACD02011	***Eumops perotis californicus*** western mastiff bat	None	None	G4G5T4	S3S4	SSC
AMAFB04040	***Ammospermophilus nelsoni*** Nelson's (=San Joaquin) antelope squirrel	None	Threatened	G2G3	S3	
AMAFD01060	***Perognathus inornatus*** San Joaquin pocket mouse	None	None	G2G3	S2S3	
AMAFD03080	***Dipodomys ingens*** giant kangaroo rat	Endangered	Endangered	G1G2	S2	
AMAFD03151	***Dipodomys nitratoides exilis*** Fresno kangaroo rat	Endangered	Endangered	G3TH	SH	

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AMAFF06021	***Onychomys torridus tularensis*** Tulare grasshopper mouse	None	None	G5T1T2	S1S2	SSC
AMAJA03041	***Vulpes macrotis mutica*** San Joaquin kit fox	Endangered	Threatened	G4T2	S3	
AMAJF04010	***Taxidea taxus*** American badger	None	None	G5	S3	SSC
ARAAD02030	***Emys marmorata*** western pond turtle	Proposed Threatened	None	G3G4	S3	SSC
ARACC01020	***Anniella pulchra*** Northern California legless lizard	None	None	G3	S2S3	SSC
ARACF07010	***Gambelia sila*** blunt-nosed leopard lizard	Endangered	Endangered	G1	S2	FP
ARACF12100	***Phrynosoma blainvillii*** coast horned lizard	None	None	G4	S4	SSC
ARADB21021	***Masticophis flagellum ruddocki*** San Joaquin coachwhip	None	None	G5T2T3	S3	SSC
ARADB36150	***Thamnophis gigas*** giant gartersnake	Threatened	Threatened	G2	S2	
ARADB36160	***Thamnophis hammondii*** two-striped gartersnake	None	None	G4	S3S4	SSC
CTT36210CA	***Valley Sink Scrub*** Valley Sink Scrub	None	None	G1	S1.1	
CTT42120CA	***Valley Sacaton Grassland*** Valley Sacaton Grassland	None	None	G1	S1.1	
CTT44120CA	***Northern Claypan Vernal Pool*** Northern Claypan Vernal Pool	None	None	G1	S1.1	
CTT52410CA	***Coastal and Valley Freshwater Marsh*** Coastal and Valley Freshwater Marsh	None	None	G3	S2.1	
ICBRA03020	***Branchinecta longiantenna*** longhorn fairy shrimp	Endangered	None	G2	S2	
ICBRA03030	***Branchinecta lynchi*** vernal pool fairy shrimp	Threatened	None	G3	S3	
ICBRA06010	***Linderiella occidentalis*** California linderiella	None	None	G2G3	S2S3	
IICOL4A020	***Coelus gracilis*** San Joaquin dune beetle	None	None	G1	S1	
IIDIP08010	***Metapogon hurdi*** Hurd's metapogon robberfly	None	None	G1G2	S1S2	
IIHYM24260	***Bombus pensylvanicus*** American bumble bee	None	None	G3G4	S2	
PDAPI0Z0Y0	***Eryngium spinosepalum*** spiny-sepaled button-celery	None	None	G2	S2	1B.2

