CITY OF LIVE OAK

WWTP SOLAR PROJECT

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Lead Agency:

CITY OF LIVE OAK
9955 LIVE OAK BOULEVARD
LIVE OAK, CA 95953

Prepared by:

Michael Baker INTERNATIONAL

140 INDEPENDENCE CIRCLE, SUITE C
CHICO, CA 95973

OCTOBER 2016

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TABLES

FIGURES

APPENDICES

1.0 Introduction

1.1 INTRODUCTION AND REGULATORY GUIDANCE

This document is an Initial Study, with supporting environmental studies, which concludes that a Mitigated Negative Declaration is the appropriate California Environmental Quality Act (CEQA) document for the City of Live Oak Wastewater Treatment Plant Solar Project (WWTP Solar Project; proposed project). This Mitigated Negative Declaration has been prepared in accordance with CEQA, Public Resources Code Section 21000 et seq., and the State CEQA Guidelines, California Code of Regulations Section 15000 et seq.

An initial study is conducted by a lead agency to determine whether a project may have a significant effect on the environment. In accordance with CEQA Guidelines Section 15063, an environmental impact report (EIR) must be prepared if an initial study indicates that the proposed project under review may have a potentially significant impact on the environment which cannot be initially avoided or mitigated to a level that is less than significant. A negative declaration may be prepared if the lead agency also prepares a written statement describing the reasons why the proposed project would not have a significant effect on the environment and therefore why it does not require the preparation of an EIR (CEQA Guidelines Section 15371). According to CEQA Guidelines Section 15070, a negative declaration shall be prepared for a project subject to CEQA when either:

a) The initial study shows there is no substantial evidence, in light of the whole record before the agency, that the proposed project may have a significant effect on the environment, or

b) The initial study identifies potentially significant effects, but:

   (1) Revisions in the project plans or proposals made by or agreed to by the applicant before the proposed negative declaration is released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur; and

   (2) There is no substantial evidence, in light of the whole record before the agency, that the proposed project as revised may have a significant effect on the environment.

If revisions are adopted in the proposed project in accordance with CEQA Guidelines Section 15070(b), including the adoption of mitigation measures included in this document, a mitigated negative declaration is prepared.

1.2 LEAD AGENCY

The lead agency is the public agency with primary responsibility over a proposed project. Where two or more public agencies will be involved with a project, CEQA Guidelines Section 15051 provides criteria for identifying the lead agency. In accordance with CEQA Guidelines Section 15051(b)(1), "the lead agency will normally be the agency with general governmental powers, such as a city or county, rather than an agency with a single or limited purpose." Based on the criteria above, the City of Live Oak is the lead agency for the proposed WWTP Solar Project.

1.3 PURPOSE AND DOCUMENT ORGANIZATION

The purpose of this Initial Study is to evaluate the potential environmental impacts of the proposed WWTP Solar Project. This document is divided into the following sections:

1.0 Introduction – This section provides an introduction and describes the purpose and organization of the document.

2.0 Project Information – This section provides general information regarding the project, including the project title, lead agency and address, contact person, brief description of the project location, General Plan land use designation, and zoning district, identification of surrounding land uses, and identification of other public agencies whose review, approval, and/or permits may be required. Also listed in this section is a checklist of the environmental factors that are potentially affected by the project.

3.0 Project Description – This section provides a detailed description of the proposed project.

4.0 Environmental Checklist – This section describes the environmental setting and overview for each of the environmental subject areas, evaluates a range of impacts classified as "no impact," "less than significant impact," "less than significant impact with mitigation incorporated," and "potentially significant impact" in response to the environmental checklist.

5.0 References – This section identifies documents, websites, people, and other sources consulted during the preparation of this Initial Study.

1.4 EVALUATION OF ENVIRONMENTAL IMPACTS

Section 4.0, Environmental Checklist, is the analysis portion of this Initial Study. The section provides an evaluation of the potential environmental impacts of the project. Section 4.0 includes 18 environmental issue subsections, including CEQA Mandatory Findings of Significance. The environmental issue subsections, numbered 1 through 18, consist of the following:

1. Aesthetics
2. Agriculture Resources
3. Air Quality
4. Biological Resources
5. Cultural Resources
6. Geology and Soils
7. Greenhouse Gases
8. Hazards and Hazardous Materials
9. Hydrology and Water Quality
10. Land Use and Planning
11. Mineral Resources
12. Noise
13. Population and Housing
14. Public Services
15. Recreation
16. Transportation/Traffic
17. Utilities and Service Systems
18. Mandatory Findings of Significance

Each environmental issue subsection is organized in the following manner:

The **Setting** summarizes the existing conditions at the regional, subregional, and local level, as appropriate, and identifies applicable plans and technical information for the particular issue area.

The **Discussion of Impacts** provides a detailed discussion of each of the environmental issue checklist questions. The level of significance for each topic is determined by considering the predicted magnitude of the impact. Four levels of impact significance are evaluated in this Initial Study:

No Impact: No project-related impact to the environment would occur with project development.

Less Than Significant Impact: The impact would not result in a substantial adverse change in the environment. This impact level does not require mitigation measures.

Less Than Significant Impact With Mitigation Incorporated: An impact that may have a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project" (CEQA Guidelines Section 15382). However, the incorporation of mitigation measures that are specified after analysis would reduce the project-related impact to a less than significant level.

Potentially Significant Impact: An impact that is "potentially significant" but for which mitigation measures cannot be immediately suggested or the effectiveness of potential mitigation measures cannot be determined with certainty, because more in-depth analysis of the issue and potential impact is needed. In such cases, an EIR is required.

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2.0 PROJECT INFORMATION

1. **Project title:** Wastewater Treatment Plant Solar Project

2. **Lead agency name and address:** City of Live Oak
9955 Live Oak Boulevard
Live Oak, CA 95953

3. **Contact person:** Jim Goodwin, City Manager

4. **Project location:** The project site is located in the southwestern portion of the city on Treatment Plant Access Road on a City-owned 39.24-acre site (APNs 06-320-002, -003, -004).

5. **General Plan designation:** Existing Development

6. **Zoning:** C (Civic)

7. **Description of project:** Installation of a photovoltaic (PV) solar system to serve the City's Wastewater Treatment Plant (WWTP). The solar system will be located in two areas within the 39.24-acre WWTP facility site: (1) over the existing administration building and adjacent parking area, and (2) in a 4.6-acre vacant field at the northeast corner of the site. The project would include the installation of approximately 3,883 square yards of PV panels to produce approximately 864,000 kilowatt-hours (kWh) of electricity per year.

   No off-site improvements will be necessary to complete the solar project. All connections to the existing WWTP electrical system will occur on-site.

8. **Surrounding land uses and setting:** North of the project site are single-family homes and vacant land. East, west, and south of the project site are lands currently in agricultural use.

9. **Other public agencies whose approval may be required (e.g., permits, financing approval, or participation agreement):**

   - California Department of Fish and Wildlife (CDFW)
   - Central Valley Regional Water Quality Control Board (RWQCB)
   - Feather River Air Quality Management District (FRAQMD)
   - Sutter County Department of Public Health
   - California Department of Water Resources

10. **Environmental factors potentially affected:**

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is either a potentially significant impact or a less than significant impact with mitigation incorporated, as indicated by the checklist on the following pages.

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

12. Determination: (to be completed by the lead agency)

On the basis of this initial evaluation:

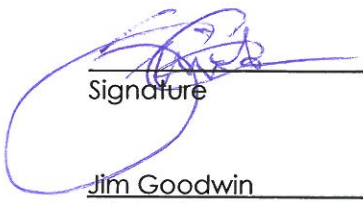
☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

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

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

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

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



Signature

10/27/16
Date

Jim Goodwin
Printed Name

City of Live Oak
Lead Agency

City Manager
Title

3.0 Project Description

3.1 PROJECT BACKGROUND

The project applicant/sponsor, the City of Live Oak, proposes the development of a photovoltaic (PV) solar system and related infrastructure to be connected to the City's existing Wastewater Treatment Plant (WWTP) electrical distribution system. The PV solar system will be used to provide supplemental electric power to the WWTP.

3.2 PROJECT LOCATION

The proposed project site is located at the southwestern corner of the city on a City-owned 39.24-acre property south of Treatment Plant Access Road. (See **Figure 3.0-1, Regional Location,** and **Figure 3.0-2, Proposed Project Area.**)

3.3 PROJECT OVERVIEW

The proposed project includes the installation of a photovoltaic solar system to serve the City's Wastewater Treatment Plant. The solar system will be located in two areas within the 39.24-acre WWTP facility site: (1) over the existing administration building and adjacent parking area and (2) in a 4.6-acre vacant field at the northeast corner of the site.

The solar array to be located over the parking area and administration building would not be attached to the building. See **Figure 3.0-3a, Solar Array #1 Location**. The proposed use of a cantilevered "L" or "tabletop" canopy mounting system would not result in any alteration to the existing administration building.

The vacant 4.6-acre field was previously excavated to provide fill for development at the WWTP. While the field does receive storm drainage from the WWTP site, it is not used as a treatment pond or in any capacity for the treatment of wastewater. The City periodically mows the existing vegetation on the field. See **Figure 3.0-3b, Solar Array #2 Location**. The project would include the installation of approximately 3,883 square yards of PV panels to produce approximately 864,000 kilowatt-hours (kWh) of electricity per year.

No off-site improvements will be necessary to complete the solar project. The utility grid interconnection point with the existing electrical system would be on-site within the existing electrical panel.

PROJECT COMPONENTS

PV Modules

The PV technology proposed for this project would be polycrystalline solar modules. The PV modules are nonreflective and would convert sunlight into direct current (DC) electricity to supply the electrical grid. The PV modules would consume no fossil fuels and emit no pollutants during operation. It is estimated that the project will take 1,710 panels. PV power-generating facilities consist of photovoltaic panels mounted on metal support structures. The City has chosen a fixed-tilt ground-mounted racking system to connect the PV modules to the foundations. For those panels located in the field area, it is anticipated that the PV array will be raised 3 to 4 feet off the ground to allow for some water accumulation during winter rains. The height of the PV array will depend on the final mounting system selection, but assuming a common arrangement of three modules high, the height from base to top will be approximately 9.5 feet.

3.4 EXISTING AND SURROUNDING LAND USE

Directly north of the project site are single-family homes and vacant land. This area is within the Live Oak city boundaries, has the Live Oak General Plan land use designation of Low Density Residential, and is in the Low Density Residential (R-1) zoning district. Northwest, east, west, and south of the project site are lands currently in agricultural use. These areas are all under the jurisdiction of Sutter County. The Sutter County General Plan land use designation for this area is Agriculture 20-Acre Minimum parcel size. The Sutter County zoning is AG-20 (Agriculture 20-acre minimum) for this area.

3.5 PROJECT APPROVALS

As the lead agency for the project, the City of Live Oak has the ultimate authority for project approval or denial. The proposed project would or may require the following discretionary agency approvals for actions proposed as part of the project:

- City of Live Oak – adoption of an Initial Study/Mitigated Negative Declaration for the project
- Feather River Air Quality Management District
- California Department of Fish and Wildlife
- Central Valley Regional Water Quality Control Board

The project may also require the ministerial approvals from the following agencies for actions proposed as part of the project:

- Public Utilities Commission
- US Fish and Wildlife Service

3.6 RELATIONSHIP OF PROJECT TO OTHER PLANS

CITY OF LIVE OAK GENERAL PLAN

The proposed project will be located entirely within the Live Oak city limits. The project has been reviewed for consistency with the Live Oak 2030 General Plan, which is the fundamental document governing land use development in the city. The General Plan includes numerous goals and policies pertaining to land use, circulation, housing, conservation, open space, parks and recreation, noise, public health and safety, and public facilities. The proposed project will be required to comply with applicable goals and policies included in the adopted General Plan.

2030 General Plan Consistency

The project by design and through mitigation will comply with the following policies of the 2030 General Plan:

Policy Biological-1.1 Applicants of projects that have the potential to negatively affect special-status species or their habitat shall conduct a biological resources assessment and identify design solutions that avoid such adverse effects. If adverse effects cannot be avoided, then they shall be mitigated in

accordance with guidance from the appropriate state or federal agency charged with the protection of these species.

Policy Biological-2.1 New developments shall preserve all native oaks with a diameter at breast height (dbh) of 6 inches or greater and all other trees that have a dbh of 30 inches or greater, to the maximum extent feasible.

Policy Air-2.1 New development shall implement standard emission control measures recommended by the Feather River Air Quality Management District for construction, grading, excavation, and demolition, to the maximum extent feasible.

Policy Cultural-1.1 New development projects involving the movement, scraping, or leveling of soil should conduct archeological background research to determine if the project is likely to disturb a prehistoric site or traditional-use area. If disturbance is likely, site analysis will be conducted to identify resources of concern. The project will make all reasonable efforts to use site design to avoid impacts to any prehistoric site or traditional-use area.

Policy Cultural-1.4 New developments shall be designed to provide view corridors to the Sutter Buttes by orienting major and minor collectors southwest to provide a valuable community aesthetic amenity and maintain vistas that were important to local Native American populations.

Policy Cultural-1.5 If potential paleontological resources are detected during construction, work shall stop and consultation with the City is required to avoid further impacts. Actions after work stoppage will be designed to avoid significant impacts to the greatest extent feasible. These measures could include construction worker personnel education, consultation with a qualified paleontologist, coordination with experts on resource recovery and curation of specimens, and/or other measures, as appropriate.

Policy Energy-1.12 The City will encourage the retrofitting of existing buildings throughout Live Oak with energy-efficient systems, energy-efficient appliances, insulation, energy-efficient doors and windows, and other elements that conserve resources.

Policy Energy-2.1 The City will explore the installation of renewable energy systems on City buildings and properties.

Policy Energy-2.3 The City will maximize the use of renewable energy in meeting City building energy needs with a goal of 50 percent or more renewable energy by General Plan buildout.

Policy Public-3.8 The City will identify regional, state, or federal funding and will leverage this funding, as appropriate, to make improvements to the City's existing wastewater infrastructure in order to encourage infill development.

Policy Public-15.8 The City will encourage and accommodate community renewable energy collection and use, and other renewable energy and energy conservation programs in all new and existing development.

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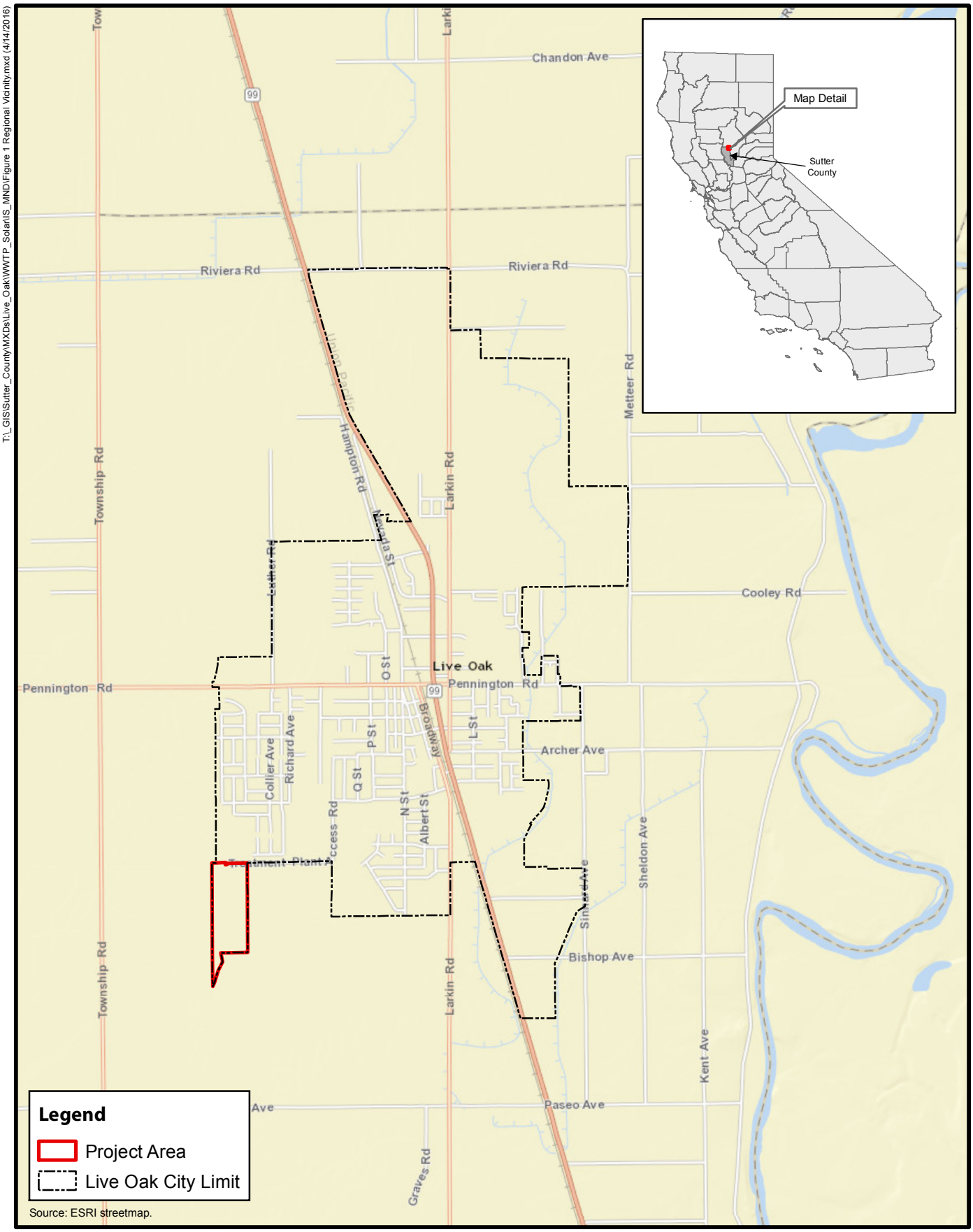

FIGURE 3.0-1
Regional Location

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T:_GIS\Sutter_County\MXDs\Live_Oak\WWTP_Solar\IS_MND\Project Study Area.mxd (4/20/2016)

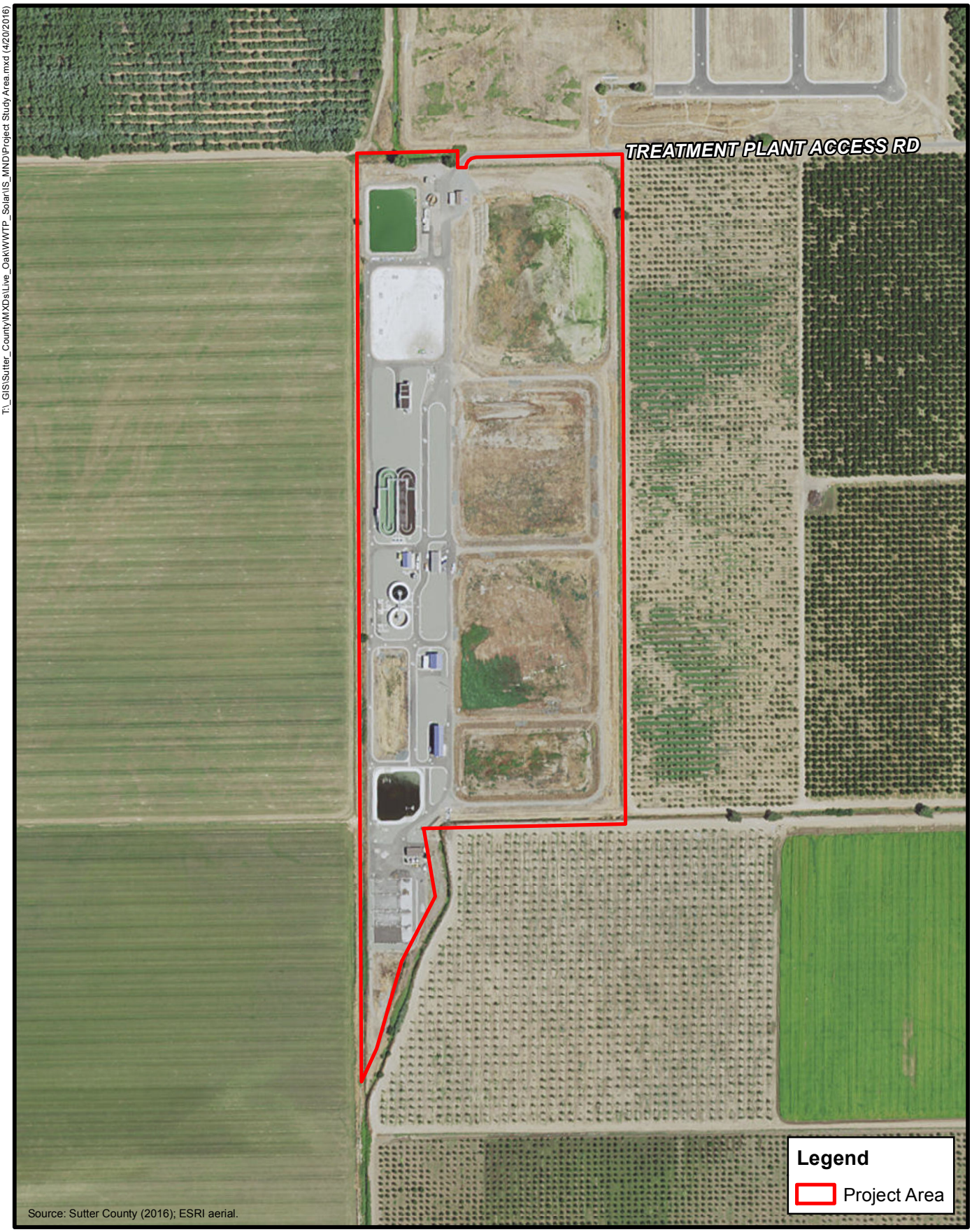

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FIGURE 3.0-2
Proposed Project Area