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
PDAST5L030	***Lasthenia chrysantha*** alkali-sink goldfields	None	None	G2	S2	1B.1
PDAST5N0B0	***Layia munzii*** Munz's tidy-tips	None	None	G2	S2	1B.2
PDASTA8010	***Monolopia congdonii*** San Joaquin woollythreads	Endangered	None	G2	S2	1B.2
PDBRA1M0G2	***Lepidium jaredii ssp. album*** Panoche pepper-grass	None	None	G2G3T2T3	S2S3	1B.2
PDCHE040B0	***Atriplex cordulata var. cordulata*** heartscale	None	None	G3T2	S2	1B.2
PDCHE042L0	***Atriplex depressa*** brittlescale	None	None	G2	S2	1B.2
PDCHE042M0	***Atriplex minuscula*** lesser saltscale	None	None	G2	S2	1B.1
PDCHE042P0	***Atriplex persistens*** vernal pool smallscale	None	None	G2	S2	1B.2
PDCHE042T0	***Atriplex subtilis*** subtle orache	None	None	G1	S1	1B.2
PDCHE042V0	***Atriplex cordulata var. erecticaulis*** Earlimart orache	None	None	G3T1	S1	1B.2
PDCHE04371	***Atriplex coronata var. vallicola*** Lost Hills crownscale	None	None	G4T3	S3	1B.2
PDPLM03070	***Eriastrum hooveri*** Hoover's eriastrum	Delisted	None	G3	S3	4.2
PDRAN0B1J0	***Delphinium recurvatum*** recurved larkspur	None	None	G2?	S2?	1B.2
PDSCR0J0J0	***Chloropyron palmatum*** palmate-bracted bird's-beak	Endangered	Endangered	G1	S1	1B.1
PMALI040Q0	***Sagittaria sanfordii*** Sanford's arrowhead	None	None	G3	S3	1B.2
PMPOA53110	***Puccinellia simplex*** California alkali grass	None	None	G2	S2	1B.2

Record Count: 56

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Fresno County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. 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.

The following species are potentially affected by activities in this location:

Mammals

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

Reptiles

NAME	STATUS
Blunt-nosed Leopard Lizard Gambelia silus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/625	Endangered
Giant Garter Snake Thamnophis gigas Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4482	Threatened

Northwestern Pond Turtle Actinemys marmorata — Proposed Threatened
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/1111

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus	Candidate

Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/9743

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi	Threatened

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

Flowering Plants

NAME	STATUS
Palmate-bracted Bird's Beak Cordylanthus palmatus	Endangered

Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/1616

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

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

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

There are no documented cases of eagles being present at this location. However, if you believe eagles may be using your site, please reach out to the local Fish and Wildlife Service office.

Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/ documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Belding's Savannah Sparrow Passerculus sandwichensis beldingi This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Black Tern Chlidonias niger This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3093	Breeds May 15 to Aug 20
Bullock's Oriole Icterus bullockii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25

California Gull Larus californicus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
Clark's Grebe Aechmophorus clarkii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Common Yellowthroat Geothlypis trichas sinuosa This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Lawrence's Goldfinch Carduelis lawrencei This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464	Breeds Mar 20 to Sep 20
Marbled Godwit Limosa fedoa This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds elsewhere
Mountain Plover Charadrius montanus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3638	Breeds elsewhere
Nuttall's Woodpecker Picoides nuttallii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20
Tricolored Blackbird Agelaius tricolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10
Western Grebe aechmophorus occidentalis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31
Willet Tringa semipalmata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

PEM1K

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

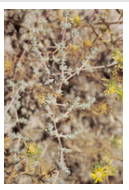
Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

CNPS Rare Plant Inventory

Search Results

21 matches found. Click on scientific name for details

Search Criteria: 9-Quad include [**3612052:3612062:3612072:3612063:3612064:3612073:3612074:3612054:3612053**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Atriplex cordulata var. *cordulata*	heartscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G3T2	S2	1B.2	Yes	1988-01-01	 © 1994 Robert E. Preston, Ph.D.
Atriplex cordulata var. *erecticaulis*	Earlimart orache	Chenopodiaceae	annual herb	Aug-Sep(Nov)	None	None	G3T1	S1	1B.2	Yes	2001-01-01	 © 2009 Robert E. Preston, Ph.D.
Atriplex coronata var. *vallicola*	Lost Hills crownscale	Chenopodiaceae	annual herb	Apr-Sep	None	None	G4T3	S3	1B.2	Yes	1974-01-01	No Photo Available
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	Yes	1994-01-01	 © 2009 Zoya Akulova
Atriplex minuscula	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	None	None	G2	S2	1B.1	Yes	1994-01-01	 © 2000 Robert E. Preston, Ph.D.
Atriplex persistens	vernal pool smallscale	Chenopodiaceae	annual herb	Jun-Oct	None	None	G2	S2	1B.2	Yes	2001-01-01	No Photo Available
Atriplex subtilis	subtle orache	Chenopodiaceae	annual herb	(Apr)Jun-Sep(Oct)	None	None	G1	S1	1B.2	Yes	1994-01-01	 © 2000 Robert E. Preston, Ph.D.