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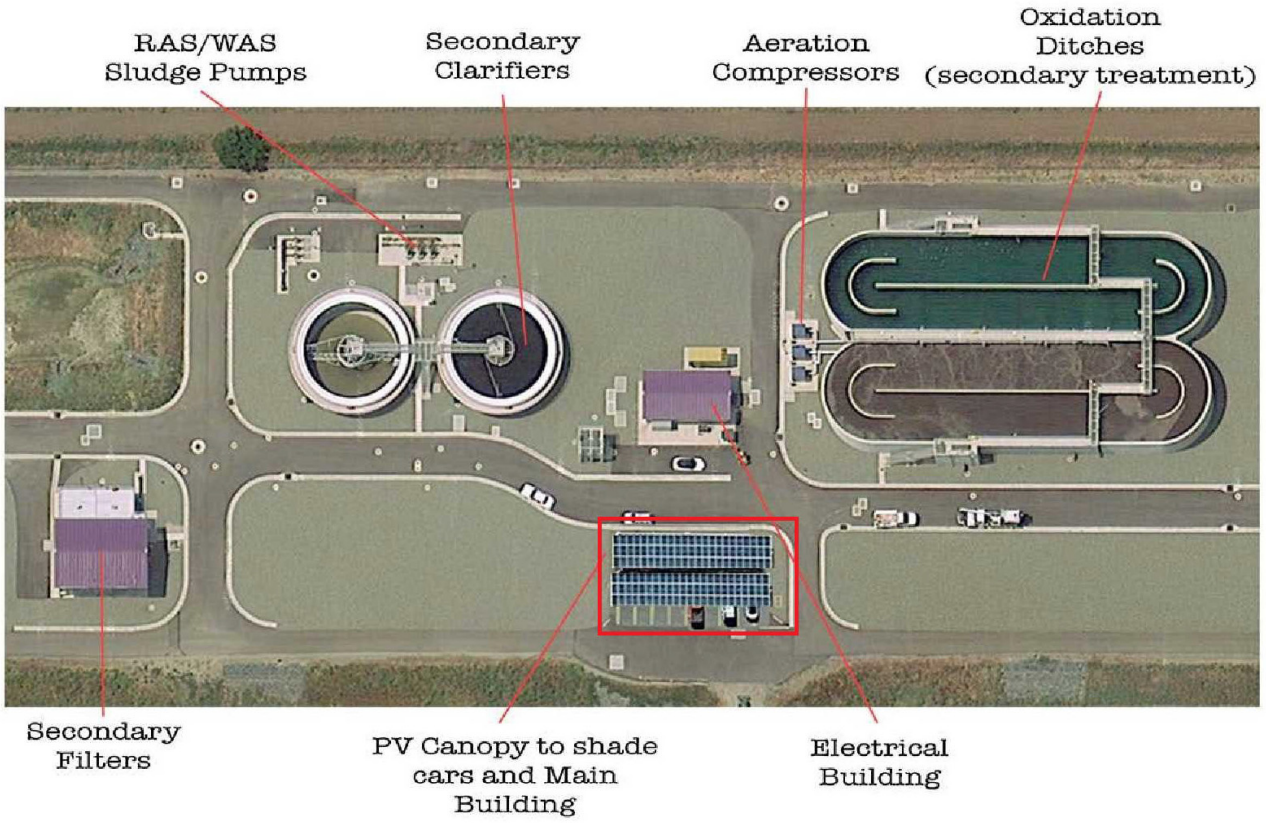

NOTE: Taken from Photovoltaic Feasibility and Energy Improvements Report

Source: EDesignC, Inc.

Not To Scale

FIGURE 3.0-3A
Solar Array #1 Location

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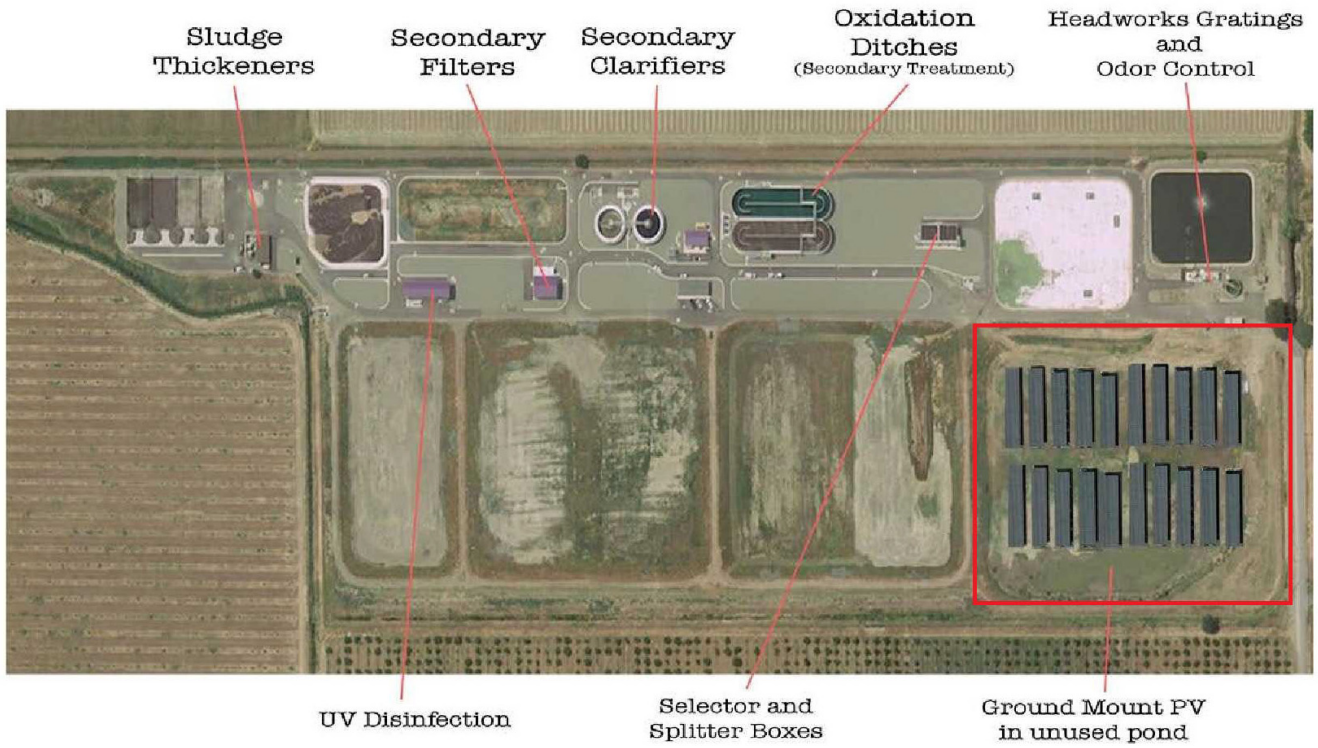

NOTE: Taken from Photovoltaic Feasibility and Energy Improvements Report

Source: EDesignC, Inc.

Not To Scale

FIGURE 3.0-3B
Solar Array #2 Location

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4.0 ENVIRONMENTAL CHECKLISTS

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.1	**AESTHETICS.** Would the project:				
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d)	Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

SETTING

Live Oak is located in the Sacramento Valley approximately 50 miles north of Sacramento, the largest city in the region. Most of the Sacramento Valley is characterized by flat agricultural land, with the Coastal Range and the Sierra Foothills visible in the far distance to the west and east, respectively. One of the most unique visual features in the northern Sacramento Valley is the Sutter Buttes, a small isolated mountain range that rises out of the valley floor to an elevation of approximately 2,000 feet above sea level. The Sutter Buttes are located 6 to 7 miles southwest of Live Oak and are visible from the project site to the southwest. As stated in Section 3.0, Project Description, directly north of the project site are single-family homes and vacant land. Northwest, east, west, and south of the project site are lands currently in agricultural use. A residential neighborhood is located approximately 0.5 mile east of the site. There are no officially designated scenic highways in or near the city (Caltrans 2015).

DISCUSSION OF IMPACTS

a) *Less Than Significant Impact*. The project site consists of land used for the City's wastewater treatment facilities. The site is substantially developed with treatment facilities such as secondary filters, sludge pumps, secondary clarifiers, oxidation ditches, sludge ponds, buildings, and roadways. The Sutter Buttes are located approximately 6 miles southwest of the project site.

The Sutter Buttes can be seen from the project site and from the surrounding properties. However, views of the buttes from the residences north of the project site would not impeded with the installation of the solar panels, as the project site is far enough south to not interfere with the line of sight from the residences to the Sutter Buttes. For views of the buttes from residential areas east of the site, the intervening topography and agricultural uses between the project site and the residential uses limit views of the project site to such a degree that views of the Sutter Buttes would not be impaired with construction of the project. In fact, the WWTP cannot be seen from the neighborhood because of the intervening agricultural uses. Views of the Sutter Buttes from the south would not be impaired due to the project location and the line of sight to the buttes. Views from areas west of the project site would not be impeded as the Sutter Buttes are also west of the site. No other identified scenic vistas exist in the immediate vicinity. Any views of scenic vistas beyond the immediate area would not be affected.

b) *No Impact*. The closest highway to the project is State Route 99. According to the California Scenic Highway Program (Caltrans 2015), this highway is not identified as scenic. Therefore, there are no state or locally designated scenic highways in the vicinity of the project site.

c) *Less Than Significant Impact*. The project site is used for wastewater treatment. The site is surrounded on three sides by agricultural land. North of the site are vacant land and residential neighborhoods. The project site's existing visual character and aesthetic quality are common to the region and lack distinctive aesthetic value. The addition of photovoltaic solar panels to the WWTP would not substantially change the visual character of the site from its current uses.

d) *Less Than Significant Impact*. The proposed project would result in the construction of an array of photovoltaic solar modules and associated equipment. No additional lighting would be installed at the site and no nighttime activity at the site would occur, outside of current activities, as a result of project implementation.

The fixed-tilt ground-mounted racking would be constructed of galvanized steel, as would the frames for the PV modules. Although galvanized steel is reflective when new, its reflectivity quickly diminishes as the zinc oxidizes. The photovoltaic modules themselves would be constructed with a nonreflective coating in order to absorb as much sunlight as possible and maximize energy production.

When comparing various types of surfaces, photovoltaic solar panels (or modules) reflect approximately 4 percent of sunlight, whereas standard glass reflects approximately 22 percent, bare soil reflects approximately 30 percent, and vegetation reflects approximately 50 percent (FAA 2010). Therefore, the modules themselves would not produce a significant amount of glare and may actually reduce the amount of sunlight reflected by existing vegetation. As such, the proposed project would not create a substantial source of light and glare that would adversely affect day or nighttime views.

Mitigation Measures

None required.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.2	**AGRICULTURE RESOURCES.** In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997), prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
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 nonagricultural use?	☐	☐	☐	☒
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c)	Conflict with existing zoning for, or cause rezoning of, forestland (as defined in Public Resources Code Section 1222(g), timberland (as defined in Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined in Public Resources Code Section 51104(g))?	☐	☐	☐	☒
d)	Result in the loss of forestland or conversion of forestland to non-forest use?	☐	☐	☐	☒
e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forestland to non-forest use?	☐	☐	☐	☒

SETTING

The site is designated as Urban and Built-Up Land by the California Department of Conservation (DOC) as shown on the Sutter County Important Farmland map (DOC 2015). The project site is currently used as a wastewater treatment facility. Surrounding land is identified as either Urban and Built-Up Land, Prime Farmland, or Farmland of Statewide Importance by the DOC (2015). The project site is not subject to a Williamson Act contract nor is any agricultural land near the project site (DOC 2014). The City has zoned the project site as Civic and surrounding properties for low-density residential uses. Areas directly north of the project site are zoned Low Density Residential (R-1). Northwest, east, west, and south of the project site are lands currently under the jurisdiction of Sutter County. Sutter County zoning is AG-20 (Agriculture 20-acre minimum) for this area.

DISCUSSION OF IMPACTS

a) *No Impact*. As identified on the Sutter County Important Farmland Map published by the California Department of Conservation's (2015) Farmland Mapping and Monitoring Program, and as described in the Setting discussion above, the project site is considered Urban and Built-Up Land by the State of California and is fully developed as a wastewater treatment facility. Therefore, the construction of a PV solar facility would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to urban uses.

b) *No Impact*. The project site is not under a Williamson Act contract, nor are any lands located near the project site subject to a Williamson Act contract (DOC 2014). As such, implementation of the proposed project would not conflict with any existing Williamson Act contract lands.

c) *No Impact.* The project site is not located in an area identified in the City's General Plan or Zoning Ordinance as forestland or timberland. Furthermore, there is no forestland or timberland anywhere near Live Oak.

d) *No impact.* Refer to Item 4.2(c).

e) *No Impact*. Solar operations will be confined to the site and will not affect surrounding land uses. The project would not require the extension of urban services that are not already in place. Therefore, the project would not involve any other changes to the existing environment that would result in the conversion of farmland to nonagricultural use or forestland to non-forest use.

Mitigation Measures

None required.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.3 AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☒	☐	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☒	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

SETTING

Air quality in Live Oak is regulated by the US Environmental Protection Agency (EPA), the California Air Resources Board (CARB), and the Feather River Air Quality Management District (FRAQMD). Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation.

The FRAQMD, which comprises Yuba and Sutter counties, in coordination with the other Northern Sacramento Valley Air Basin air quality management districts and air pollution control districts in Butte, Colusa, Glenn, Shasta, and Tehama counties, prepared and submitted the 2006 Air Quality Attainment Plan (AQAP). The Northern Sacramento Valley Planning Area Districts' (2016) AQAP was drafted in compliance with the requirements set forth in the California Clean Air Act (CCAA) and specifically addresses the nonattainment status for ozone and PM_{10}. The CCAA also required a triennial assessment of the extent of air quality improvements and emissions reductions achieved through the use of control measures.

AMBIENT AIR QUALITY STANDARDS

Both the EPA and CARB have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants that represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover "criteria" pollutants.

The federal and California ambient air quality standards are summarized in **Table 4.3-1** for criteria pollutants. The federal and state ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, the federal and state standards differ in some cases. In general, the California standards are more stringent. This is particularly true for ozone and particulate matter, both of which are the most problematic pollutants in Sutter County.

TABLE 4.3-1
FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Federal Primary[1]	Federal Secondary[1]	California[2]
Ozone	8 Hour 1 Hour	0.075 ppm —	0.075 ppm —	0.07 ppm 0.09 ppm
Carbon Monoxide	8 Hour 1 Hour	9 ppm 35 ppm	— —	9 ppm 20 ppm
Nitrogen Dioxide	Annual 1 Hour	0.053 ppm —	0.053 ppm —	0.03 ppm 0.18 ppm
Sulfur Dioxide	Annual 24 Hour 3 Hour 1 Hour	0.03 ppm 0.14 ppm — —	— — 0.5 ppm —	— 0.04 ppm — 0.25 ppm
Fine Particulate Matter ($PM_{2.5}$)	Annual 24 Hour	12.0 $\mu g/m^3$ —	15.0 $\mu g/m^3$ 35.0 $\mu g/m^3$	12 $\mu g/m^3$ —
Respirable Particulate Matter (PM_{10})	Annual 24 Hour	— 150 $\mu g/m^3$	— 150 $\mu g/m^3$	20 $\mu g/m^3$ 50 $\mu g/m^3$
Sulfates	24 Hour	—	—	25 $\mu g/m^3$
Lead	30 Day Calendar Quarter 3-Month Average	— 1.5 $\mu g/m^3$ 0.15 $\mu g/m^3$	— 1.5 $\mu g/m^3$ 0.15 $\mu g/m^3$	1.5 $\mu g/m^3$ — —
Hydrogen Sulfide	1 Hour	—	—	0.03 ppm
Vinyl Chloride	24 Hour	—	—	0.01 ppm
Visibility-Reducing Particles	8 Hour (10 a.m.–6 p.m. PST)	—	—	[3]

Source: CARB 2016

1. *National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public.*

   National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

   National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the EPA for further clarification and current federal policies.

2. *California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, suspended particulate matter (PM_{10}, $PM_{2.5}$), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.*

3. *Extinction coefficient of 0.23 per kilometer – visibility of 10 miles or more (0.07–30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.*

Criteria Air Pollutants

A description of the criteria air pollutants follows, including typical sources and health effects.

Ozone

Ozone is what is known as a photochemical pollutant. It is not emitted directly into the atmosphere, but is formed by a complex series of chemical reactions between reactive organic gases (ROG), nitrogen oxides (NO_X), and sunlight. ROG and NO_X are emitted from automobiles, solvents, and fuel combustion, the sources of which are widespread throughout the Sacramento Valley. In order to reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors. Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and several hours in a stable atmosphere with strong sunlight. Ozone is a regional air pollutant. It is generated over a large area and is transported and spread by wind.

While ozone in the upper atmosphere protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone can adversely affect the human respiratory system. Many respiratory ailments, as well as cardiovascular diseases, are aggravated by exposure to high ozone levels. Ozone also damages natural ecosystems, such as forests and foothill communities, and damages agricultural crops and some man-made materials, such as rubber, paint, and plastics. The FRAQMD is designated as being in nonattainment/severe for ozone 1-hour and nonattainment-transitional for 8-hour ozone for state standards.

Carbon Monoxide

Carbon monoxide (CO) is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels and is emitted directly into the air. Under most conditions, CO does not persist in the atmosphere and is rapidly dispersed. CO exceedances are most likely to occur in the winter, when relatively low inversion levels trap pollutants near the ground and concentrate the CO. Since carbon monoxide is somewhat soluble in water, normal winter conditions of rainfall and fog can suppress CO concentrations.

On-road motor vehicles are a major source of carbon monoxide in the northern Sacramento Valley. Other CO sources include other mobile sources and waste burning. Because most of these CO sources are the indirect result of urban development, most emissions and unhealthful CO levels occur in major urban areas. The FRAQMD is in attainment for the state standards.

Nitrogen Dioxide

Nitrogen oxides (NO_x) are a family of gaseous nitrogen compounds and are precursors to ozone formation. The major component of NO_X, nitrogen dioxide (NO_2), is a reddish-brown gas that is toxic at high concentrations. NO_X results primarily from the combustion of fossil fuels under high temperature and pressure. On-road and off-road motor vehicles and fuel combustion are the major sources of this air pollutant.

Health effects associated with NO_X are an increase in the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_2 may lead to eye and mucous membrane aggravation, along with pulmonary dysfunction.