Chloropyron palmatum	palmate-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct	FE	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	None	None	G2?	S2?	1B.2	Yes	1988-01-01	No Photo Available
Eriastrum hooveri	Hoover's eriastrum	Polemoniaceae	annual herb	Mar-Jul	FD	None	G3	S3	4.2	Yes	1974-01-01	 © 2011 Chris Winchell
Eriogonum gossypinum	cottony buckwheat	Polygonaceae	annual herb	Mar-Sep	None	None	G3G4	S3S4	4.2	Yes	1974-01-01	No Photo Available
Eryngium spinosepalum	spiny-sepaled button-celery	Apiaceae	annual/perennial herb	Apr-Jun	None	None	G2	S2	1B.2	Yes	1980-01-01	No Photo Available
Goodmania luteola	golden goodmania	Polygonaceae	annual herb	Apr-Aug	None	None	G3	S3	4.2		1994-01-01	 © 2007 Steve Matson
Lasthenia chrysantha	alkali-sink goldfields	Asteraceae	annual herb	Feb-Apr	None	None	G2	S2	1B.1	Yes	2019-09-30	 © 2009 California State University, Stanislaus
Lasthenia ferrisiae	Ferris' goldfields	Asteraceae	annual herb	Feb-May	None	None	G3	S3	4.2	Yes	2001-01-01	 © 2009 Zoya Akulova
Layia munzii	Munz's tidy-tips	Asteraceae	annual herb	Mar-Apr	None	None	G2	S2	1B.2	Yes	1988-01-01	 © 2017 Neal Kramer
Lepidium jaredii ssp. *album*	Panoche pepper-grass	Brassicaceae	annual herb	Feb-Jun	None	None	G2G3T2T3	S2S3	1B.2	Yes	1994-01-01	 © 2015 Debra L. Cook
Monolopia congdonii	San Joaquin woollythreads	Asteraceae	annual herb	Feb-May	FE	None	G2	S2	1B.2	Yes	1988-01-01	No Photo Available
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	None	None	G2	S2	1B.2		2015-10-15	No Photo Available

Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	G3	S3	1B.2	Yes	1984-01-01	 ©2013 Debra L. Cook
Trichostema ovatum	San Joaquin bluecurls	Lamiaceae	annual herb	(Apr-Jun)Jul-Oct	None	None	G3	S3	4.2	Yes	1974-01-01	No Photo Available

Showing 1 to 21 of 21 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2023. Rare Plant Inventory (online edition, v9.5). Website https://www.rareplants.cnps.org [accessed 7 November 2023].

ATTACHMENT B

Representative Site Photographs

Photo 1. Solar arrays would be installed in an area of annual grassland that is regularly disced for fire safety. Photo taken February 24, 2021, facing northwest.

Photo 2. California ground squirrel burrows located on the east side of the Study Area. Photo taken on February 24, 2021, facing east.

Photo 3. Representative photo of burrows located within the Study Area. Photo taken on February 24, 2021, facing southeast.

Photo 4. Trenching would take place in the disturbed/developed portion of the Study Area, which includes access roads for the Mendota Wildlife Area Headquarters. Photo taken February 24, 2021, facing southwest.

ATTACHMENT C

Plant Survey Report

October 12, 2023

Mr. Casey Miller
ForeFront Power, LLC
100 Montgomery Street, Suite 275
San Francisco, California 94104

RE: Mendota Wildlife Area Solar Project, Shasta County, California – Special-Status Plant Survey

Dear Mr. Miller:

On behalf of ForeFront Power, LLC, ECORP Consulting, Inc. conducted a special-status plant survey for the Mendota Wildlife Area Solar Project (Project). The survey location, purpose, methods, and results are included in the following sections.

LOCATION

The approximately 1.95-acre survey area for the Project (Survey Area) is located within and adjacent to the Mendota Wildlife Area Headquarters located at 4333 Santa Fe Grade, near the city of Mendota in Fresno County, California (Figures 1 and 2). The Survey Area corresponds to the central portion of Section 28 Township 14 South, Range 15 East (Mount Diablo Base and Meridian) within the "Tranquility, California" 7.5-minute quadrangle (U.S. Geological Survey 1984). The approximate center of the Survey Area is located at latitude 36.681975° and longitude -120.343252° (North American Datum 1983). The Survey Area is within the Upper Dry watershed (Hydrologic Unit Code #18030009; Natural Resources Conservation Service et al. 2019).

PURPOSE

The purpose of the survey was to identify and map the locations of special-status plant species if found within the Survey Area. The survey was conducted to support the California Environmental Quality Act documentation for the Project.

METHODS

Prior to conducting the survey, ECORP collected background information on the potential presence of special-status plants within or near the Survey Area from a variety of sources, including the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CDFW 2023), the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation tool (USFWS 2023), and the California Native Plant Society (CNPS) Rare Plant Inventory (CNPS 2023). Biologists evaluated each special-status plant species with potential to occur in the vicinity of the Survey Area for its potential to occur onsite, and determined a list of target species. The following 21 species were included as targets for the survey:

- Heartscale (*Atriplex cordulata* var. *cordulata*)
- Earlimart orache (*Atriplex cordulata* var. *erecticaulis*)
- Lost Hills crownscale (*Atriplex cordulata* var. *vallicola*)
- Brittlescale (*Atriplex depressa*)
- Lesser saltscale (*Atriplex minuscula*)
- Subtle orache (*Atriplex subtilis*)
- Palmate-bracted bird's-beak (*Chloropyron palmatum)*
- Recurved larkspur (*Delphinium recurvatum*)
- Hoover's eriastrum (*Eriastrum hooveri*)
- Cottony buckwheat (*Eriogonum gossypinum*)
- Spiny-sepaled button-celery (*Eryngium spinosepalum*)
- Golden goodmania (*Goodmania luteola*)
- Munz's tidy-tips (*Layia munzii*)
- Panoche pepper-grass (*Lepidium jaredii* ssp. *album*)
- San Joaquin woollythreads (*Monolopia congdonii*)
- San Joaquin bluecurls (*Trichostema ovatum*)

ECORP biologists used herbaria specimens, Calflora (2023), Calphotos (2023), and Jepson eFlora (2023) as references to assess phenology and observe morphology of the target species. The review of reference sources confirmed that the survey coincided with identifiable periods for all target species.

Reference sites for multiple special-status species were visited prior to conducting surveys. Positive sightings were observed for brittlescale, lesser saltscale, and heartscale.

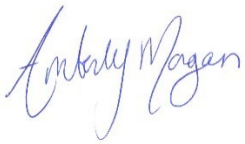
ECORP biologists Krissy Walker-Berry and Roxanne Kessler conducted the early season survey on April 27, 2023. Krissy Walker-Berry conducted the late season survey on August 2, 2023. Both surveys were conducted in accordance with guidelines promulgated by CDFW (2018), CNPS (2001), and USFWS (2000). Biologists walked meandering transects throughout the Survey Area including all potentially suitable habitat for target species. All plant species were identified to the lowest possible taxonomic level required to assess rarity.

RESULTS

A large portion of the Survey Area had been mowed between the early and late season surveys. No special-status plant species were observed during the surveys. A list of all plant species observed within the Survey Area is included in Appendix A.

If you have any questions about the information presented in this letter, please contact me at amorgan@ecorpconsulting.com or (916) 782-9100.