Sulfur Dioxide

Sulfur dioxide (SO_2) is a colorless, irritating gas with a "rotten egg" smell formed primarily by the combustion of sulfur-containing fuels such as coal, fuel oil, and diesel fuels. Health effects include sore throats, coughing, and breathing problems. In addition, like nitrogen dioxide, sulfur dioxide changes in the atmosphere to acidic particles and sulfuric acid, which can injure both people and plants. It is rare in California to see levels of SO_2 high enough to cause these symptoms, and the FRAQMD is in attainment for both the state and federal standards.

Particulate Matter (PM_{10} and $PM_{2.5}$)

Suspended particulate matter (airborne dust) consists of particles small enough to remain suspended in the air for long periods. Respirable particulate matter (PM_{10} and $PM_{2.5}$) includes particulates of 10 microns or less in diameter—those which are small enough to be inhaled, pass through the respiratory system, and lodge in the lungs, with resultant health effects.

PM_{10} and $PM_{2.5}$ comprise dust, sand, salt spray, metallic and mineral particles, pollen, smoke, mist, and acid fumes. Also of importance are sulfate (SO_4) and nitrates (NO_3), which are secondary particles formed as precipitates from photochemical reactions of gaseous SO_2 and NO_X in the atmosphere. The actual composition of PM_{10} and $PM_{2.5}$ varies greatly with time and location, depending on the sources of the material and meteorological conditions.

Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis, and respiratory illnesses in children. Recent mortality studies have shown a statistically significant direct association between mortality and daily concentrations of particulate matter in the air.

Generally speaking, $PM_{2.5}$ sources tend to be combustion sources like vehicles, power generation, industrial processes, and wood burning, while PM_{10} sources include these same sources plus roads and farming activities. Fugitive windblown dust and other area sources also represent sources of airborne dust in the FRAQMD.

Sulfates

Sulfates are particulate products of combustion of sulfur-containing fossil fuels. When sulfur monoxide or SO_2 comes in contact with oxygen, it precipitates out into sulfates (SO_3 or SO_4). Data collected in the FRAQMD demonstrates that levels of sulfates are significantly less than the health standards established by the State of California.

Lead

Lead is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. Lead was used until recently to increase the octane rating in auto fuel. Since gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels and the use of leaded fuel has been mostly phased out, the ambient concentrations of lead have dropped dramatically. In fact, the FRAQMD no longer monitors lead in the ambient air of the Northern Sacramento Valley Air Basin.

Hydrogen Sulfide

Hydrogen sulfide (H_2S) is associated with geothermal activity, oil and gas production, refining, sewage treatment plants, and confined animal feeding operations. The California ambient air

quality standard for H_2S is 0.030 parts per million (ppm) for one hour. Hydrogen sulfide is extremely hazardous in high concentrations (800 ppm can cause death), especially in enclosed spaces. The Occupational Safety and Health Administration (OSHA) regulates workplace exposure to H_2S. The entire FRAQMD is unclassified for hydrogen sulfide attainment.

Visibility-Reducing Particles

The standard is a measure of visibility. CARB does not yet have a measuring method with enough accuracy or precision to designate areas in the state attainment or nonattainment. The entire state is labeled unclassified.

Air Quality Monitoring

There are two air quality monitoring stations in the general vicinity of the project site. One station, called the Sutter Buttes Station, is located on South Peak in Sutter Buttes, approximately 9 miles to the southwest of the project site. The other station, called the Yuba City station, is located on Almond Street in Yuba City, approximately 9 miles south of the project site. **Table 4.3-2** shows monitoring efforts over the past three years from the Sutter Buttes station for ozone and from the Yuba City station for nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$).

TABLE 4.3-2
SUTTER COUNTY AIR QUALITY MONITORING DATA

Pollutant	Standard	Year		
		2013	2014	2015
Ozone (O_3) (Sutter Buttes-S. Butte Station)				
Maximum 1-Hour Concentration (ppm)		0.095	0.103	0.086
Maximum 8-Hour Concentration (ppm)		0.078	0.088	0.076
Number of Days Exceeding State 1-Hour Standard	> 0.09 ppm	1	1	0
Number of Days Exceeding State 8-Hour Standard	> 0.07 ppm	5	10	7
Number of Days Exceeding Federal 8-Hour Standard	> 0.07 ppm	1	4	1
Nitrogen Dioxide (NO_2) (Yuba City-Almond Street Station)				
Maximum 1-Hour Concentration (ppm)		0.06	0.05	0.04
Number of Days Exceeding State 1-Hour Standard	> 0.18 ppm	0	0	0
Inhalable Particulates (PM_{10}) (Yuba City-Almond Street Station)				
Max Daily Average Concentration ($\mu g/m^3$)		58.4	77.6	45.2
No. of Days Exceeding State Standard	> 50 $\mu g/m^3$	1	8	0
No. of Days Exceeding Federal Standard	> 150 $\mu g/m^3$	0	0	0
Ultra-Fine Particulates ($PM_{2.5}$) (Yuba City-Almond Street Station)				
Daily Maximum Concentration ($\mu g/m^3$)		33.4	41.8	36.1
Number of Days Exceeding Federal 24-Hour Standard	> 35 $\mu g/m^3$	0	2	1

Source: CARB 2016

Attainment Status

Current state and federal designations in the FRAQMD for each criteria air pollutant are shown in **Table 4.3-3**. When the concentrations of pollutants are below the allowed standards in an area, that area is considered to be in attainment of the standards.

TABLE 4.3-3
AIR QUALITY STANDARD ATTAINMENT STATUS – FRAQMD AREA DESIGNATIONS

Pollutant	Designation/Classification	
	State	Federal
Ozone – 1-hour standard	Nonattainment/Severe	No Federal Standard[1]
Ozone – 8-hour standard	Nonattainment-Transitional[1]	S. Sutter: Severe Nonattainment Sutter Buttes (> 2000 feet): Attainment[2] Balance of FRAQMD: Unclassified/Attainment
PM_{10}	Nonattainment	Unclassified
$PM_{2.5}$	Attainment[3]	Attainment[4]
Carbon Monoxide	Sutter County: Attainment Yuba County: Unclassified	No Designation/Classification
Nitrogen Dioxide	Attainment	Attainment/Unclassified
Sulfur Dioxide	Attainment	Attainment/Unclassified
Lead (Particulate)	Attainment	No Designation/Classification
Hydrogen Sulfide	Unclassified	No Federal Standard
Sulfates	Attainment	No Federal Standard
Visibility Reducing Particles	Unclassified	No Federal Standard

Source: FRAQMD 2016

1. *The district has been redesignated from nonattainment to nonattainment-transitional for the state designation for ozone occurs by operation of law. The change was confirmed by the CARB Board of Directors on March 25, 2010 (HSC Section 40925.5).*
2. *The Sutter Buttes have been designated attainment for the 2008 8-hour ozone NAAQS. Monitoring data showed that the area met the 1997 8-hour ozone NAAQS.*
3. *The district has been redesignated to attainment for the annual $PM_{2.5}$ state ambient air quality standards. The change was adopted on the March 25, 2010, by the CARB Board of Directors.*
4. *The district has been redesignated to attainment for the 2006 24-hour $PM_{2.5}$ NAAQS effective January 8, 2015 (79 FR 72981).*

FRAQMD Thresholds

The air district's Air Quality CEQA Review, Chapter 3, establishes air quality thresholds for new projects within FRAQMD jurisdiction. New projects that exceed the thresholds shown in **Table 4.3-4** are required to incorporate Best Available Control Technology (BACT) mitigation to reduce project air quality emission impacts.

TABLE 4.3-4
FRAQMD THRESHOLD STANDARDS

Pollutant/Precursor	Emissions
NOx	Operational: 25.0 lbs/day Construction: 25.0lbs/day multiplied by project length, not to exceed 4.5 tons/year
ROG	Operational: 25.0 lbs/day Construction: 25.0lbs/day multiplied by project length, not to exceed 4.5 tons/year
PM_{10}	Operational: 80.0 lbs/day Construction: 80.0 lbs/day
$PM_{2.5}$	Not defined

Source: FRAQMD 2010

The FRAQMD distinguishes two types of projects for identifying air quality impacts. Type 1 projects are land use projects in which an operational phase exists such as a new residential or commercial development. Type 2 projects have no land use component such as road construction or levee projects. The FRAQMD recommends Standard Mitigation Measures (SMM) for Type 1 projects that do not exceed operational or construction thresholds. For those Type 1 projects which do not exceed operational thresholds but do exceed construction thresholds, the air district recommends the use of SMM and Best Available Mitigation Measures (BAMM) as identified in the FRAQMD (2010) Indirect Source Review Guidelines. A Type 2 project is considered to result in a less than significant impact if the averaged project life emissions do not exceed the emission thresholds. However, the air district recommends the use of SMM to reduce project air quality impacts. For those Type 2 projects that exceed the construction related emission thresholds, the FRAQMD recommends the use of SMM and BAMM to reduce air quality impacts.

DISCUSSION OF IMPACTS

a) *Less Than Significant Impact With Mitigation Incorporated*. The FRAQMD is the agency primarily responsible for ensuring that the national air ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS) are not exceeded and that air quality conditions are maintained in the Northern Sacramento Valley Air Basin. FRAQMD responsibilities include but are not limited to preparing plans for the attainment of ambient air quality standards, adopting and enforcing rules and regulations concerning sources of air pollution, and implementing programs and regulations required by the federal Clean Air Act and the California Clean Air Act.

The proposed project would result in construction emissions that can be described as short term or temporary in duration. Construction activity would generate emissions of reactive organic gases (ROG), a pollutant precursor to ozone, nitrogen oxides (NO_x), and PM_{10} from site grading and excavation, motor vehicle exhaust associated with construction equipment, employee commute trips, and material transport and other construction operations. These emissions are regulated by the California Air Resources Board, and the City requires that all vehicles used be fitted with appropriate emissions reduction equipment.

Presented in the air quality attainment plans are comprehensive strategies to reduce emissions of ozone precursors and particulate matter from stationary, mobile, and indirect sources. These strategies include the adoption of new rules, enhanced CEQA participation, implementation of an indirect source review program, adoption of local air quality plans, and stationary, mobile, and indirect source control measures.

The air quality analysis (see **Appendix A**) for the proposed project determined that the project would exceed the FRAQMD NO_x emission threshold. As such, the FRAQMD requires that the proposed project comply with certain SMM and BAMM mitigation measures. Therefore, implementation of mitigation measure **MM 4.3.1** is required.

b) *Less Than Significant Impact With Mitigation Incorporated*. Construction-related emissions are described as short term or temporary in duration and have the potential to represent a significant impact with respect to air quality. The proposed project would introduce additional construction and mobile sources of emissions, which could adversely affect regional air quality. The FRAQMD area, which encompasses the project site, is designated as nonattainment for state ozone and coarse particulate matter (PM_{10}) standards.

Subsequent land use activities associated with the proposed project would introduce additional temporary construction sources of emissions, which would adversely affect regional air quality. Short- and long-term operational emissions associated with the development potential of the proposed project are not anticipated, as the project would be a fully automated solar power array and will only include minimal maintenance. Construction emissions were quantified using the CalEEMod land use emissions model (see **Appendix A** for model data outputs). These quantified emission projections are compared with FRAQMD significance thresholds as discussed below.

Short-Term Construction Emissions

Construction-generated emissions are temporary and short term but have the potential to represent a significant air quality impact. Construction of the proposed project would result in the temporary generation of emissions resulting from site preparation as well as from motor vehicle exhaust associated with construction equipment and the movement of equipment across unpaved surfaces, worker trips, and the delivery of project equipment. Emissions of airborne particulate matter are largely dependent on the amount of ground disturbance associated with site preparation activities.

The FRAQMD has adopted guidelines for determining potential adverse impacts to air quality in the region. New projects that exceed the thresholds shown in **Table 4.3-4** are required to incorporate Standard Mitigation Measures (SMM) and Best Available Mitigation Measures (BAMM) to reduce project air quality emission impacts.

The construction of the proposed project would require ground disturbance over an area of 4.5 acres. Daily construction-generated emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ are summarized in **Table 4.3-5**.

TABLE 4.3-5
SHORT-TERM CONSTRUCTION-GENERATED EMISSIONS – UNMITIGATED POUNDS PER DAY

Project Phase/Activity	Maximum Daily Emissions (pounds per day)[1]			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Site Preparation	1.58	17.13	6.92	4.13
Grading	3.33	35.19	1.95	1.79
Solar Panel Installation	1.43	8.59	0.64	0.63
Maximum Daily Emissions	***5.79***	***52.40***	***15.47***	***9.32***
FRAQMD Significance Threshold	*25*	*25*	*80*	*Not defined*
Exceed FRAQMD Threshold?	**No**	**Yes**	**No**	**No**

*Source: CalEEMod version 2013.2.2. Refer to **Appendix A** for model data outputs.*

1. Only summer emissions are shown, as project construction is expected to be completed during the summer of 2016.

As shown, construction would result in the exceedance of FRAQMD thresholds for NO_X emissions. As such, FRAQMD Indirect Source Review Guidelines Chapter 4, Construction Generated Emissions, suggests the implementation of SMM and BAMM mitigation. These are included as mitigation measure **MM 4.3.1** to reduce construction-related air quality impacts.

The project would be fully automated and would require only minimal maintenance operations. As such, the proposed project is anticipated to have few operational air emissions, as shown in **Table 4.3-6**. As shown, operation of the project would not exceed any FRAQMD thresholds. Therefore, operational air quality impacts are considered to be less than significant.

TABLE 4.3-6
OPERATIONAL-GENERATED EMISSIONS – UNMITIGATED POUNDS PER DAY

Project Phase/Activity	Maximum Daily Emissions (tons per year)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Project Operation	6.65	0.00	0.00	0.00
FRAQMD Significance Threshold	*25*	*25*	*80*	*Not defined*
Exceed FRAQMD Threshold?	**No**	**No**	**No**	**No**

*Source: CalEEMod version 2013.2.2. Refer to **Appendix A** for model data outputs.*

c) *Less Than Significant Impact With Mitigation Incorporated*. Sutter County is currently designated as being in nonattainment with the state ambient air quality standards for ozone and PM_{10}. Because the proposed project would exceed FRAQMD significance thresholds for NO_X, the project is considered to result in a cumulatively considerable net increase of a criteria pollutant for which the project region is in nonattainment. As such, the project is required to adhere to the requirements of mitigation measure **MM 4.3.1.**

d) *Less Than Significant Impact With Mitigation Incorporated*. Operation of the solar facility itself would not result in the emission of any criteria air pollutants or toxic air contaminants (TAC). Operational emissions would be generated from mobile sources associated with a worker vehicle visiting the facility to check the panels and to wash off the panels as dust

and dirt accumulates. These operational mobile source emissions would be negligible, as shown in **Table 4.3-6,** compared with the FRAQMD significance thresholds of 25 pounds per day of either ozone precursor pollutants, reactive organic gas (ROG), or NO_x. The proposed project would not result in emissions exceeding 25 pounds per day of ROG or NO_x or expose sensitive receptors to substantial incremental increase in TAC emissions. Therefore, the long-term operational emissions generated by the proposed project would be considered a less than significant impact.

While the closest residential uses in the area of the proposed project are approximately 1,000 feet to the northeast, the proposed project could expose surrounding sensitive receptors to $PM_{2.5}$ and/or other toxic air contaminants during construction activities. These impacts are anticipated to be temporary and short term. Construction activities would involve the use of a variety of gasoline- or diesel-powered equipment that emits exhaust fumes. However, the duration of exposure would be short and exhaust from construction equipment dissipates rapidly, so workers and sensitive receptors in the vicinity of the project area would not be exposed to substantial toxic air contaminant emissions. Furthermore, mitigation measure **MM 4.3.1** would ensure fugitive dust (PM_{10} and $PM_{2.5}$) control measures are incorporated into project plans to reduce the emissions of fugitive dust during construction activities at the project site. Implementation of this mitigation measure would ensure that workers and sensitive receptors in the vicinity of the project site would not be exposed to substantial fugitive dust emissions.

e) *No Impact*. Offensive odors rarely cause any physical harm; however, they still can be very unpleasant, leading to considerable distress among the public, and often generate citizen complaints to local governments and regulatory agencies. Major sources of odor-related complaints by the general public commonly include wastewater treatment facilities, landfill disposal facilities, food processing facilities, agricultural activities, and various industrial activities (e.g., petroleum refineries, chemical and fiberglass manufacturing, painting/coating operations, landfills, and transfer stations). Due to the nature of the proposed project, that of stationary solar panels, no odors would be emitted and no impact would occur.

Mitigation Measures

MM 4.3.1 The City shall implement the following Standard Mitigation Measures and Best Available Mitigation Measures per the FRAQMD (2010) Indirect Source Review Guidelines:

Standard Mitigation Measures

1. Payment of FRAQMD Indirect Source Fee.

2. Submittal of a Fugitive Dust Control Plan. Must be submitted to the FRAQMD prior to beginning construction.

3. Construction equipment exhaust emissions shall not exceed FRAQMD Regulation III, Rule 30, Visible Emissions limitations (40 percent opacity or Ringelmann 2.0).

4. The project contractor shall be responsible for ensuring that all construction equipment is properly tuned and maintained prior to and for the duration of on-site operation.

5. Limiting idling time to 5 minutes for all construction heavy equipment.

Best Available Mitigation Measures

1. All grading operations on a project shall be suspended when winds exceed 20 miles per hour or when winds carry dust beyond the property line.

2. Construction sites shall be watered as directed by the Live Oak Department of Public Works or the Feather River Air Quality Management District and as necessary to prevent fugitive dust violations.

3. On-site dirt piles or other stockpiled particulate matter shall be covered, wind breaks installed, and water and/or soil stabilizers employed to reduce wind-blown dust emissions. Incorporate the use of approved non-toxic soil stabilizers according to manufacturer's specifications to all inactive construction areas.

4. All transfer processes involving a free fall of soil or other particulate matter shall be operated in such a manner as to minimize the free fall distance and fugitive dust emissions.

5. Apply approved chemical soil stabilizers according to manufacturer's specifications, to all inactive construction areas (previously graded areas that remain inactive for 96 hours), including unpaved roads and employee/equipment parking areas.

6. To prevent track-out, wheel washers should be installed where project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment shall be washed prior to each trip.

7. Paved streets shall be swept frequently using a water sweeper if soil material has been carried onto adjacent paved, public thoroughfares from the project site.

8. All vehicle travel on the project site on all unpaved surfaces shall be limited to a speed of 15 miles per hour or less.

9. Ground cover shall be reestablished on the construction site as soon as possible and prior to final occupancy, through seeding and watering.

10. No open burning of vegetative waste (natural plant growth wastes) or other legal or illegal burn materials (trash, demolition debris, etc.) may be conducted at the project site. Vegetative wastes should be chipped or delivered to waste to energy facilities (permitted biomass facilities), mulched, composted, or used for firewood. It is unlawful to haul waste materials off-site for disposal by open burning.

Timing/Implementation: *During construction*

Enforcement/Monitoring: *FRAQMD; City of Live Oak Planning Department*

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

This section describes the natural resources present within and immediately surrounding the project area and includes a discussion of the special-status species and sensitive habitats potentially occurring in the area. Also included is an analysis of impacts that could occur to biological resources due to implementation of the proposed project and appropriate mitigation measures to reduce or avoid those impacts. The analysis of biological resources presented in this section is based on a review of the current project description and available literature, as well as a site visit and survey conducted by a Michael Baker International biologist on March 2, 2016.

REGULATORY SETTING

Federal

Endangered Species Act

The Endangered Species Act of 1973 (ESA), as amended, provides protective measures for federally listed threatened and endangered species, including their habitats, from unlawful take (16 United States Code [USC] Sections 1531–1544). The ESA defines "take" to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such

conduct." Title 50, Part 222, of the Code of Federal Regulations (50 CFR Section 222) further defines "harm" to include "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns including feeding, spawning, rearing, migrating, feeding, or sheltering."

ESA Section 7(a)(1) requires federal agencies to utilize their authority to further the conservation of listed species. ESA Section 7(a)(2) requires consultation with the US Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS) if a federal agency undertakes, funds, permits, or authorizes (termed the federal nexus) any action that may affect endangered or threatened species or designated critical habitat. For projects that may result in the incidental take of threatened or endangered species, or critical habitat, and that lack a federal nexus, a Section 10(a)(1)(b) incidental take permit can be obtained from the USFWS and/or the NMFS.