Sincerely,



Amberly Morgan
Senior Environmental Planner/Project Manager

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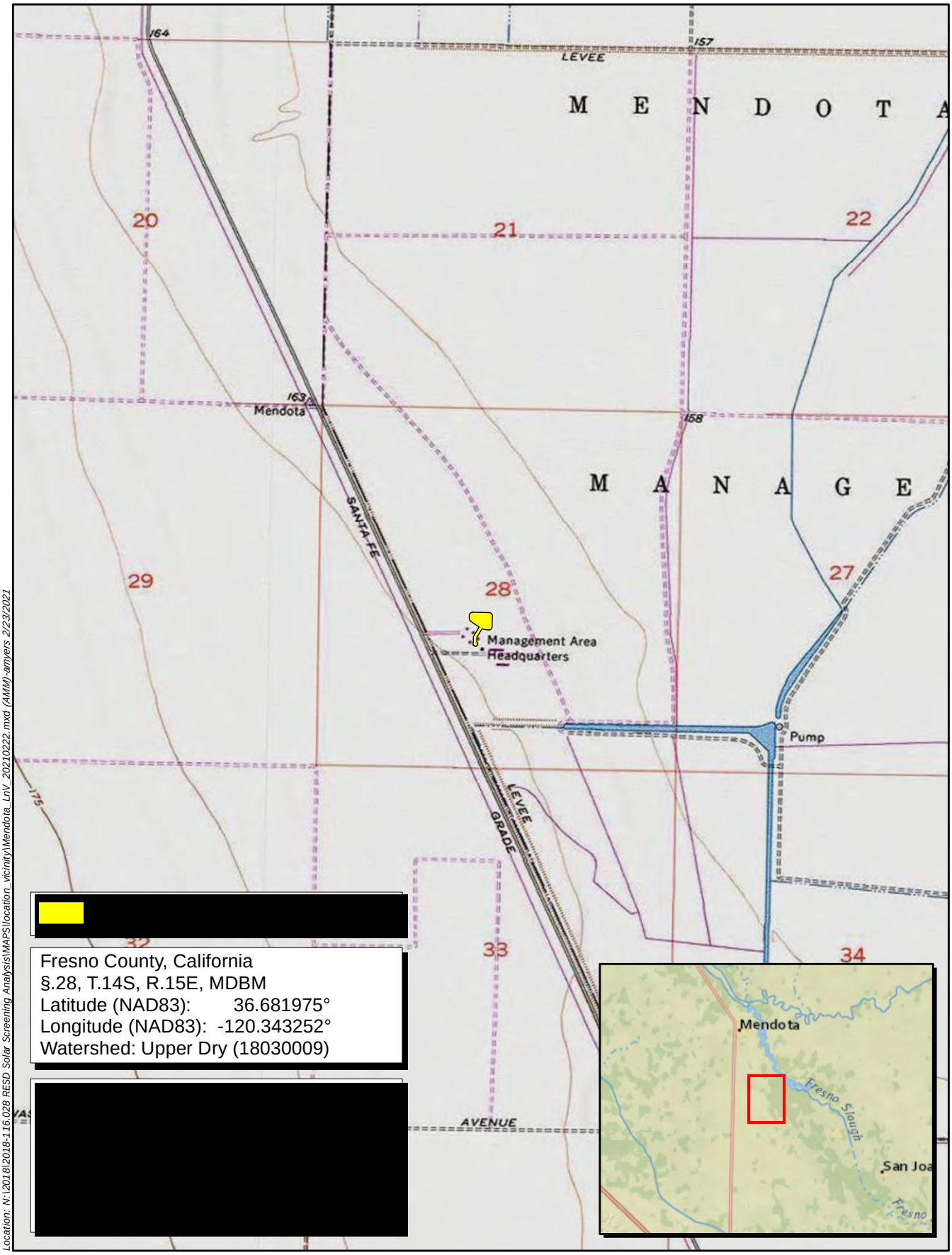
U.S. Geological Survey (USGS) 1956 (photo revised 1984). "Tranquility, California" 7.5-minute Quadrangle. Geological Survey. Denver, Colorado.