Clean Water Act

The basis of the Clean Water Act (CWA) was established in 1948; however, it was referred to as the Federal Water Pollution Control Act. The act was reorganized and expanded in 1972 (33 USC Section 1251), and at that time the Clean Water Act became the act's commonly used name. The basis of the CWA is the regulation of pollutant discharges into waters of the United States, as well as the establishment of surface water quality standards.

Section 404

CWA Section 404 (33 USC Section 1344) established a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Under this regulation, certain activities proposed within waters of the United States require that a permit be obtained prior to initiation. These activities include but are not limited to placement of fill for the purposes of development, water resource projects (e.g., dams and levees), infrastructure development (e.g., highways and bridges), and mining operations.

The program's primary objective is to ensure that the discharge of dredged or fill material is not permitted if a practicable alternative to the proposed activities exists that results in less impact to waters of the United States, or the proposed activity would result in significant adverse impacts to these waters. To comply with these objectives, a permittee must document the measures taken to avoid and minimize impacts to waters of the United States and provide compensatory mitigation for any unavoidable impacts.

The EPA and the USFWS are assigned roles and responsibilities in the administration of this program; however, the US Army Corps of Engineers (USACE) is the lead agency in the administration of day-to-day activities, including issuance of permits. The agencies will typically assert jurisdiction over the following waters: (1) traditional navigable waters (TNW); (2) wetlands adjacent to TNWs; (3) relatively permanent waters (RPW) that are non-navigable tributaries to TNWs and have relatively permanent flow or seasonally continuous flow (typically three months); and (4) wetlands that directly abut RPWs. Case-by-case investigations are usually conducted by the agencies to ascertain their jurisdiction over waters that are non-navigable tributaries and do not contain relatively permanent or seasonal flow, wetlands adjacent to the aforementioned features, and wetlands adjacent to but not directly abutting RPWs (USACE 2007). Jurisdiction is not generally asserted over swales or erosional features (e.g., gullies or small washes characterized by low volume/short duration flow events) or ditches constructed wholly within and draining only uplands that do not have relatively permanent flows.

The extent of jurisdiction within waters of the United States that lack adjacent wetlands is determined by the ordinary high water mark, which is defined in 33 CFR Section 328.3(e) as the "line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." Wetlands are further defined under 33 CFR Section 328.3 and 40 CFR Section 230.3 as "those areas that are inundated or saturated by surface water or groundwater 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" and typically include "swamps, marshes, bogs, and similar areas." The USACE (1987) Wetland Delineation Manual sets forth a standardized methodology for delineating the extent of wetlands under federal jurisdiction.

The 1987 manual outlines three parameters that all wetlands, under normal circumstances, must contain positive indicators for to be considered jurisdictional. These parameters include (1) wetland hydrology, (2) hydrophytic vegetation, and (3) hydric soils (USACE 1987). In 2006, the USACE issued a series of regional supplements to address regional differences that are important to the functioning and identification of wetlands. The supplements present "wetland indicators, delineation guidance, and other information" that is specific to the region. The USACE requires that wetland delineations submitted after June 5, 2007, be conducted in accordance with both the 1987 Manual and the applicable supplement.

Section 401

Under CWA Section 401 (33 USC Section 1341), federal agencies are not authorized to issue a permit and/or license for any activity that may result in discharges to waters of the United States, unless a state or tribe where the discharge originates either grants or waives CWA Section 401 certification. CWA Section 401 provides states or tribes with the ability to grant, grant with conditions, deny, or waive certification. Granting certification, with or without conditions, allows the federal permit/license to be issued and remain consistent with any conditions set forth in the CWA Section 401 certification. Denial of the certification prohibits the issuance of the federal license or permit, and waiver allows the permit/license to be issued without state or tribal comment. Decisions made by states or tribes are based on the proposed project's compliance with EPA water quality standards as well as applicable effluent limitations guidelines, new source performance standards, toxic pollutant restrictions, and any other appropriate requirements of state or tribal law. In California, the State Water Resources Control Board is the primary regulatory authority for CWA Section 401 requirements (additional details below).

Migratory Bird Treaty Act

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC Sections 703–711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Section 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR Section 21). The majority of birds found in the vicinity of the project area would be protected under the MBTA.

Executive Order 11990 Protection of Wetlands (42 FR 26961, 25 May 1977)

Executive Order 11990 requires federal agencies to provide leadership and take action to minimize destruction, loss, or degradation of wetlands and to preserve and enhance the natural qualities of these lands. Federal agencies are required to avoid undertaking or providing support

for new construction located in wetlands unless (1) no practicable alternative exists, and (2) all practical measures have been taken to minimize harm to wetlands.

Fish and Wildlife Coordination Act of 1958 (16 USC 661 et seq.)

The Fish and Wildlife Coordination Act requires that whenever any body of water is proposed or authorized to be impounded, diverted, or otherwise controlled or modified, the lead federal agency must consult with the USFWS, the state agency responsible for fish and wildlife management, and the NMFS. Section 662(b) of the act requires the lead federal agency to consider the recommendations of the USFWS and other agencies. The recommendations may include proposed measures to mitigate or compensate for potential damages to wildlife and fisheries associated with a modification of a waterway.

Executive Order 13112 – Invasive Species

This executive order directs all federal agencies to refrain from authorizing, funding, or carrying out actions or projects that may spread invasive species. The order further directs federal agencies to prevent the introduction of invasive species, control and monitor existing invasive species populations, restore native species to invaded ecosystems, research and develop prevention and control methods for invasive species, and promote public education on invasive species. As part of the proposed action, the USFWS and the USACE would issue permits and therefore would be responsible for ensuring that the proposed action complies with Executive Order 13112 and does not contribute to the spread of invasive species.

State

California Endangered Species Act

Under the California Endangered Species Act (CESA), the California Department of Fish and Wildlife (CDFW) has the responsibility for maintaining a list of endangered and threatened species (Fish and Game Code [FGC] Section 2070). The CDFW also maintains a list of "candidate species," which are species formally noticed as being under review for potential addition to the list of endangered or threatened species, and a list of "species of special concern," which serve as species "watch lists."

Pursuant to the requirements of the CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any State-listed endangered or threatened species may be present and determine whether the proposed project will have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any proposed project that may impact a candidate species.

Project-related impacts to species on the CESA endangered or threatened list would be considered significant. State-listed species are fully protected under the mandates of the CESA. Take of protected species incidental to otherwise lawful management activities may be authorized under FGC Section 206.591. Authorization from the CDFW would be in the form of an incidental take permit.

California Fish and Game Code

Streambed Alteration Agreement (FGC Sections 1600–1607)

State and local public agencies are subject to FGC Section 1602, which governs construction activities that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated as waters of the State by the CDFW. Under FGC Section 1602, a discretionary Streambed Alteration Agreement must be issued by the CDFW to the project proponent prior to the initiation of construction activities within lands under CDFW jurisdiction. As a general rule, this requirement applies to any work undertaken within the 100-year floodplain of a stream or river containing fish or wildlife resources.

Native Plant Protection Act

The Native Plant Protection Act (FGC Sections 1900–1913) prohibits the taking, possessing, or sale within the state of any plants with a state designation of rare, threatened, or endangered (as defined by the CDFW). An exception in the act allows landowners, under specified circumstances, to take listed plant species, provided that the owners first notify the CDFW and give that state agency at least 10 days to retrieve the plants before they are plowed under or otherwise destroyed (FGC Section 1913). Project impacts to these species are not considered significant unless the species are known to have a high potential to occur within the area of disturbance associated with construction of the proposed project.

Birds of Prey

Under FGC Section 3503.5, it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.

Fully Protected Species

California statutes also afford "fully protected" status to a number of specifically identified birds, mammals, reptiles, and amphibians. These species cannot be taken, even with an incidental take permit. FGC Section 3505 makes it unlawful to take "any aigrette or egret, osprey, bird of paradise, goura, numidi, or any part of such a bird." FGC Section 3511 protects from take the following fully protected birds: (a) American peregrine falcon (*Falco peregrinus anatum*); (b) brown pelican (*Pelecanus occidentalis*); (c) California black rail (*Laterallus jamaicensis coturniculus*); (d) California clapper rail (*Rallus longirostris obsoletus*); (e) California condor (*Gymnogyps californianus*); (f) California least tern (*Sterna albifrons browni*); (g) golden eagle (*Aquila chrysaetos)*; (h) greater sandhill crane (*Grus canadensis tabida*); (i) light-footed clapper rail (*Rallus longirostris levipes*); (j) southern bald eagle (*Haliaeetus leucocephalus leucocephalus*); (k) trumpeter swan (*Cygnus buccinator*); (l) white-tailed kite (*Elanus leucurus*); and (m) Yuma clapper rail (*Rallus longirostris yumanensis*).

FGC Section 4700 identifies the following fully protected mammals that cannot be taken: (a) Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*); (b) bighorn sheep (*Ovis canadensis*), except Nelson bighorn sheep (subspecies *Ovis canadensis nelsoni*); (c) Guadalupe fur seal (*Arctocephalus townsendi*); (d) ring-tailed cat (genus *Bassariscus*); (e) Pacific right whale (*Eubalaena sieboldi*); (f) salt-marsh harvest mouse (*Reithrodontomys raviventris*); (g) southern sea otter (*Enhydra lutris nereis*); and (h) wolverine (*Gulo gulo*).

FGC Section 5050 protects from take the following fully protected reptiles and amphibians: (a) blunt-nosed leopard lizard (*Crotaphytus wislizenii silus*); (b) San Francisco garter snake (*Thamnophis sirtalis tetrataenia*); (c) Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*); (d) limestone salamander (*Hydromantes brunus*); and (e) black toad (*Bufo boreas exsul*).

FGC Section 5515 identifies certain fully protected fish that cannot lawfully be taken, even with an incidental take permit. The following species are protected in this fashion: (a) Colorado River squawfish (*Ptychocheilus lucius*); (b) thicktail chub (*Gila crassicauda*); (c) Mohave chub (*Gila mohavensis*); (d) Lost River sucker (*Catostomus luxatus*); (e) Modoc sucker (*Catostomus microps*); (f) shortnose sucker (*Chasmistes brevirostris*); (g) humpback sucker (*Xyrauchen texanus*); (h) Owens River pupfish (*Cyprinoden radiosus*); (i) unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*); and (j) rough sculpin (*Cottus asperrimus*).

California Wetlands and Other Waters Policies

The California Resources Agency and its various departments do not authorize or approve projects that fill or otherwise harm or destroy coastal, estuarine, or inland wetlands. Exceptions may be granted if all of the following conditions are met: the project is water-dependent; no other feasible alternative is available; the public trust is not adversely affected; and adequate compensation is proposed as part of the project.

Porter-Cologne Water Quality Control Act (Porter-Cologne)

The Porter-Cologne Water Quality Control Act of 1966 (California Water Code Section 13000 et seq.; CCR Title 23, Chapter 3, Subchapter 15) is the primary state regulation addressing water quality. The requirements of the act are implemented at the state level by the State Water Resources Control Board and at the local level by the applicable Regional Water Quality Control Board (RWQCB). The RWQCB carries out planning, permitting, and enforcement activities related to water quality in California. The act provides waste discharge requirements and a permitting system for discharges to land or water. Certification is required by the RWQCB for activities that can affect water quality.

Clean Water Act, Section 401 Water Quality Certification

CWA Section 401 (33 USC Section 1341) requires that any applicant for a federal license or permit that may result in a pollutant discharge to waters of the United States obtain a certification that the discharge will comply with EPA water quality standards. The state or tribal agency responsible for issuance of the Section 401 certification may also require compliance with additional effluent limitations and water quality standards set forth in state/tribal laws. In California, the RWQCB is the primary regulatory authority for CWA Section 401 requirements.

The Central Valley RWQCB is responsible for enforcing water quality criteria and protecting water resources in the project area. In addition, the RWQCB is responsible for controlling discharges to surface waters of the State by issuing waste discharge requirements (WDR) or commonly by issuing conditional waivers to WDRs. The RWQCB requires that a project proponent obtain a CWA Section 401 water quality certification for CWA Section 404 permits issued by the US Army Corps of Engineers.

Delegated Permit Authority

California has been delegated permit authority for the National Pollutant Discharge Elimination System (NPDES) permit program including stormwater permits for all areas except tribal lands. Issuance of CWA Section 404 dredge and fill permits remains the responsibility of the USACE; however, the State actively uses its CWA Section 401 certification authority to ensure CWA Section 404 permits are in compliance with state water quality standards.

State Definition of Covered Waters

Under California law, "waters of the State" means "any surface water or groundwater, including saline waters, within the boundaries of the state." Therefore, water quality laws apply to both surface water and groundwater. After the US Supreme Court decision in *Solid Waste Agency of Northern Cook County v. US Army Corps of Engineers*, the Office of Chief Counsel of the State Water Resources Control Board released a legal memorandum confirming the State's jurisdiction over isolated wetlands. The memorandum stated that under Porter-Cologne, discharges to wetlands and other waters of the State are subject to state regulation, and this includes isolated wetlands. In general, the State Water Resources Control Board regulates discharges to isolated waters in much the same way as it does for waters of the United States, using Porter-Cologne rather than CWA authority.

Local

City of Live Oak General Plan

The City's General Plan identifies specific goals, policies, and implementation programs to guide land use and development decisions (Live Oak 2010a). The General Plan serves as the overall guiding policy document for land use, development, and environmental quality in the city. The Conservation and Open Space Element includes goals and policies to preserve, protect, enhance, and promote the city's valuable natural resources. The following policies are applicable to the proposed project:

> Policy Biological-1.1**:** Applicants of projects that have the potential to negatively affect special-status species or their habitat shall conduct a biological resources assessment and identify design solutions that avoid such adverse effects. If adverse effects cannot be avoided, then they shall be mitigated in accordance with guidance from the appropriate state or federal agency charged with the protection of these species.
>
> Policy Biological-2.1: New developments shall preserve all native oaks with a diameter at breast height (dbh) of 6 inches or greater and all other trees that have a dbh of 30 inches or greater, to the maximum extent feasible.

Nongovernmental Agency

California Native Plant Society

The California Native Plant Society (CNPS) is a nongovernmental agency that classifies native plant species according to current population distribution and threat level in regard to extinction. The CNPS utilizes the data to create and maintain a list of native California plants that have low numbers or limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2016). Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review.

The following identifies the definitions of the CNPS listings:

List 1A: Plants believed to be extinct

List 1B: Plants that are rare, threatened, or endangered in California and elsewhere

List 2B: Plants that are rare, threatened, or endangered in California, but are more numerous elsewhere

All of the plant species on List 1 and 2 meet the requirements of the Native Plant Protection Act, Section 1901, Chapter 10, or FGC Sections 2062 and 2067, and are eligible for state listing. Plants appearing on List 1 or 2 are considered to meet the criteria of CEQA Section 15380, and effects on these species are considered "significant." Classifications for plants on List 3 (plants about which more information is needed) and/or List 4 (plants of limited distribution), as defined by the CNPS, are not currently protected under state or federal law. Therefore, no detailed descriptions are provided or impact analysis was performed on species with these classifications.

ENVIRONMENTAL SETTING

A Michael Baker International biologist conducted an evaluation of the project to characterize the environmental setting on and adjacent to the proposed project area. The evaluation involved a thorough query of available data and literature from local, state, federal, and nongovernmental agencies, and site surveys to collect site-specific data regarding habitat suitability for special-status species and identify any potentially jurisdictional waters.

Database searches were performed on the following websites:

- USFWS Information for Planning and Conservation (IPaC) tool (2016c)
- USFWS Critical Habitat Portal (2016b)
- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (2016a)
- California Native Plant Society (CNPS) Inventory of Rare, Threatened, and Endangered Plants of California (2016)

A search of the USFWS (2016a) Sacramento office's Species Lists database was performed for the Gridley, Honcut, Yuba City, Sutter, Sutter Buttes, Pennington, West of Biggs, Biggs, and Palermo, California, US Geological Survey (USGS) 7.5-minute quadrangles (quads) to identify federally listed species under USFWS jurisdiction that may be affected by the proposed project. In addition, a query of the USFWS's Critical Habitat Portal was conducted to identify any designated critical habitat on or in the vicinity of the project area. The CNDDB provided a list of processed and unprocessed occurrences of special-status species identified within the aforementioned USGS quads. The CNPS database was also queried to identify special-status plant species with the potential to occur in the aforementioned USGS quads. The raw data returned from the database queries is provided in **Appendix B**.

The project area was defined using the boundaries of the Wastewater Treatment Plant, which is surrounded by a chain-link fence (**Figure 3.0-2**). The project area is relatively flat, and the elevation ranges between approximately 73 and 75 feet above mean sea level (amsl). The WWTP and the project area are surrounded by agricultural land uses including orchards and alfalfa.

The project area consists of three vegetative communities: urban, ruderal grassland, and man-made drainage ditch (**Figure 4.4-1**). The only hydrologic feature in the project area is a man-made drainage ditch that runs through the northern and eastern perimeter of the project area. Approximately 0.5 acre of man-made drainage ditch occurs within the project area and is considered potentially jurisdictional under the CWA. The vegetative communities in the project area are discussed below.

Ruderal Grassland

Ruderal communities occur in areas of disturbance, such as along roadsides, trails, and parking lots, and are found in close proximity to urban or developed habitats. These communities are subjected to ongoing or past disturbances (e.g., vehicle activities, mowing). Ruderal habitat in these disturbed areas supports a diverse weedy flora. The ruderal habitat associated with the project is a disturbed grassland habitat which occurs in old treatment ponds and upland areas between the roads and structures within the WWTP site. These old treatment ponds are present along the eastern portion and the southernmost tip of the project area. The old treatment ponds are depressions that were created by excavating soil and currently contain disturbed fill and soil from WWTP operations. One of the old treatment ponds contains pooled water most of the year. Waterfowl and other birds were observed in the pooled water.

Vegetation in the ruderal grassland habitat in the project area is seasonally mowed and is dominated by introduced species including field mustard (*Brassica rapa*), little mallow (*Malva parvilfora*), wild radish (*Raphanus raphanistrum*), filaree (*Erodium* spp.), milk thistle (*Silybum marianum*), and barley (*Hordeum* spp.). The ruderal grasslands in the project area provide foraging habitat for a variety of raptors, seed-eating birds, small mammals, amphibians, and reptiles. Species typically found in disturbed grassland communities include western fence lizard (*Sceloporus occidentalis*), black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Otospermophilus beecheyi*), western harvest mouse (*Reithrodontomys megalotis*), Botta's pocket gopher (*Thomomys bottae*), California vole (*Microtus californicus*), mourning dove (*Zenaida macroura*), house finch (*Carpodacus mexicanus*), and common raven (*Corvus corax*). Multiple burrows were observed in the project area that provide suitable habitat for western burrowing owl (*Athene cuniculara*). The ruderal grasslands in the project area provide suitable foraging habitat for the above-mentioned species as well as suitable nesting habitat for ground-nesting birds.

Species observed in the project area during the site visit include mallard ducks (*Anas platyrhynchos*), black-tailed jackrabbit, killdeer (*Charadrius vociferous*), house finch, American robin (*Turdus migratorius*), red-winged blackbird (*Agelaius phoeniceus*), northern flicker (*Colaptes auratus*), and black-necked stilt (*Himantopus mexicanus*).

Man-Made Drainage Ditch

Drainage ditches are typically channelized aquatic features with relatively steep slopes to prevent flooding by conveying stormwater and other runoff out of an area. The man-made drainage ditch in the project area is characterized by flashy stormwater flows during and after storm events as well as year-round levels of water from nearby agricultural and city uses. The northern portion of the drainage ditch is generally devoid of vegetation. Most of the vegetation present in the rest of the drainage ditch is dead. A majority of the vegetation in the ditches comprises introduced upland species, including Italian ryegrass (*Festuca perennis*), Himalayan blackberry (*Rubus armeniacus*), and various species of barley.

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Map ID	Scientific Name	Common Name	Federal Listing	State Listing	Rare Plant Rank
1	*Agelaius tricolor*	tricolored blackbird	None	None	
2	*Ambystoma californiense*	California tiger salamander	Threatened	Threatened	
3	*Buteo swainsoni*	Swainson's hawk	None	Threatened	
4	*Delphinium recurvatum*	recurved larkspur	None	None	1B.2
5	*Desmocerus californicus dimorphus*	valley elderberry longhorn beetle	Threatened	None	
6	*Monardella venosa*	veiny monardella	None	None	1B.1
7	*Navarretia leucocephala ssp. bakeri*	Baker's navarretia	None	None	1B.1
8	*Oncorhynchus mykiss irideus*	steelhead - Central Valley DPS	Threatened	None	
9	*Oncorhynchus tshawytscha*	chinook salmon - Central Valley spring-run ESU	Threatened	Threatened	
10	*Pseudobahia bahiifolia*	Hartweg's golden sunburst	Endangered	Endangered	1B.1
11	*Riparia riparia*	bank swallow	None	Threatened	
12	*Thamnophis gigas*	giant garter snake	Threatened	Threatened	
13	*Wolffia brasiliensis*	Brazilian watermeal	None	None	2B.3

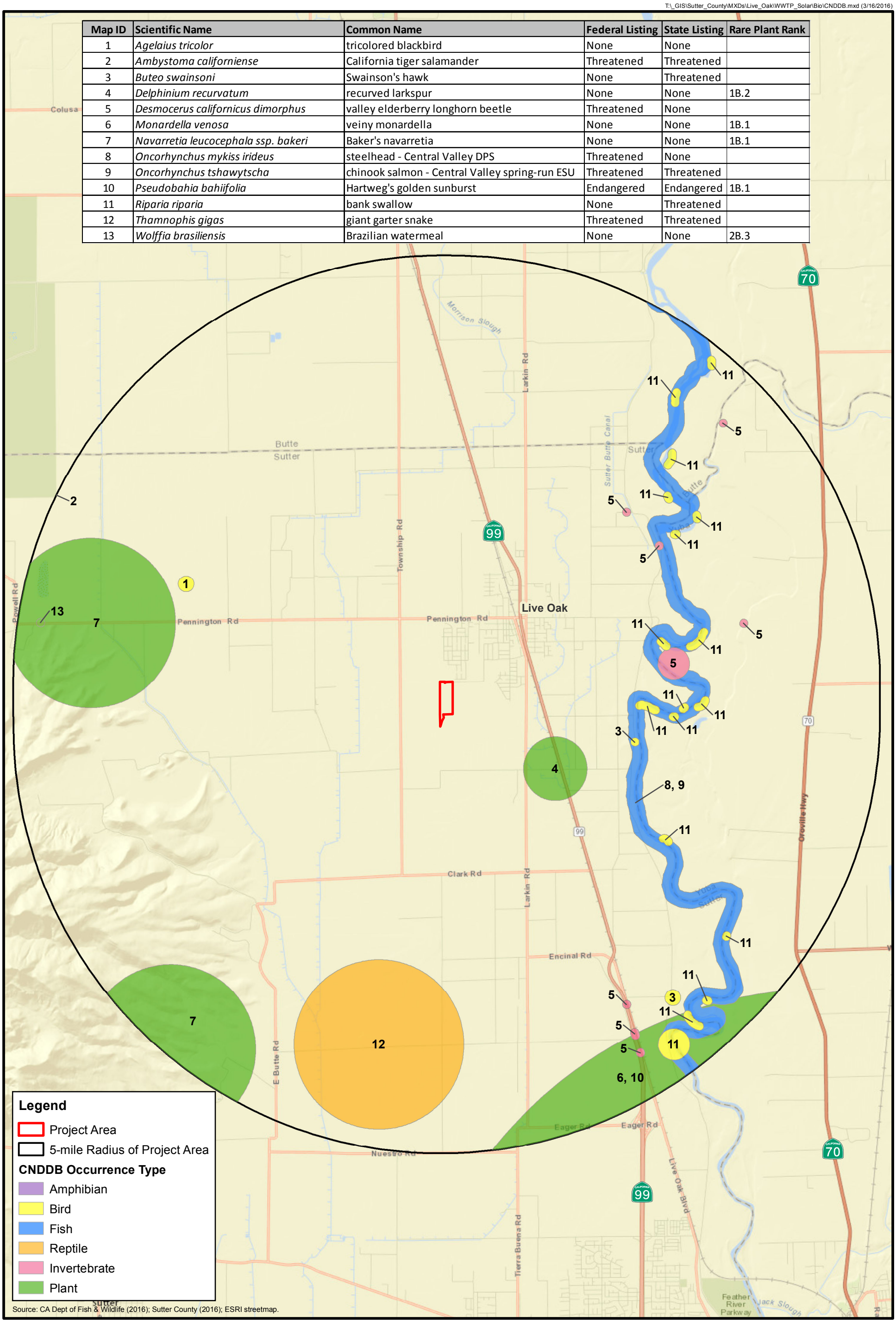

FIGURE 4.4-1
CNDDB Occurrences of Special-Status Species Within 5 Miles of Project Area

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The man-made drainage ditch enters the project area from outside of the WWTP site through the northern perimeter where it flows under the main entrance through a double culvert. From there water flows east and then south along the eastern border of the project area until it flows through a culvert into a man-made agricultural ditch adjacent to the project area. It then continues to flow southwest to the Snake River, which is tributary to the Sutter Bypass. The man-made drainage ditch provides potentially suitable habitat for western pond turtle (*Emys marmorata*) and western spadefoot toad (*Spea hammondii*).

Urban

Urban communities are classified as areas that have been heavily modified by humans, including roadways, existing buildings, and structures, as well as recreation fields, lawns, and landscaped vegetation found in residential yards. Because of the high degree of disturbance in these areas, they generally have low habitat value for wildlife; however, migratory birds may find limited nesting and foraging opportunities in trees and shrubs scattered throughout urban areas. Typically, the species composition in urban areas consists of a mix of native and non-native trees, shrubs, flowers, and turf grass.

Wildlife adapted to living in heavily urbanized areas includes common raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), and black rat (*Rattus rattus*). Bird species that may be present in urban areas include American crow (*Corvus brachyrhyncos*), mourning dove, house finch, cliff swallow (*Hirundo pyrrhonota*), Northern mockingbird (*Mimus polyglottus*), and common ground dove (*Columbina passerina*).

The urban community in the project area is composed of a maintenance access road, wastewater treatment ponds, gravel beds, maintenance buildings, and other structures. There is limited vegetation in the urban areas of the project area except for several trees along the perimeter of the project area that may provide suitable nesting habitat for migratory birds and certain raptor species.

DISCUSSION OF IMPACTS

a) *Less Than Significant Impact With Mitigation Incorporated.* Candidate, sensitive, or special-status species are commonly characterized as species that are at potential risk to their persistence in a given area or across their range. These species have been identified and assigned a status ranking by governmental agencies such as the CDFW and the USFWS, and nongovernmental organizations such as the CNPS. The degree to which a species is at risk of extinction is the determining factor in the assignment of a status ranking. Some common threats to a species' or population's persistence include habitat loss, degradation, and fragmentation, as well as human conflict and intrusion. For the purposes of this biological review, special-status species are defined by the following codes:

1. Listed, proposed, or candidates for listing under the federal Endangered Species Act (50 CFR 17.11 – listed; 61 Federal Register [FR] 7591, February 28, 1996, candidates)

2. Listed or proposed for listing under the California Endangered Species Act (FGC 1992 Section 2050 et seq.; 14 CCR Section 670.1 et seq.)

3. Designated as Species of Special Concern by the CDFW

4. Designated as Fully Protected by the CDFW (FGC Sections 3511, 4700, 5050, 5515)

5. Species that meet the definition of rare or endangered under CEQA (14 CCR Section15380) including CNPS List Rank 1B and 2

The query of the USFWS, CNPS, and CNDDB databases, combined with the site visits and surveys, identified habitat for several special-status species with the potential to occur in the project area. Refer to **Figure 4.4-2** for a depiction of CNDDB occurrences within 5 miles of the project area. **Table 4.4-1** provides a summary of all special-status species identified in the search results, a description of the habitat requirements for each species, and conclusions regarding the potential for each species to be impacted by the proposed project.

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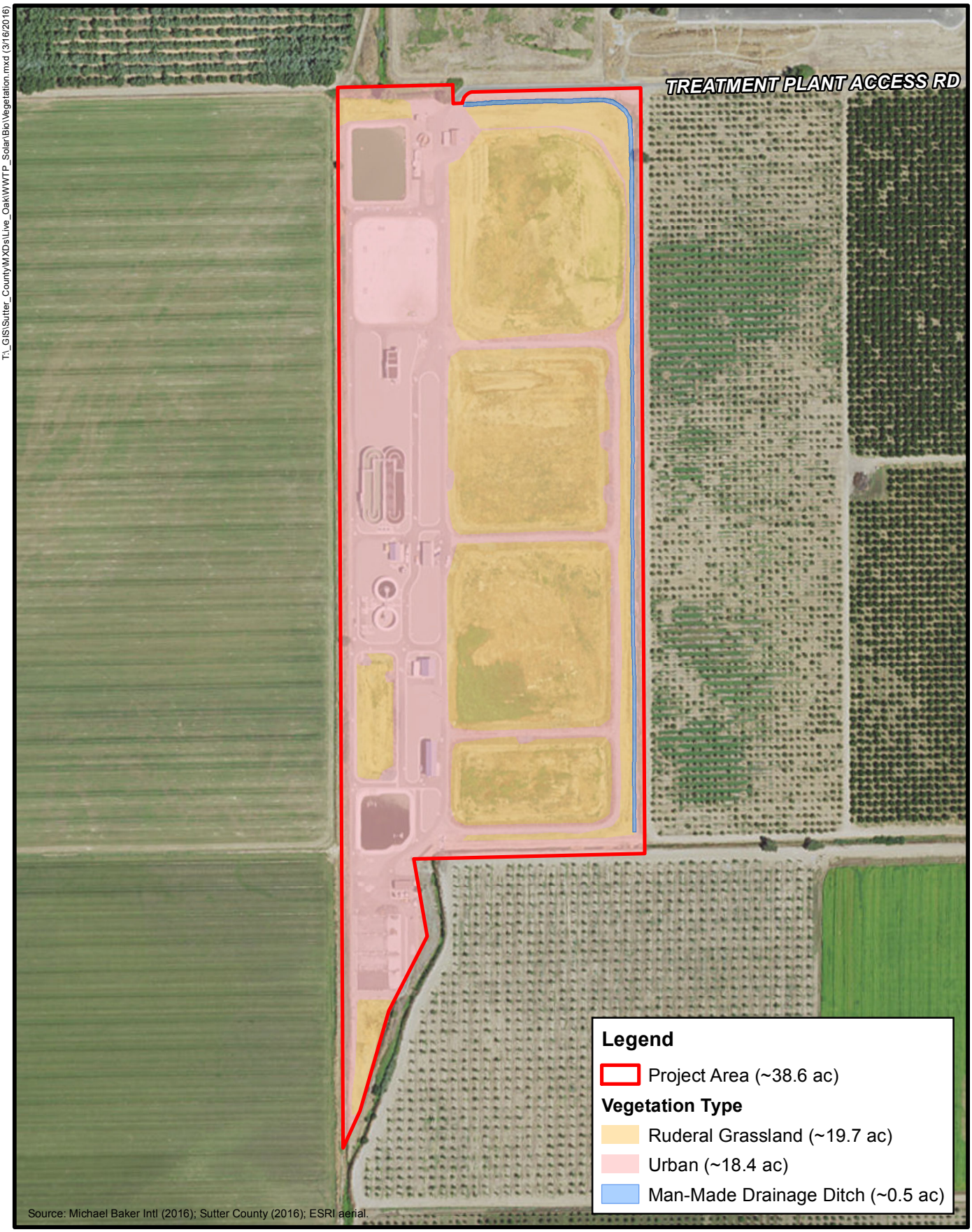

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FIGURE 4.4-2
Vegetative Communities

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TABLE 4.4-1
SUMMARY OF SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT AREA