LIST OF FIGURES



Location: N:\2018\2018-116.028 RESD Solar Screening Analysis\MAPS\location_vicinity\Mendota_LnV_20210222.mxd (AMM)-amyers 2/23/2021

Map Date: 2/23/2021

Figure 1. Survey Area Location and Vicinity

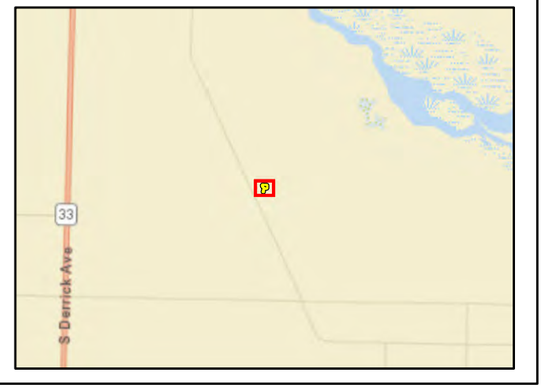
2021-047.02 Mendota Solar Ground Mount Project

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Map Features

- Survey Area - 1.95 ac.
- Buffer Area 1.31 acres
- Project Area - 0.64 acres

Base Source: NAIP 2020



ECORP- N:\2018\2018-116.028 RESD Solar Screening Analysis\MAPS\Aerial_Maps\Mendota_SitePlan_20210309.mxd (AMM)-amyers 3/12/2021

Map Date: 3/12/2021

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Scale in Feet
0 100

Figure 2. Survey Area Components

2021-112.03/004 Mendota Solar Ground Mount Project

APPENDIX A

Plant Species Observed (April 27 and August 2, 2023)

Mendota Solar Ground Mount Project

Plant Species Observed (April 27 and August 2, 2023)

SCIENTIFIC NAME	COMMON NAME
APIACEAE	**CARROT FAMILY**
*Conium maculatum**	Poison hemlock
*Torilis arvensis**	Field hedge parsley
ASTERACEAE	**SUNFLOWER FAMILY**
*Centaurea melitensis**	Tocalote
Centromadia pungens	Common tarweed
Helianthus annuus	Common sunflower
*Lactuca serriola**	Prickly lettuce
Laennecia coulteri	Coulter's horseweed
Matricaria discoidea	Pineapple weed
*Sonchus asper**	Prickly sowthistle
BORAGINACEAE	**BORAGE FAMILY**
Amsinckia menziesii	Small flowered fiddleneck
BRASSICACEAE	**MUSTARD FAMILY**
*Brassica nigra**	Black mustard
*Capsella bursa-pastoris**	Shepherd purse
*Sisymbrium irio**	London rocket
CHENOPODIACEAE	**GOOSEFOOT FAMILY**
Atriplex lentiformis	Big Saltbush
*Chenopodium album**	White goosefoot
CONVOLVULACEAE	**MORNING-GLORY FAMILY**
Cressa truxillensis	Spreading alkali-weed
CRASSULACEAE	**STONECROP FAMILY**
Crassula aquatica	Aquatic pygmy-weed
FABACEAE	**LEGUME FAMILY**
Caesalpinia gilliesii	Bird-of-paradise
*Melilotus indicus**	Annual yellow sweetclover
*Parkinsonia aculeata**	Mexican palo verde
Prosopis velutina	Mesquite
FRANKENIACEAE	**FRANKENIA FAMILY**
Frankenia salina	Alkali heath

Mendota Solar Ground Mount Project

Plant Species Observed (April 27 and August 2, 2023)