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Rationale
Plants							
Astragalus tener var. *ferrisiae*	Ferris' milk vetch	—	—	1B.1	Vernally mesic meadows and seeps, and subalkaline flats in valley and foothill grasslands. Elev: 6–246 feet (2–75 m). Blooms: April–May (CNPS 2016).	A	Suitable habitat is not present.
Atriplex cordulata var. *cordulata*	Heartscale	—	—	1B.2	Chenopod scup, meadows, seeps, and sandy grasslands. Elev: 0–1,830 feet (0–560 m). Blooms April–October (CNPS 2016).	A	Suitable habitat is not present.
Atriplex minuscula	Lesser saltscale	—	—	1B.1	Chenopod scrub, playas, valley and foothill grassland. Elev: 50–650 feet (15–200 m). Blooms May–October (CNPS 2016).	A	Suitable habitat is not present.
Atriplex subtilis	Sublte orache	—	—	1B.2	Alkaline soils in valley and foothill grassland. Elev: 130–348 feet (40–100 m). Blooms June–October (CNPS 2016).	A	Suitable habitat is not present.
Castilleja rubicundula var. *rubicundula*	Pink creamsacs	—	—	1B.2	Serpentinite soils in chaparral, cismontane woodlands, valley and foothill grasslands, and seeps. Elev: 65–2,985 feet (20–910 m). Blooms April–June (CNPS 2016).	A	Suitable habitat is not present.
Centromadia parryi ssp. *parryi*	Pappose tarplant	—	—	1B.2	Coastal, fresh, or brackish marshes and swamps. Elev: 0–656 feet (0–200 m). Blooms: July–September (CNPS 2016).	A	Suitable habitat is not present.
Delphinium recurvatum	Recurved larkspur	—	—	1B.2	Chenopod scrub, cismontane woodland, and valley and foothill grasslands. Generally alkaline. Elev: 3–2,590 feet (3–790 m). Blooms March–June (CNPS 2016).	A	Suitable habitat is not present.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Rationale
Hibiscus lasiocarpos var. *occidentalis*	Woolly rose-mallow	—	—	1B.2	Moist, freshwater-soaked riverbanks and low peat islands in sloughs; can also occur on riprap and levees. In California, known from the delta watershed. Elev: 0–394 feet (0–120 m). Blooms: June–September (CNPS 2016).	P	Habitat present; however, the nearest occurrences are over 10 miles south in Sutter Bypass and west of the Sutter Buttes. This species is not expected to occur in the project area.
Juncus leiospermus var. *ahartii*	Ahart's dwarf rush	—	—	1B.2	Valley and foothill grassland. Elev: 100–750 feet (30–229 m). Blooms March–May (CNPS 2016).	A	Suitable habitat is not present.
Juncus leiosperma var. *leiosperma*	Red Bluff dwarf rush	—	—	1b.1	Chaparral, grassland, foothill woodland, freshwater marsh and wetlands. Elev: 115–4,101 feet (35–1,250 m). Blooms March–June (CNPS 2016).	A	Suitable habitat is not present.
Layia septentrionalis	Colus layia	—	—	1B.2	Sandy and serpentinite soils in chaparral, cismontane woodland, and valley and foothill grasslands. Elev: 328–3,576 feet (100–1,095 m). Blooms April–May (CNPS 2016).	A	Suitable habitat is not present.
Monardella venosa	Veiny monardella	—	—	1B.1	Cismontane woodland, valley and foothill grassland. Clay soils. Elev: 195–1,345 feet (60–410 m). Blooms May–July (CNPS 2016).	A	Suitable habitat is not present.
Navarretia leucocephala ssp. *bakeri*	Baker's navarretia	—	—	1B.1	Lower montane coniferous forest, meadows and seeps, valley and foothill grassland, vernal pools. Elev: 14–5,708 feet (5–1,740 m). Blooms April–July (CNPS 2016).	A	Suitable habitat is not present.
Orcuttia tenuis	Slender Orcutt grass	FT	SE	1B.1	Vernal pools. Elev: 115–5,774 feet (35–1,760 m). Blooms: May–October (CNPS 2016).	A	Suitable habitat is not present.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Rationale
Paronychia ahartii	Ahart's paronychia	—	—	1B.1	Cismontane woodland, valley and foothill grassland, and vernal pools. Elev: 98–1,670 feet (30–510 m). Blooms February–June (CNPS 2016).	A	Suitable habitat is not present.
Pseudobahia bahiifolia	Hartweg's golden sunburst	FE	SE	1B.1	Cismontane woodland, grasslands, vernal pools. Elev: 98–1,673 feet (30–510 m). Blooms February–June (CNPS 2016).	A	Suitable habitat is not present.
Puccinellia simplex	California alkali grass	—	—	1B.2	Alkaline, vernally mesic, sink, flats and lake margins in scrub, grasslands, meadows and vernal pools. Elev: 6–3,051 feet (2–930 m). Blooms March–May (CNPS 2016).	A	Suitable habitat is not present.
Sagittaria sanfordii	Sanford's arrowhead	—	—	1B.2	In standing or slow-moving freshwater ponds, marshes, and ditches. Assorted shallow freshwater marshes and swamps. Elev: 0–2,133 feet (0–650 m). Blooms: May–October (CNPS 2016).	P	Habitat is present; however, there are no occurrences within 3 miles of the project area and the nearest occurrences are over 60 years old. This species is not expected to occur in the project area.
Tuctoria greenei	Greene's tuctoria	FE	SR	1B.1	Vernal pools. Elev: 98–3,510 feet (30–1,070 m). Blooms May–September (CNPS 2016)	A	Suitable habitat is not present.
Wolffia brasiliensis	Brazillian watermeal	—	—	2B.3	Marshes and swamps associated with shallow freshwater. Elev: 65–328 feet (20–100 m). Blooms April–December (CNPS 2016).	A	Suitable habitat is not present.
Invertebrates							
Branchinecta lynchi	Vernal pool fairy shrimp	FT	—		Found in vernal pools and ephemeral wetlands. Distributed throughout the Central Valley, including Sacramento County (USFWS 2005).	A	Suitable habitat not present. There are no vernal pools or wetlands on the site.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Rationale
Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	FT	—		Dependent on hostplant, elderberry (*Sambucus* spp.), which generally grows in riparian woodlands and upland habitats of the Central Valley. Current distribution in the Central Valley from Shasta County to Fresno County (USFWS 1999).	A	Suitable habitat is not present. There are no elderberry shrubs within or in the vicinity of the project area.
Lepidurus packardi	Vernal pool tadpole shrimp	FE	—		Wide variety of ephemeral wetland habitats, including vernal pools. Distributed throughout Central Valley and San Francisco Bay area (USFWS 2005).	A	Suitable habitat is not present. There are no vernal pools or wetlands on the site.
Fish							
Hypomesus transpacificus	Delta smelt	FT	SE		Distribution includes the Sacramento River below Isleton, San Joaquin River below Mossdale, and Suisun Bay. Spawning areas include the Sacramento River below Sacramento, Mokelumne River system, Cache Slough, the delta, and Montezuma Slough (USFWS 2004).	A	Suitable habitat is not present. There are no streams or rivers in the project area.
	Critical Habitat, delta smelt	X	—			A	There is no delta smelt critical habitat within the project area.
Mylopharodon conocephalus	Hardhead	—	SSC		Small to large streams in a low- to mid-elevation environment. May also inhabit lakes or reservoirs. Their preferred stream temperature might easily exceed 20ºC, though these fish do not favor low dissolved oxygen levels. The hardhead minnow is usually found in clear deep streams with a slow but present flow. Though spawning may occur in pools, runs, or riffles, the bedding area will typically be characterized by gravel and rocky substrate (CalFish 2014).	A	Suitable habitat is not present. There are no streams or rivers in the project area.
Oncorhynchus mykiss irideus	Central Valley steelhead	FT	—		Spawning habitat = gravel-bottomed, fast-flowing, well-oxygenated rivers and streams. Non-spawning = estuarine, marine waters (Busby et al. 1996).	A	Suitable habitat is not present. There are no streams or rivers in the project area.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Rationale
	Critical Habitat, Central Valley steelhead	X	—			A	There is no steelhead critical habitat in the project area.
Oncorhynchus tshawytscha	Central Valley spring-run chinook salmon	FT	ST		Spawning habitat = fast moving, freshwater streams and rivers. Juvenile habitat = brackish estuaries. Non-spawning = marine waters (Myers et al. 1998).	A	Suitable habitat is not present. There are no streams or rivers in the project area.
Ambystoma californiense	California tiger salamander, central population	FT	ST		Occurs in grasslands of the Central Valley and oak savannah communities in the Central Valley, the Sierra Nevada and Coast ranges, and the San Francisco Bay Area. Needs seasonal or semi-permanent wetlands to reproduce, and terrestrial habitat with active ground squirrel or gopher burrows (Bolster 2010).	A	Suitable habitat is not present. There are no breeding ponds within 1 mile of the project area and there are no nearby occurrences.
Spea hammondii	Western spadefoot	—	SSC		Open areas with sandy/gravelly soils. Variable habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, foothills, and mountains. Rainpools which do not contain bullfrogs, fish, or crayfish are necessary for breeding (Nafis 2016).	P	The ruderal grassland and nearby ponded water may provide suitable habitat. This species may occur in the project area.
Reptiles							
Emys marmorata	Western pond turtle	—	SSC		Found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation, and either rocky or muddy bottoms, in woodland, forest, and grassland. In streams, prefers pools to shallower areas. Logs, rocks, cattail mats, and exposed banks are required for basking. May enter brackish water and even seawater. Found at elevations from sea level to over 5,900 feet (1,800 m) (Nafis 2016).	P	The drainage ditch and associated upland ruderal grassland may provide suitable habitat. This species may occur in the project area.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Rationale
Thamnophis gigas	Giant garter snake	FT	ST		Marshes, sloughs, ponds, small lakes, low gradient streams, irrigation and drainage canals, rice fields and their associated uplands. Upland habitat should have burrows or other soil crevices suitable for snakes to reside during their dormancy period (November to mid-March). Ranges in the Central Valley from Butte County to Buena Vista Lake in Kern County. Endemic to valley floor wetlands (USFWS 2012).	A	The nearest occurrences are over 4 miles south with marginal hydrologic connection to the ditch in the project area. In addition, the drainage ditch in the project area contains poor vegetative cover and lacks nearby foraging resources. This species is not expected to occur in the project area.
Birds							
Agelaius tricolor	Tricolored blackbird	—	SE		Nests in wetlands or in dense vegetation near open water. Dominant nesting substrates: cattails, bulrushes, blackberry, agricultural silage. Nesting substrate must either be flooded, spinous, or in some way defended against predators (Hamilton 2004).	A	Suitable habitat is not present. There are no wetlands or wetland vegetation stands in the project area.
Athene cunicularia	Western burrowing owl	—	SSC		Open, flat expanses with short, sparse vegetation and few shrubs, level to gentle topography, and well-drained soils. Requires underground burrows or cavities for nesting and roosting. Can use rock cavities, debris piles, pipes, and culverts if burrows unavailable. Habitats include grassland, shrub steppe, desert, agricultural land, vacant lots, and pastures (CDFW 2016b).	P	The friable soils and suitable burrows on the site are suitable habitat. This species may occur on the project site.
Aquila chrysaetos	Golden eagle	—	FP, WL		Uncommon resident and migrant throughout California, except center of Central Valley. Habitat typically rolling foothills, mountain areas, sage-juniper flats, desert (CDFW 2016b).	A	Suitable habitat is not present.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Rationale
Buteo swainsoni	Swainson's hawk	—	ST		Nests in stands with few trees in riparian areas, juniper-sage flats, and oak savannah in the Central Valley. Forages in adjacent grasslands, agricultural fields and pastures (CDFW 2016b).	P	There is no nesting habitat present; however, this species may forage in the project area.
Charadrius montanus	Mountain plover	—	SSC		Found on short grassland and plowed fields of the Central Valley; also found in foothill valleys west of San Joaquin Valley, Imperial Valley; and plowed fields of Los Angeles and San Bernardino Counties (CDFW 2016b).	A	The project area is outside the range for this species.
Circus cyaneus	Northern harrier	—	SSC		Nests on the ground in patches of dense, tall vegetation in undisturbed areas. Breeds and forages in variety of open habitats such as marshes, wet meadows, weedy borders of lakes, rivers and streams, grasslands, pastures, croplands, sagebrush flats and desert sinks (Shuford and Gardali 2008).	P	There is no nesting habitat present in the project area; however, suitable foraging habitat is present. This species may occur in the project area.
Coccyzus americanus occidentalis	Western yellow-billed cuckoo	FT	SE		Requires large, dense tracts of riparian woodland with well-developed understories. Occurs in deciduous trees or shrubs. Prefers willow, but will also nest in orchards adjacent to streams in Sacramento Valley. Restricted to moist habitats along slow-moving waterways during breeding season (CDFW 2016b).	A	Suitable habitat is not present. No dense nesting vegetation, streams, or riparian habitat present.
Dendrocygna bicolor	Fulvous whistling duck	—	CSC		Found in fresh emergent wetlands, shallow lacustrine and riverine waters; may also feed in wet crops and pastures (CDFW 2016b).	A	Suitable habitat is not present. There are no wetlands or wet crops/pastures present in the project area.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Rationale
Falco columbarius	Merlin	—	WL		Frequents coastlines, open grasslands, savannahs, woodlands, lakes, and wetlands (CDFW 2016b).	P	Suitable nesting habitat is not present; however, foraging habitat is present. This species may occur in the project area.
Falco peregrinus anatum	Peregrine falcon	—	WL		Breeds mostly in woodland, forest, and coastal habitats, near wetlands, lakes, rivers or other water on high cliffs, banks, dunes, or mounds. Will nest of human-made structures, tree or snag cavities, or old nests of other raptors (CDFW 2016b).	P	Suitable nesting habitat is not present; however, foraging habitat is present. This species may occur in the project area.
Grus canadensis canadensis	Lesser sandhill crane	—	SSC		In summer, occurs in and near wet meadow, shallow lacustrine, and fresh emergent wetland habitats. In winter, frequents moist croplands with rice or corn stubble, and open, emergent wetlands. Prefers treeless plains. Nests in remote portions of extensive wetlands or sometimes shortgrass prairies (CDFW 2016b).	A	Suitable habitat is not present. There are no wetlands or irrigated pastures/cropland in the project area.
Grus canadensis tabida	Greater sandhill crane	—	ST/FP			A	Suitable habitat is not present. There are no wetlands or irrigated pastures/cropland in the project area.
Haliaeetus leucocephalus	Bald eagle	—	FP		Breeds mostly in woodland, forest, and coastal habitats, near wetlands, lakes, rivers or other water on high cliffs, banks, dunes, or mounds. Will nest of human-made structures, tree or snag cavities, or old nests of other raptors (CDFW 2016b).	A	Suitable habitat is not present. There are no large water bodies or rivers nearby or large nesting trees.
Icteria virens	Yellow-breasted chat	—	SSC		Nests in early-successional riparian habitats with a well-developed shrub layer and an open canopy. Restricted to narrow border of streams, creeks, sloughs and rivers. Often nests in dense thicket plants such as blackberry and willow (Shuford and Gardali 2008).	A	Suitable habitat is not present. There are no riparian or stream habitats present in the project area.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Rationale
Laterallus jamaicensis coturniculus	California black rail	—	ST/FP		Usually found in immediate vicinity of tidal sloughs with bulrushes, cattails, and saltgrass (Manolis 1978).	A	Suitable habitat is not present. No wetlands or wetland vegetation present in the project area.
Melospiza melodia	Song sparrow ("Modesto" population)	—	SSC		Breeds and winters in riparian, fresh or saline emergent wetland, and wet meadows. Breeds in riparian thickets of willows, other shrubs, vines, tall herbs, and fresh or saline emergent vegetation (CDFW 2016b).	A	Suitable habitat is not present. There is no riparian or wetland habitat present in the project area.
Pandion haliaetus	Osprey	—	WL		Associated strictly with large, fish bearing waters, primarily in ponderosa pine through mixed conifer habitat (CDFW 2016b).	A	Suitable habitat is not present. There are no large trees or water bodies present in or near the project area.
Phalacrocorax auritus	Double-crested cormorant	—	WL		Rests in daytime and roosts overnight beside water on offshore rocks, islands, steep cliffs, dead branches of trees, wharfs, jetties, or even transmission lines. Perching sites must be barren of vegetation (Bartholomew 1943). Found along California coast and on inland lakes and in fresh, salt and estuarine waters (CDFW 2016b).	A	Suitable habitat is not present. There are no large water bodies or streams in or near the project area.
Progne subis	Purple martin	—	SSC		An uncommon to rare summer resident in a variety of wooded, low elevation habitat. Frequently uses valley foothill and montane hardwood, valley foothill and montane hardwood conifer, and riparian habitats (CDFW 2016b).	A	Suitable habitat is not present. No woodland or riparian habitat is present in the project area.
Riparia riparia	Bank swallow	—	ST		Occurs as a breeding species in alluvial soils along rivers, streams, lakes, and ocean coasts (Garrison 1998).	A	Suitable habitat is not present. No streams or riparian habitat is present in the project area.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Rationale
Setophaga petechial	Yellow warbler	—	SSC		Usually found in riparian deciduous habitats in summer. Breeds in montane shrubbery in open conifer forests (CDFW 2016b).	A	Suitable habitat is not present. No woodland or riparian habitat is present in the project area.
Vireo bellii pusillus	Least Bell's vireo	FE	FE		Obligate riparian breeder. Cottonwood willow, oak woodlands, and mule fat scrub along watercourses (Kus 2002).	A	Suitable habitat is not present. No woodland or riparian habitat is present in the project area.
Mammals							
Antrozous pallidus	Pallid bat	—	SSC		Occurs throughout California except in higher elevations in certain areas of the Sierra Nevada. Generalist habitat requirements: grasslands, shrublands, woodlands, and forests. Common in dry, open areas. Roosts in caves, crevices, mines and sometimes hollow trees or buildings (CDFW 2016b).	P	Suitable nesting habitat is not present; however, foraging habitat is present. This species may occur in the project area.
Corynorhinus townsendii	Townsend's big eared bat	—	SSC/CT		Generalist species occurring throughout California. Uses all habitats except for subalpine and alpine habitats. Most common in mesic areas. Roosts in caves, mines, tunnels, and buildings or other structures (CDFW 2016b).	P	Suitable nesting habitat is not present; however, foraging habitat is present. This species may occur in the project area.
Dipodomys californicus eximius	Marysville kangaroo rat	—	SSC		Found in chaparral habitat with friable soils. Creates burrows if soil is soft; otherwise uses previous small mammal burrows (BLM 2016).	A	Suitable habitat is not present. There is no chaparral habitat present.
Eumops perotis californicus	Western mastiff bat	—	SSC		Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands (CDFW 2016b).	P	Suitable nesting habitat is not present; however, foraging habitat is present. This species may occur in the project area.

Scientific Name	Common Name	Federal Status	State Status	CNPS Rare Plant Rank	Habitat	Habitat Present/ Absent	Rationale
Lasiurus blossevillii	Western red bat	—	SSC		Roosting habitat includes forests and woodlands, often in edge habitats adjacent to streams, fields, or urban areas (CDFW 2016b).	P	Suitable nesting habitat is not present; however, foraging habitat is present. This species may occur in the project area.
Taxidea taxus	American badger	—	SSC		Open shrub, forest, and herbaceous habitats with friable soils. Associated with treeless regions, prairies, park lands, and cold desert areas. Range includes most of California, except the North Coast (CDFW 2016b).	A	Suitable habitat is not present. Urbanized area and lack of open space in project area provides no suitable habitat.

Key

Federal & State Status	CNPS Rare Plant Rank
(FE) Federal Endangered	*Rareness Ranks*
(FT) Federal Threatened	(1A) Presumed Extinct in California
(FC) Federal Candidate	(1B) Rare, Threatened, or Endangered in California and Elsewhere
(FD) Federally Delisted	(2B) Rare, Threatened, or Endangered in California, but More Common Elsewhere
(SE) State Endangered	*Threat Ranks*
(ST) State Threatened	(0.1) Seriously threatened in California
(SSC) State Species of Special Concern	(0.2) Fairly threatened in California
(FP) Fully Protected	(0.3) Not very threatened in California

Special-Status Plant Species

No special status plant species have been identified with the potential to occur in the project area.

Special-Status Animal Species

Based on the results of the literature review and habitat assessment, 11 special-status wildlife species have the potential to occur in the vicinity of the project area: western pond turtle, western spadefoot toad, western burrowing owl, Swainson's hawk (*Buteo swainsoni*), northern harrier (*Circus cyaneus*), peregrine falcon, merlin (*Falco columbarius*), pallid bat (*Antrozous pallidus*), Townsend's big eared bat (*Corynorhinus townsendii*), western mastiff bat (*Eumops perotis californicus*), and western red bat (*Lasiurus blossevilii*). Individual discussions of these species or guilds are presented below.

Western Pond Turtle

The western pond turtle is a California species of special concern; it has no federal status. The man-made drainage ditch and other ditches adjacent to the project area provide suitable aquatic and upland habitat for western pond turtle. The ruderal grasslands adjacent to the man-made drainage ditch may provide suitable overwintering and nesting habitat for the species. The ruderal grassland habitats located near the man-made drainage ditch were recently used as treatment ponds and are dominated by non-native species. There will be no impacts to the drainage ditch as a result of the proposed project. Furthermore, implementation of mitigation measures **MM 4.4.1** through **MM 4.4.3** and **MM 4.4.5** through **MM 4.4.7** will reduce impacts to western pond turtle to less than significant.

Western Spadefoot Toad

The western spadefoot toad is a California species of special concern; it has no federal status. This species occurs throughout the Central Valley from Shasta Lake south to Bakersfield, throughout the Salinas Valley, and along the Coast Ranges south of San Luis Obispo. Western spadefoot toads typically occur between sea level and 4,460 feet amsl and are found mostly in grasslands, but may occur in valley-foothill hardwood woodlands. Breeding occurs in shallow, temporary pools formed by winter rains and is usually complete by March (CDFW 2016b). Therefore, this species requires winter breeding pools within or adjacent to grassland habitat. Western spadefoot toads are extremely sensitive to low frequency noises and vibrations. These disturbances cause western spadefoot toads to break dormancy and emerge from their burrows (Dimmitt and Ruibal 1980).

The ruderal grassland habitat on the site along with the ponded water in the northeastern portion of the project site and the man-made drainage ditch may provide suitable habitat for western spadefoot toads. Project-related activities may affect this species; therefore, mitigation measures **MM 4.4.1, MM 4.4.2, MM 4.4.3**, **MM 4.4.5**, **MM 4.4.6,** and **MM 4.4.8** are required to reduce impacts to western spadefoot toads to less than significant.

Western Burrowing Owl

The western burrowing owl is a California species of special concern; it has no federal status. Western burrowing owls prefer nesting in mammal burrows in open areas of dry, open, rolling hills, grasslands, fallow fields, sparsely vegetated desert scrub with gullies, washes, and arroyos, and along the edges of human disturbed lands. This species can also

be found inhabiting golf courses, airports, cemeteries, vacant lots, and road embankments with friable soils for nesting. The elevation range for this species extends from 200 feet (60 meters) below mean sea level to 12,000 feet (3,636 meters) amsl at the Dana Plateau in Yosemite (Bates 2006).

Focused surveys for this species have not been conducted to date; however, the presence of suitable habitat, including small mammal burrows, results in the potential for this species to be impacted by project-related activities. Implementation of mitigation measures **MM 4.4.1**, **4.4.5**, **4.4.6**, and **4.4.12** is required to reduce impacts to western burrowing owl to less than significant.

Raptors and Migratory Birds

Various migratory birds and raptor species have the potential to inhabit the project area. Swainson's hawk, northern harrier, merlin, and peregrine falcon are afforded additional protection in state laws. Swainson's hawk is listed in California as a threatened species under the CESA. The northern harrier is a California species of special concern. The peregrine falcon is a California fully protected species and both state and federally delisted.

Some raptor and migratory bird species, such as red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and oak titmouse (*Baeolophus inornatus*), are not considered special-status species because they are not rare or protected under the ESA or the CESA; however, the nests of all raptor species are protected under the Migratory Bird Treaty Act and Section 3503.5 of the Fish and Game Code. The nests of all migratory birds are protected under the MBTA, which makes it illegal to destroy any active migratory bird nest. The trees, shrubs, and ruderal grasslands found in the project area and in the vicinity provide potential nesting habitat for migratory birds and some of the raptors that occur in the region. Swainson's hawks typically nest in larger trees and peregrine falcons typically nest in cliffs, large structures, or larger trees than those found in the project area and vicinity. Therefore, the project area does not provide suitable nesting habitat for these species; however, the ruderal grassland habitat provides potentially suitable foraging habitat for raptor species and migratory birds. In addition, the ruderal grasslands in the project area represent potentially suitable foraging habitat for raptor species.

If nesting migratory birds and/or raptors are present during project construction, the proposed project may cause direct mortality through impacts to habitats that contain active nests. Excessive noise, disturbance, and vibrations can cause nesting raptors and birds to abandon their nests. The loss of active nests or direct mortality is prohibited by the MBTA and FGC Section 3503.5. The proposed project could result in indirect impacts to migratory birds and raptors through habitat degradation and removal of trees/shrubs suitable for nesting, as well as from increased human presence.

The proposed project would result in approximately 3.1 acres of temporary impact and 2.4 acres of permanent impact to ruderal grassland habitats that provide suitable foraging habitat for raptors and nesting habitat for western burrowing owls. Implementation of mitigation measures **MM 4.4.1**, **MM 4.4.5, MM 4.4.6, MM 4.4.9, MM 4.4.10,** and **MM 4.4.11** will reduce impacts to raptors and migratory birds to less than significant.

Special-Status Bat Species

Bats, including pallid bat, Townsend's big-eared bat, western mastiff bat, and western red bat, may occur in the project area. The pallid bat, western mastiff bat, and western red bat are California species of special concern, and the Townsend's big-eared bat is a state candidate for listing as threatened. Habitat for bat species consists of foraging habitat, night-roosting cover, maternity roost sites, and winter hibernacula. These bat species may forage in a variety of habitats. In general, the CDFW is most concerned about the loss of maternity roosting sites. Suitable roosting sites in these habitats include caves, rock crevices, cliffs, buildings, tree bark, and snags. There are no potential maternity and night-roosting sites in the project area. However, the ruderal grassland habitat may provide suitable foraging habitat for bat species. Precautions must be taken to avoid the deliberate killing or injury of bats.

If bats are foraging in the project area during construction activities, the proposed project has the potential to directly and indirectly impact special-status bat species. In addition, noise and dust from construction could indirectly impact bat species during construction. However, implementation of mitigation measures **MM 4.4.1**, **MM 4.4.5**, **MM 4.4.6**, and **MM 4.4.13** will reduce impacts to special-status bat species to less than significant.

b) *Less Than Significant Impact With Mitigation Incorporated*. Sensitive habitats include (a) areas of special concern to resource agencies; (b) areas protected under CEQA; (c) areas designated as sensitive natural communities by the CDFW; (d) areas outlined in FGC Section 1600; (e) areas regulated under CWA Section 404; and (f) areas protected under local regulations and policies. Ruderal grassland and urban habitats are not considered to be natural communities of special concern; however, the man-made drainage ditch in the project area is considered a potentially jurisdictional feature regulated under Clean Water Act Section 404.

The proposed project will not result in any permanent impacts to the man-made drainage ditch in the project area. Potential impacts to this feature may occur from temporary construction activities. Implementation of mitigation measures **MM 4.4.1** through **MM 4.4.5** will reduce potential temporary impacts to less than significant. A wetland delineation will need to be completed and verified with the USACE if impacts to the feature will occur as a result of the proposed project.

c) *Less Than Significant Impact With Mitigation Incorporated.* Approximately 0.5 acre of man-made drainage ditch occurs in the project area and is considered potentially jurisdictional under Section 404 of the CWA. There are not expected to be any impacts to the man-made drainage ditch aside from temporary construction-related impacts. Therefore, no CWA Section 404 nationwide permit from the USACE or CWA Section 401 water quality certification from the RWQCB are currently required.

Implementation of mitigation measures **MM 4.4.1** through **MM 4.4.5** will reduce potential temporary impacts to the man-made drainage ditch to less than significant. A wetland delineation will need to be completed and verified with the USACE if impacts to the feature will occur as a result of the proposed project.

d) *No Impact.* A review of the CDFW (2016c) Biogeographic Information and Observation System (BIOS) was performed for the project to determine if the project area is located in an Essential Connectivity Area. The project area does not occur in an Essential Connectivity Area. Furthermore, the project area is located on a highly urbanized lot and

is surrounded by agricultural activities, which further impairs any corridor function. As such, no impact is anticipated.

e) *No Impact*. The proposed project is consistent with the Live Oak General Plan and would not conflict with any local policies or ordinances protecting biological resources. Therefore, no impact is anticipated.

f) *No Impact*. The proposed project would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan As a result, the proposed project would not conflict with any plan, and no impact is anticipated.

Mitigation Measures

MM 4.4.1 During project development, the work area shall be reduced to the smallest footprint feasible in sensitive habitat areas.

Timing/Implementation: *During project development*

Enforcement/Monitoring: *City of Live Oak Public Works Department*

MM 4.4.2 Prior to the initiation of construction activities, construction best management practices (BMPs) shall be employed on-site to prevent degradation to on-site and off-site waters of the United States. Methods shall include the use of appropriate measures to intercept and capture sediment prior to entering the man-made drainage ditch, as well as erosion control measures along the perimeter of all work areas to prevent the displacement of fill material. All BMPs shall be in place prior to initiation of any construction activities and shall remain until construction activities are completed. All erosion control methods shall be maintained until all on-site soils are stabilized.

Timing/Implementation: *Prior to start of construction*

Enforcement/Monitoring: *City of Live Oak Public Works Department*

MM 4.4.3 Standard staging area practices for sediment-tracking reduction shall be implemented where necessary and may include vehicle washing and street sweeping.

Timing/Implementation: *During project construction*

Enforcement/Monitoring: *City of Live Oak Planning Department*

MM 4.4.4 If the man-made drainage ditch is indirectly or directly impacted by project construction activities, a Preliminary Jurisdictional Determination (PJD) will need to be initiated with the US Army Corps of Engineers to assess impacts to jurisdictional waters of the United States.

Timing/Implementation: *During project construction*

Enforcement/Monitoring: *City of Live Oak Planning Department*

MM 4.4.5 All exposed/disturbed areas and access points left barren of vegetation as a result of construction activities shall be restored using locally native grass seeds, locally native grass plugs, and/or a mix of quick-growing sterile nonnative grass with locally native grass seeds. Seeded areas shall be covered with broadcast straw and/or jute netted (monofilament erosion blankets are not permitted).

Timing/Implementation: *During project construction*

Enforcement/Monitoring: *City of Live Oak Planning Department*

MM 4.4.6 A Worker Environmental Awareness Program (WEAP) shall be implemented to educate construction workers about the presence of special-status species and/or sensitive biological resources in and/or near the project work area and to instruct workers on proper avoidance.

Timing/Implementation: *Prior to start of construction*

Enforcement/Monitoring: *City of Live Oak Planning Department*

MM 4.4.7 A preconstruction survey for western pond turtle shall be conducted within 24 hours of the onset of construction activities adjacent to the man-made drainage ditch. The survey area shall include a 100-foot buffer of the area to be affected. If juvenile or adult turtles are found within the survey area, the individuals shall be moved at least 500 feet downstream in suitable habitat. If a turtle nest is found within the survey area, construction activities shall not take place within 100 feet of the nest until the turtles have hatched or the eggs have been moved to an appropriate location.

Timing/Implementation: *Prior to start of construction*

Enforcement/Monitoring: *City of Live Oak Public Works Department*

MM 4.4.8 If suitable habitat for western spadefoot toad is to be removed from October through April, a qualified biologist shall conduct a preconstruction survey for this species within 50 feet of suitable habitat that is proposed to be impacted. The survey shall be conducted a maximum of one week prior to removal of suitable breeding habitat. If no western spadefoot toads are detected during the survey, no further measures are required. If this species is observed on-site, the biologist shall move it to suitable habitat in a safe location outside of the construction zone. If western spadefoot toads are detected during the preconstruction survey, a qualified biologist shall be on-site during initiation of construction activities within 50 feet of suitable habitats and shall provide WEAP training to all personnel working within 50 feet of suitable habitats. In the event that a western spadefoot toad is observed within an active construction zone, the contractor shall temporarily halt construction activities until a biologist has moved it to a safe location outside of the construction zone in similar habitat.

Timing/Implementation: *Prior to start of construction*

Enforcement/Monitoring: *City of Live Oak Public Works Department*

MM 4.4.9 If clearing and/or construction activities would occur during the raptor nesting season (February 1–September 15), preconstruction surveys to identify active nests shall be conducted by a qualified biologist within 14 days of construction initiation. Surveys must be performed by a qualified biologist for the purposes of determining presence/absence of active nest sites within the proposed impact area, including construction access routes and a 200-foot buffer (if feasible). If no active nests are found, no further mitigation is required. Surveys shall be repeated if construction activities are delayed or postponed for more than 30 days.

If white-tailed kite, northern harrier, or other raptor (excluding Swainson's hawk) nests are identified within 500 feet of project activities, a 250-foot setback will be imposed to all active raptor sites prior to commencement of project construction activities to avoid construction or access-related disturbances to nesting raptors. Project-related activities (i.e., vegetation removal, earth moving, and construction) shall not occur within any setbacks until nests are deemed inactive.

If active Swainson's hawk nest sites are identified within 0.25 mile of project activities, a 0.25-mile setback shall be imposed to all active nest sites prior to commencement of any construction activities to avoid construction- or access-related disturbances to nests. Project-related activities (i.e., vegetation removal, earth moving, and construction) shall not occur within the setback until the nest is deemed inactive. Activities permitted within setbacks and the size of setbacks may be adjusted through consultation with the CDFW.

Timing/Implementation: *Prior to start of construction*

Enforcement/Monitoring: *City of Live Oak Public Works Department*

MM 4.4.10 If clearing and/or construction activities will occur during the migratory bird nesting season (February 1–September 1), preconstruction surveys to identify active migratory bird nests shall be conducted by a qualified biologist within 14 days prior to construction initiation. Focused surveys must be performed by a qualified biologist for the purposes of determining the presence/absence of active nest sites within the proposed impact area, including construction access routes and a 200-foot buffer (if feasible).

If migratory bird nests are identified within 200 feet of project activities, a 150-foot setback shall be imposed to all active migratory bird nest sites prior to commencement of project construction activities to avoid construction or access-related disturbances to nesting birds. Project-related activities (i.e., vegetation removal, earth moving, and construction) shall not occur within any setbacks until nests are deemed inactive.

Timing/Implementation: *Prior to start of construction*

Enforcement/Monitoring: *City of Live Oak Public Works Department*

MM 4.4.11 Trees containing active migratory bird and/or raptor (excluding Swainson's hawk) nests that must be removed as a result of the project shall be removed during the non-breeding season (September 16–January 31). Swainson's hawks are state listed as threatened species; therefore, impacts to Swainson's hawk nest trees require regulatory authorization from the CDFW prior to removal.

Timing/Implementation: *Prior to start of construction*

Enforcement/Monitoring: *City of Live Oak Public Works Department*

MM 4.4.12 If clearing and construction activities will occur during the nesting period for western burrowing owls (February 1–August 31), a qualified biologist shall conduct preconstruction surveys on and adjacent to the project area within 14 days prior to construction initiation. Surveys shall be conducted in accordance with the CDFW's Staff Report on Burrowing Owl Mitigation, published March 7, 2012. Surveys shall be repeated if project activities are suspended or delayed for more than 15 days during nesting season.

If no western burrowing owls are detected, no further mitigation is required. If active burrowing owls nest sites are detected, the City shall implement the avoidance, minimization, and mitigation methodologies outlined in the CDFW's Staff Report prior to initiating project-related activities that may impact burrowing owls.

Timing/Implementation: *Prior to start of construction*

Enforcement/Monitoring: *City of Live Oak Public Works Department*

MM 4.4.13 Construction activities will occur during daylight hours. If bats are observed foraging during daylight hours, construction activities will cease until bats are no longer observed in the area.

Timing/Implementation: *During project construction*

Enforcement/Monitoring: *City of Live Oak Public Works Department*

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.5 CULTURAL RESOURCES. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐
e) Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074?	☐	☐	☐	☒

SETTING

According to the Live Oak General Plan EIR (2010b), the city is in an area historically occupied by two indigenous groups: the Konkow (also known as the Northwestern Maidu) and the Nisenan (also known as the Southern Maidu). Both are Penutian-speaking peoples and members of the Maiduan language family.

CONCEPTS AND TERMINOLOGY FOR IDENTIFICATION OF CULTURAL AND TRIBAL CULTURAL RESOURCES

Cultural resources include historical resources and archaeological resources (as defined in Public Resources Code Section 15064.5). Cultural resources are any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Generally, a resource must be considered by the lead agency to be historically significant if the resource meets the criteria for listing in the California Register of Historical Resources (CCR Title 14(3) Section 15064.5(a)(3)).

Tribal cultural resources are defined in the California Environmental Quality Act (CEQA) as a site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native American tribe, which may include non-unique archaeological resources previously subject to limited review under CEQA.

IDENTIFICATION EFFORTS

In support of the proposed project, Michael Baker International cultural staff conducted a records search at the Northeast Information Center (NEIC) and a reconnaissance-level cultural resources field survey. The intent of the records search and the field survey were to identify cultural resources (archaeological and built environment resources) within or adjacent to the proposed project site (see Figures 3.0-1 and 3.0-2) that may be impacted by the project.

RECORDS SEARCH

To determine the presence of previously identified cultural resources, Michael Baker International requested staff at the NEIC to conduct a records search for the project area. The records search (File No. D16-24) was conducted on March 23, 2016, with a quarter-mile search radius (see **Appendix C1**). The NEIC, as part of the California Historical Resources Information System, California State University, Chico, an affiliate of the California Office of Historic Preservation (OHP), is the official state repository of cultural resource records and reports for Sutter County.

As part of the records search, the following federal and state inventories were reviewed by the NEIC:

- California Inventory of Historic Resources (OHP 1976)
- California Points of Historical Interest (OHP 1992 and updates)
- California Historical Landmarks (OHP 1996)
- Directory of Properties in the Historic Property Data File (OHP last updated April 5, 2012). The directory includes the listings of the National Register of Historic Places (National Register), National Historic Landmarks, California Register, California Historical Landmarks, and California Points of Historical Interest.

Results

No cultural resources were identified in the project area or within a quarter–mile radius.

Two cultural resources studies have been conducted within the project area. The studies are summarized below.

Jensen, Peter M. (Jensen & Associates)
2000 *Archaeological Inventory Survey for the City of Live Oak Sewer Improvement Project, Live Oak, Sutter County, California*

This report details the results of an archaeological inventory survey of the City of Live Oak's proposed sewer improvement project in accordance with Section 106 of the National Historic Preservation Act (NHPA) and CEQA. The report documents the methods and results of a records search, field survey, and Native American consultation. No cultural resources were identified and no further recommendations were made.

Haydu, Damon (Analytical Environmental Services)
2007 *Cultural Resources Study: Live Oak Wastewater Treatment Plant, Expansion Project*

This report presents the scope and results of a cultural resources study in support of the Live Oak Wastewater Treatment Plant (WWTP) upgrade project. It was conducted in compliance with Section 106 of the NHPA and CEQA. The report's purpose was to identify cultural resources on the project site, determine effects to cultural resources, and recommend mitigation for adverse effects to resources eligible for inclusion in the National Register or the California Register. No cultural resources were identified and no further identification efforts were recommended.

Five cultural resources studies have been conducted within a quarter-mile radius of the project area. A studies are summarized below.

Blind, Heather, and Barb Siskin (Garcia and Associates)

2011 *Cultural Resource Constraints Analysis for the Line 167 and Line 167-1 Gas Line Modernization Project, Butte and Sutter Counties, California*

This cultural resources study provided a constraints-level analysis of potential cultural resources along two different project alignments. No cultural resources were identified in the project area or within a quarter-mile radius of the project area.

Peak & Associates

2004 *Determination of Eligibility and Effect for Cultural Resources within the Pennington Ranch Project, Sutter County, California*

This cultural resource study was completed in accordance with NHPA Section 106. The report documents the methods and results of a records search, field survey, and Native American consultation. No cultural resources were identified and the project was determined to have no effect on historic resources.

2005 *Determination of Eligibility and Effect for Cultural Resources within the Live Oak Stormwater Project, Sutter County, California*

This cultural resource study was completed in accordance with NHPA Section 106. The report documents the methods and results of a records search, field survey, and Native American consultation. No cultural resources were identified and the project was determined to have no effect to historic resources.

Sikes, Nancy E. (SWCA)

2006a *Cultural Resources Inventory for the City of Live Oak General Plan Update, Sutter County, California*

This cultural resource study was completed in accordance with CEQA and documents the methods and results of a literature search, sacred lands search, and reconnaissance-level pedestrian survey. This report documented cultural resources Live Oak. No cultural resources were identified in the project area or within a quarter-mile radius of the project area.

2006b *Revised Report for the Cultural Resources Inventory for the City of Live Oak General Plan Update*

This updated report to the cultural resources inventory (Sikes 2006a) provided survey coverage maps. No additional findings or cultural resources were identified.

HISTORICAL MAP REVIEW

Michael Baker staff reviewed historical maps for archaeological, ethnographic, historical, and environmental information about the project area and its vicinity to determine the presence of cultural resources. This review included:

- Plat of Township No. 16 North Range No. 3 East Mount Diablo Base Meridian (BLM 1867)

- Gridley, Calif., 1:31,680 Scale Topographic Quadrangle (USGS 1912)
- Gridley, Calif., 7.5-Minute Topographic Quadrangle (USGS 1952 [photo revised 1973])

Results

The 1867 Plat of Township No. 16 North Range No. 3 East Mount Diablo Base Meridian depicts the project area as part of Rancho Las Juntas. No features are depicted with the project area.

The 1912 Gridley, Calif. topographic quadrangle depicts no features within the project area.

The 1952 (photo revised 1973) Gridley, Calif. topographic quadrangle depicts a canal and the Wastewater Treatment Plant within the project area. The WWTP consisted of 11 wastewater ponds. Today the canal follows a different alignment along the north and eastern edges of the project area. The plant is shown in purple, indicating that it was built between 1952 and 1973.

WASTEWATER TREATMENT

In compliance with Section 106 of the National Historic Preservation Act (NHPA) and CEQA, an evaluation of the WWTP was prepared to determine its eligibility for inclusion in the National Register and California Register of Historical Resources (California Register) (see **Appendix C2**). The following discussion pertaining to the WWTP is derived from this evaluation.

Wastewater treatment in the United States dates to the mid-1800s when local governments began constructing sewer lines, streets, drainage systems, and other infrastructure to alleviate health hazards associated with cesspools. However, these early systems disposed of waste in large water bodies such as rivers, thereby creating additional health and biological hazards. Treatment of wastewater prior to discharge first developed beginning in the late 1800s.

Initial treatments included diverting wastewater to farms where wastewater helped restore nutrients to the soil, but with urban growth in the early twentieth century, water treatment via farm became infeasible. Various treatment improvements were introduced beginning in the early 1900s. The use of microorganisms to break down sewage, a process known as secondary biological treatment, first began in 1901 when the first trickling filter was constructed in Madison, Wisconsin. The first solids settling tank was used in 1909. The first liquid chlorination process for effluent disinfection was used in 1914, and the first activated sludge plant was used in San Marcos, Texas, in 1916.

In 1948, the Federal Water Pollution Control Act provided federal funds for water quality surveys and the construction of collection and treatment plants. The 1972 Clean Water Act made secondary biological treatment a requirement for all wastewater treatment plants in the United States. A federal construction grant and state grant program provided funds of up to 90 percent of construction costs which served as an incentive for treatment plant construction and upgrades.

Live Oak Waste Water Treatment Plant

The Live Oak WWTP was constructed in 1952 after the passage of the 1948 Federal Water Pollution Control Act and a City November 6, 1951, majority vote authorizing the issuance of revenue bonds to finance the construction of a sewage system. Prior to this time, wastewater disposal in Live Oak consisted of privies and/or septic tanks. Septic tanks allowed for wastewater percolation into the ground which often polluted groundwater required for a fresh water supply.

There were four phases, 1B, 2B, 3B, and 4B, to the original construction. City records do not indicate which phases were associated with which part of the construction; however, the construction contracts were awarded for the plant as well as the sewer mains and collection system. San Leandro Construction Company built Unit No. 1B, and Bishop, Younger, Bradley Company built Units 2B, 3B, and 4B.

Bishop, Younger, Bradley Company was a general contracting company based in San Francisco. Research identified that it constructed the Laguna Seca Horse Ranch in Monterey County in 1955 and a school in Lovelock, Nevada, in 1954. No additional information regarding the company or associate projects was identified. Research did not identify any information regarding the San Leandro Construction Company.

The original design of the treatment plant included a clarigester, holding pond, chlorinator, and a broad irrigation area which discharged into Reclamation District #777 Lateral No. 1. The broad irrigation area was an agricultural field used to spread raw sewage. In 1954, ten percolation ponds were constructed.

The treatment process consisted of raw sewage flow into the clarigester for primary sedimentation and sludge separation. The effluent from the clarigester flowed by gravity to the series of ten percolation ponds where the wastewater was percolated through the soil and eventually water was discharged into Reclamation District #777 Lateral No. 1. During harvest season, the sewage flows used for broad irrigation were stored in the holding pond which consisted of a capacity of approximately one million gallons or 3 days' detention time. The chlorinator disinfected the effluent from the plant prior to discharge into the percolation ponds (Bureau of Sanitary Engineering 1955: 3-8).

The plant was designed to accommodate 3,000 people using 100 gallons of water a day. The population of Live Oak at the time was 1,700. However, the system, designed to handle nearly twice the wastewater produced at the time, was immediately plagued by overload issues after construction. Early studies indicated that the system overload was due to infiltration of groundwater into the collection system due to a high water table, as well as broken pipe sections, and leaking pipe joints, manholes, service connections, and laterals.

System overload was so common that between 1955 and 1967, wastewater commonly bypassed the treatment system and flowed directly into Reclamation District #777 Lateral No. 1. Documents of one particularly bad storm on February 3, 1967, indicate the system overloaded, effluent bypassed to the irrigation ditch, and manholes backed up at various locations throughout the city for many days. Furthermore, five residences were flooded with raw sewage and one resident reportedly had to open a door to prevent ponding sewage in his home.

Because of the constant issues regarding capacity, the WWTP has undergone major alterations since its original construction, including:

- Removal of the broad irrigation area and construction of 10 percolation ponds in 1954.
- Conversion of the holding pond to an aerated lagoon and construction of a new chlorination system between 1967 and 1975.
- Renovation of the clarigester in 1979. Additional aerators were installed in the lagoon, along with the addition of a chlorination contact structure, and reconstruction of existing ponds.

- Modification of the oxidation ponds to an aerated lagoon, addition of five oxidation ponds, and increased capacity of the chlorine contact in 1987.

By 1999, the treatment plant included the original clarigester (used only during dry weather due to capacity issues), two aeration lagoons, 12 oxidation ponds, a chlorine contact chamber, and a final detention and sedimentation basin. The treated water was discharged into Reclamation District #777 Lateral Drain No. 1.

In 2002, the plant underwent another major renovation which included abandoning the original clarigester, filling the associated sludge drying beds, constructing new head works to screen trash and grease, and reconfiguring 12 oxidation ponds to 7 ponds. Additional aerators were added, a new chemical building was constructed, and the treatment plant discharge station was relocated.

Due to a cease and desist order from the SWRCB, the plant underwent another large upgrade in 2011. The original infrastructure and engineering features of the 1952 plant were completely abandoned. The plant is now classified Class 4 Activated Sludge Treatment Plant and includes a biofiltration system at the headworks, pump stations, oxidation ditch, clarifiers, aeration blowers, UV disinfection facility, drying beds and sludge storage basin, laboratory/administration building, water pump station, a stormwater detention basin, an equalization basin with a new submersible aspirating aerator, emergency storage basins, chemical storage and feeding facilities, and new electrical service, generators, and SCADA operating system.

Extant features of the original plant include Building 1 lab/chlorine building, which is now used for storage; Building 3, a pump building; and Structure 5, the now defunct clarigester.

FIELD SURVEY

On March 2, 2016, Michael Baker staff conducted a cultural resources field survey of the project area to identify archaeological and built environment resources. Summaries and results of each survey are provided below.