SCIENTIFIC NAME	COMMON NAME
GERANIACEAE	**GERANIUM FAMILY**
*Erodium cicutarium**	Red-stemmed filaree
*Erodium moschatum**	White-stemmed filaree
LAMIACEAE	**MINT FAMILY**
*Marrubium vulgare**	Common horehound
MORACEAE	**MULBERRY FAMILY**
*Morus alba**	White mulberry
POACEAE	**GRASS FAMILY**
Alopecurus saccatus	Pacific foxtail
*Bromus diandrus**	Ripgut brome
*Bromus hordeaceus**	Soft brome
Bromus madritensis ssp. *rubens**	Red brome
Festuca microstachys	Small fescue
*Hordeum murinum**	Foxtail barley
*Poa annua**	Annual bluegrass
SOLANACEAE	**NIGHTSHADE FAMILY**
Datura wrightii	Sacred thornapple
URTICACEAE	**NETTLE FAMILY**
*Urtica urens**	Dwarf nettle

APPENDIX C

Archaeological and Architectural History Resources Inventory
Report for the Mendota Wildlife Area Solar Project
ECORP Consulting, Inc.
June 2023

THIS REPORT IS NOT PROVIDED IN THIS SUBMITTAL DUE TO CONFIDENTIALITY. IT IS AVAILABLE UPON REQUEST.

APPENDIX D

Energy Consumption Calculations
ECORP Consulting, Inc.
2023

Proposed Project
Total Construction-Related
Gasoline Usage

Construction

Table 1. Construction Year One			
Action	**Carbon Dioxide Equivalents (CO_2e) in Metric Tons[1]**	**Conversion of Metric Tons to Kilograms[2]**	**Construction Equipment Emission Factor[2]**
Project Construction	63	63,000	10.15
Total Gallons Consumed During Construction Year One:			**6,207**

Table 2. Construction Year Two			
Action	**Carbon Dioxide Equivalents (CO_2e) in Metric Tons[1]**	**Conversion of Metric Tons to Kilograms[2]**	**Construction Equipment Emission Factor[2]**
Project Construction	154	154,000	10.15
Total Gallons Consumed During Construction Year Two:			**15,172**

Sources:

[1]ECORP Consulting. 2023. Air Quality and Greenhouse Gas Emissions Assessment: Mendota

[2]Climate Registry. 2016. General Reporting Protocol for the Voluntary Reporting Program version 2.1. January 2016. http://www.theclimateregistry.org/wp-content/uploads/2014/11/General-Reporting-Protocol-Version-2.1.pdf

APPENDIX E

Roadway Construction Noise Model
ECORP Consulting, Inc.
2023

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/21/2023
Case Description: Site Prep

Description	**Land Use**
Site Prep	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Grader	No	40	85		12485
Dozer	No	40		81.7	12485
Tractor	No	40	84		12485

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Grader	37.1	33.1
Dozer	33.7	29.7
Tractor	36.1	32.1
Total	**37.1**	**36.6**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/21/2023
Case Description: Grading

Description	**Land Use**
Grading	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Grader	No	40	85		12485
Dozer	No	40		81.7	12485
Tractor	No	40	84		12485
Tractor	No	40	84		12485

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Grader	37.1	33.1
Dozer	33.7	29.7
Tractor	36.1	32.1
Tractor	36.1	32.1
Total	**37.1**	**37.9**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/21/2023
Case Description: Construction

Description	**Land Use**
Construction	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Crane	No	16		80.6	12485
Gradall	No	40		83.4	12485
Generator	No	50		80.6	12485
Tractor	No	40	84		12485
Welder / Torch	No	40		74	12485
Welder / Torch	No	40		74	12485
Welder / Torch	No	40		74	12485
Slurry Trenching Machine	No	50		80.4	12485

Calculated (dBA)

Equipment	*Lmax	Leq
Crane	32.6	24.6
Gradall	35.5	31.5
Generator	32.7	29.7
Tractor	36.1	32.1
Welder / Torch	26.1	22.1
Welder / Torch	26.1	22.1
Welder / Torch	26.1	22.1
Slurry Trenching Machine	32.4	29.4
Total	**36.1**	**37.5**

*Calculated Lmax is the Loudest value.