Archaeological Survey

Ground surface visibility was limited by the WWTP facilities, paved roads, and gravel-covered surfaces (see **Figure 4.5-1**). With these limitations, the systematic pedestrian survey was restricted to areas that are not paved. Areas that are not paved or heavily vegetated were surveyed with 5-meter (east/west) transects.

Results

No archaeological cultural resources were identified during the survey.

Built Environment

The Wastewater Treatment Plant, built between 1952 and 1973, currently consists of nine treatment ponds, seven equipment buildings, a blast-protection wall, and four treatment tanks with concrete stairs and pump equipment.

The WWTP is within the project area and was evaluated for inclusion in the California Register.

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FIGURE 4.5-1
Survey Coverage

Michael Baker INTERNATIONAL

Results

The California Register Evaluation for the WWTP is presented here:

Criterion 1 – The Live Oak WWTP was originally developed in 1952 as the first treatment plant in Live Oak. It was developed in response to the city's need for safe wastewater disposal. The WWTP appears associated with this locally significant theme. However, only three buildings/structures from this time remain. All original engineering components have been abandoned or removed, and the plant is effectively a new plant built in 2011. As such, the property does not appear eligible under California Register Criterion 1.

Criterion 2 – Research provided no evidence indicating that the property is associated with individuals who have made significant contributions to local or state history. As such, the property does not appear to be associated with any historically important individuals and does not appear eligible under California Register Criterion 2.

Criterion 3 – The buildings and structures on the property lack a specific style and are of common construction. The buildings do not embody a distinctive type, period, or method of construction. Research did not suggest that the Bishop, Younger, Bradley Company or San Leando Construction Company were master architects, engineers or designers; therefore, the Live Oak WWTP does not represent the work of a master architect or designer, and is not a superior example of an architectural style or engineering technique. Therefore, the property does not appear eligible under California Register Criterion 3.

Criterion 4 – The property is not likely to yield valuable information which will contribute to our understanding of human history because the property is not and never was the principal source of important information pertaining to subjects such as wastewater treatment; therefore, the property does not appear eligible for listing under California Register Criterion 4.

Lastly, the property maintains a severe lack of integrity of design, materials, workmanship, and feeling, due to major renovations between in 1954, 1968, 1975, 1979, 1987, 2002, and 2011. The original percolation ponds, buildings, engineering features, and equipment are no longer extant. The remaining original features are no longer functioning or used as originally designed. The property maintains setting and location on its original plot. The property no longer appears or functions as it did in 1952 when it was first developed as a pond plant, and does not maintain integrity to its period of significance.

In conclusion, the Live Oak WWTP does not appear eligible for listing in the California Register under Criteria 1, 2, 3, or 4, either individually or as a contributor to a historic district due to a lack of integrity. Additionally, the property was evaluated in accordance with Section 15064.5 (a) (2)-(3) of the CEQA Guidelines using the criteria outlined in Section 5024.1 of the California Resources Code, and does not appear to be a historical resource for the purposes of CEQA.

NATIVE AMERICAN CONSULTATION

On June 3, 2016, the City initiated consultation with tribes that have requested notification of CEQA projects where AB 52 applies. The consultation invitation letters and maps depicting the APE were sent to the below individuals. Below is a summary of the consultation results.

United Auburn Indian Community of the Auburn Rancheria (UAIC), Gene Whitehouse, Chairman– The UAIC received the consultation request on June 6, 2016. No response to the consultation request letter was received within 30 days. On July 14, 2016, the UAIC responded to the

consultation request with a letter requesting tribal representatives for the cultural resources survey, and all existing cultural resource documents for the project. On August 22, 2016, the City responded stating the consultation period for AB52 had timed out because the UAIC did not request AB52 consultation within 30 days of receiving the invitation letter from the City.

Torres Martinez Desert Cahuilla Indians, Michael Mirelez, Cultural Resource Coordinator – No response to the consultation request letter was received within 30 days.

Ione Band of Miwok Indians, Randy Yonemura, Cultural Committee Chair – No response to the consultation request letter was received within 30 days.

SUMMARY

The Live Oak WWTP was evaluated for inclusion in the California Register and recommended not eligible for inclusion. The records search and field survey did not identify historical resources (as defined in Public Resources Code Section 15064.5) in the project area.

DISCUSSION OF IMPACTS

a) *No Impact*. There are no known historical resources (as defined in Public Resources Code Section 15064.5) within the project area.

b, d) *Less Than Significant Impact With Mitigation Incorporated*. Project construction would involve ground-disturbing activities that could result in the unanticipated or accidental discovery of archaeological deposits, historical resources, or human remains.

Implementation of mitigation measure **MM 4.5.1** would ensure that provisions are in place to reduce impacts to historical resources to a less than significant level as required by CEQA. Should archaeological deposits be encountered, impacts to such resources should be avoided or further investigation should be conducted to offset the loss of scientifically consequential information that would occur if avoidance is not possible. Implementation of these measures would reduce this potential impact to a less than significant level.

Implementation of mitigation measure **MM 4.5.3** would ensure that human remains encountered during project activities are treated in a manner consistent with state law and reduce impacts to human remains to a less than significant level as required by CEQA. This would occur through respectful coordination with descendant communities to ensure that the traditional and cultural values of said community are incorporated in the decision-making process concerning the disposition of human remains that cannot be avoided.

c) *Less Than Significant Impact With Mitigation Incorporated*. Although no evidence of paleontological resources has been identified in the project area, unanticipated and accidental discoveries of paleontological resources are possible during project implementation and have the potential to impact paleontological resources. Therefore, mitigation measure **MM 4.5.2** is provided below to address the potential for the discovery of any unrecorded or previously unknown resources.

e) *No Impact*. There are no known tribal cultural resources (as defined in Public Resources Code Section 21074) or cultural resources (as defined in Public Resources Code Section 15064.5) in the project area.

Mitigation Measures

MM 4.5.1 **Treatment of previously unidentified archaeological deposits.** If prehistoric or historical archaeological deposits are discovered during construction, all work within 25 feet of the discovery shall be redirected and an archaeologist shall assess the situation, consult with agencies as appropriate, and make recommendations regarding the treatment of the discovery. Impacts to archaeological deposits should be avoided by the project, but if such impacts cannot be avoided, the deposits should be evaluated for their California Register eligibility. If the deposit is not California Register eligible, no further protection of the finds are necessary. If the deposits are California Register eligible, they should be protected from project-related impacts or such impacts should be mitigated. Mitigation may consist of, but is not necessarily limited to, systematic recovery and analysis of archaeological deposits, recording the resource, preparation of a report of findings, and accessioning recovered archaeological materials at an appropriate curation facility. Public educational outreach may also be appropriate.

Timing/Implementation: *During project construction*

Enforcement/Monitoring: *City of Live Oak Planning Department*

MM 4.5.2 If, during the course of project implementation, paleontological resources (e.g., fossils) are discovered, work shall be halted immediately within 50 feet of the discovery, the City of Live Oak shall be immediately notified, and a qualified paleontologist shall be retained to determine the significance of the discovery. The City shall consider the mitigation recommendations presented by a professional paleontologist and implement a measure or measures that the City deems feasible and appropriate. Such measures may include avoidance, preservation in place, excavation, documentation, curation, data recovery, or other appropriate measures.

Timing/Implementation: *During construction activities*

Enforcement/Monitoring: *City of Live Oak Planning Department*

MM 4.5.3 **Treatment of previously unidentified human remains.** Any human remains encountered during project ground-disturbing activities should be treated in accordance with California Health and Safety Code Section 7050.5. There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the Sutter County coroner has determined the manner and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative. At the same time, an archaeologist shall be contacted to assess the situation and consult with agencies as appropriate. Project personnel/construction workers shall not collect or move any human remains and associated materials. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Native American most likely descendant to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

Timing/Implementation: *During project construction*

Enforcement/Monitoring: *City of Live Oak Planning Department*

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

SETTING

The California State Mining and Geology Board defines an active fault as one that has had subsurface displacement within the past 11,000 years (Holocene). Potentially active faults are defined as those that have ruptured between 11,000 and 1.6 million years before the present (Quaternary). Faults are generally considered inactive if there is no evidence of displacement during the Quaternary period.

No known active or potentially active faults are shown on currently available geologic maps as being located within or adjacent to the project site. The project site is not located in a designated Alquist-Priolo Earthquake Fault Zone identified by the California Geological Survey (2016). According to the 2010 Fault Activity Map of California, the nearest active earthquake fault is the Cleveland Hill fault, which is located 15 miles northeast of the project site. No known active or potentially active faults are shown on currently available geologic maps as being located within or adjacent to the project site (Live Oak 2010b).

According to the Natural Resources Conservation Service (NRCS) (2016) Web Soil Survey, the project site soils consist of Conejo-Tisdale complex, 0 to 2 percent slopes, and Marcum-Gridley clay loam, 0 to 1 percent slopes. **Table 4.6-1** summarizes the characteristics of the soil types present in the project area.

TABLE 4.6-1
PROJECT AREA SOIL CHARACTERISTICS

Soil	Percentage of Site	Drainage	Shrink-Swell Potential (LEP)	Erosion Potential (K factor)	Runoff Potential
Conejo-Tisdale complex, 0 to 2 percent slopes	91.2%	Well drained	3.7% Moderate	.28	Very low
Marcum-Gridley clay loam, 0 to 1 percent slopes	8.8%	Moderately well drained	3.6% Moderate	.32	Low to Medium

Source: NRCS 2016
Notes: Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.
LEP: Linear extensibility is used to determine the shrink-swell potential of soils. 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 more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

DISCUSSION OF IMPACTS

a) *No Impact*. The project site is not located in an area that has active faults. The closest fault to the project site, the Cleveland Hill fault, is located 15 miles to the northeast. Furthermore, the proposed project does not include the construction of occupied structures or other uses that would result in substantial risk to people associated with active faults, seismic shaking or ground failure, or landslides.

b) *Less Than Significant Impact*. Activities associated with development of the site would potentially disturb soils and expose these soils to wind and water erosion. However, the site is flat and there would be little excavation. The rest of the property will be maintained to avoid erosion. Additionally, FRAQMD requirements included as mitigation measure **MM 4.3.1** will reduce the potential for substantial soil erosion.

c) *Less Than Significant Impact*. Given the project site's flat terrain of and the distance to the nearest mountain ranges, the potential for landslides at the site is nonexistent. Liquefaction occurs when loose sand and silt that are saturated with water behave 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
- Subsidence – compaction of soil and sediment

Three factors are required for liquefaction to occur: (1) loose, granular sediment; (2) saturation of the sediment by groundwater; and (3) strong shaking. According to the Live Oak (2010b) 2030 General Plan EIR, liquefaction potential in the city varies depending on location. Areas paralleling the Feather River that contain clean sand layers with low relative densities coinciding with a relatively high water table are estimated to have a generally high liquefaction potential. Other areas have granular layers with higher relative densities resulting in a moderate to low liquefaction potential (Live Oak 2010b, p. 4.7-20). The project site is approximately 2.25 miles from the Feather River. Additionally, the project does not include the construction of a habitable structure that could be affected in the case of a seismic event; the project entails construction of solar arrays which will have minimal employee interaction. These characteristics indicate minimal risk of impacts from liquefaction in the project area.

d) *Less Than Significant Impact*. According to the General Plan Environmental Impact Report, about 90 percent of the City's planning area is underlain by soil with a high shrink-swell potential (Live Oak 2010b, p. 4.7-10). Expansive or shrink-swell soils are soils that swell when subjected to moisture and shrink when dry. Expansive soils typically contain clay minerals that attract and absorb water, greatly increasing the volume of the soil. The two soil types on the project site, Conejo-Tisdale complex and Marcum-Gridley clay loams, both contain clay. However, because the project does not involve the construction of a building which may be affected by shrink and swell of underlying soils, but the placement of solar arrays which sit on a rack above the ground or are held in place by cement footings, movement of the underlying soil would have only minor effects. Furthermore, compliance with the California Building Code will ensure that potential impacts are less than significant.

e) *No Impact*. The project would not generate any wastewater. Therefore, there would be no septic tanks or alternative wastewater disposal systems associated with the project.

Mitigation Measures

None required.

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

SETTING

Human activities, predominantly the burning of fossil fuels, are increasing greenhouse gas (GHG) emissions and contributing to global climate change. Assembly Bill (AB) 32 requires local governments to inventory greenhouse gas emissions and establish reduction targets.

In order to assess the significance of a proposed project's environmental impacts, it is necessary to identify quantitative or qualitative thresholds which, if exceeded, would constitute a finding of significance. Determining a threshold of significance for a project's climate change impacts poses a special difficulty for lead agencies. Much of the science in this area is new and is evolving constantly. At the same time, neither the State nor local agencies are specialized in this area, nor are there currently state thresholds for determining whether a proposed project has a significant impact on climate change.

As noted earlier, AB 32 is a legal mandate requiring that statewide GHG emissions be reduced to 1990 levels by 2020. In adopting AB 32, the legislature determined the necessary GHG reductions for the state to make in order to sufficiently offset its contribution to the cumulative climate change problem to reach 1990 levels. AB 32 is the only legally mandated requirement for the reduction of greenhouse gases. As such, compliance with AB 32 is the current adopted basis upon which an agency can base its significance threshold for evaluating a project's GHG impacts. However, it is acknowledged that Executive Orders 5-03-05 and B-30-15, SB 375, and proposed legislation will ultimately result in GHG emission reduction targets for 2030, 2040, and 2050.

The impact that GHG emissions have on global climate change does not depend on whether the emissions were generated by stationary, mobile, or area sources, or whether they were generated in one region or another. Thus, consistency with the state's requirements for GHG emissions reductions is the best metric for determining whether the proposed project would contribute to global warming. In the case of the proposed project, if the project substantially impairs the state's ability to conform to the mandate to reduce GHG emissions to 1990 levels by the year 2020, the impact of the project would be considered significant.

The Feather River Air Quality Management District (FRAQMD) has not established thresholds for greenhouse gas emissions under CEQA.

DISCUSSION OF IMPACTS

a) *Less Than Significant Impact*. The proposed project would result in minor greenhouse gas emission impacts associated with temporary construction activities and periodic maintenance of the facility. However, operation of the solar facility itself would not result

in the generation of GHG emissions. On the contrary, operation of the facility will further local, regional, and statewide goals to reduce GHG emissions by increasing the percentage of renewable energy in the local inventory. The only operational GHG emissions would be generated from incidental mobile sources associated with a work vehicle visiting the facility to maintain the panels. These activities are estimated to occur on average two times per year.

As a part of the Initial Study, a GHG assessment was prepared for the proposed project using CalEEMod Version 2.2. This assessment discloses projected GHG emissions that would result from project construction and operation (see **Appendix A**). **Table 4.7-1** summarizes the projected emissions generated during construction of the proposed project, as well as operational emissions that would be generated from mobile sources associated with occasional maintenance.

TABLE 4.7-1
GREENHOUSE GAS EMISSIONS (METRIC TONS PER YEAR)

Emission Type	CO_2e[1] (metric tons annually)	
GHG Construction Emissions	Total (3-month time period) 72.4752	Over Life of Project (est. 30 years) 2.4158
GHG Operational Emissions	0.2374	

*Source: CalEEMod. See **Appendix A**.*

[1] CO_2e = carbon dioxide equivalent. 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. Methane traps over 21 times more heat per molecule than carbon dioxide, and nitrous oxide absorbs 310 times more heat per molecule than carbon dioxide.

As shown in **Table 4.7-1**, short-term construction activities and operation of the proposed project is estimated to produce 72 tons of carbon dioxide equivalent (CO_2e). The vast majority of these emissions would occur during the 3-month construction period. Amortizing these emissions over the life of the project would result in approximately 2.4 tons of CO_2e annually. Once project construction is complete, CO_2e emissions would be generated only during maintenance trips to the project site, two times per year.

In terms of operational GHG emissions, the facility is deliberately designed to require minimal maintenance. All operations are fully automated, requiring only minimal periodic maintenance. Consequently, the only significant emissions would be associated with the two trips per year in light-duty trucks to the site for cleaning and other basic maintenance.

As stated previously, the FRAQMD has not established any GHG thresholds at this point. Therefore, a comparison of the amount of the GHG emissions avoided by operation of the proposed solar facility to business as usual was completed for this Initial Study. The methodology developed by AB 32 is based on a comparison of any new development with a comparable business-as-usual (BAU) facility. In this case, BAU was assumed to be a generic 864-megawatt-hour (MWh) facility producing electricity with a GHG emissions rate equal to the emissions rate of the overall California electrical power grid. To calculate this, an emissions factor was used that provides an emissions rate of 610.82 pounds of CO_2e produced per MWh of electricity produced.[1]

[1] The emissions factor was taken from the EPA eGRID website, which collates emission information for electricity production in the United States. The EPA eGRID factor for California is called the CAMX factor, which is the overall GHG emissions

The solar facilities are expected to produce approximately 864,000 kWh (864 MWh) of electricity per year. A traditional nonrenewable power plant in California that produces the same amount of energy would emit 263.9 tons of CO_{2e} (based on 610.82 pounds per MWh). Therefore, the proposed solar facility would result in a reduction of GHG emissions from business as usual of approximately 263.9 tons CO_2e every year, as it does not include any CO_2e-producing operations. In other words, the proposed project would result in the avoidance of 263.9 tons of CO_2e compared to a generic 864 MWh power plant in California that produces the same amount of energy annually. This is considered a conservative estimate, as the CAMX factor (defined in footnote 1) includes renewable generation that occurred in California as of 2010.

The proposed project would reduce GHG emissions by creating a new source of solar power to replace the current use of fossil-fuel power and reduce GHG emissions power generation and use. Thus, GHG emissions would be less than significant.

b) *Less Than Significant Impact*. The proposed project is subject to compliance with the Global Warming Solutions Act (AB 32). Some GHG emissions would be emitted during project construction and a minute amount during operations. However, these emissions are so minor and short term that increases in global greenhouse gas emissions would be negligible.

As such, the project would not conflict with any adopted plans, policies, or regulations adopted for the purpose of reducing GHG emissions. This impact would be less than significant.

Mitigation Measures

None required.

factor for California. The EPA eGRID (version 1.0) for reporting year 2010 (the most recent available) provides a value of 610.82 lbs CO_2e per megawatt-hour for CAMX.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.8 HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or a public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

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 in Title 22 of the California Code of Regulations (CCR), Title 22, 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.

Most hazardous material regulation and enforcement in Sutter County is managed by Sutter County Environmental Health Services, which refers large cases of hazardous materials contamination or violations to the Central Valley Regional Water Quality Control Board (RWQCB) and the California Department of Toxic Substances Control (DTSC). When issues of hazardous

materials arise, it is not at all uncommon for other agencies to become involved, such as the FRAQMD and both the federal and state Occupational Safety and Health Administrations.

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. A search of the DTSC and SWRCB identified one open case of hazardous waste violations within 1 mile of the project site (DTSC 2015; SWRCB 2015). This site, identified as Sutter Buttes AG Chemical/Oxy Chemical by the SWRCB, is considered an open inactive case by the SWRCB. The site is approximately 0.9 mile northeast of the project site and has been listed as inactive since 1986.

DISCUSSION OF IMPACTS

a) *Less Than Significant Impact*. The only potential for routine transport, use, disposal, or accidental release of hazardous materials associated with the proposed project would be during construction. Typical hazardous materials used in the construction of a solar facility would be limited and would include diesel fuel, gasoline, and oil for equipment and may include adhesives and epoxy. The transport and use of hazardous materials is strictly regulated by state and federal agencies to minimize adverse hazards from accidental release. Therefore, the proposed project would not create a significant hazard to the public or the environment.

b) *Less Than Significant Impact*. See Item 4.8(a).

c) *No Impact*. The project site is not located within one-quarter mile of a school.

d) *No Impact*. According to the DTSC (2015) EnviroStor database and the SWRCB (2015) GeoTracker database, no hazardous chemical releases have occurred on the project site.

e) *No Impact*. The project site is more than 2 miles from any public airport. The closest airport to the project site is Sutter County Airport, which is located more than 10 miles to the southeast. The proposed project will not pose a risk to airport traffic. Therefore, the project will not result in a safety hazard for people working in the project area.

f) *No Impact*. See Item 4.8(e). The closest airstrip to the project site is a private airport, Bowles Airport, which is located approximately 1.7 miles to the southwest. The proposed project will not pose a risk to airport traffic. Therefore, the project will not result in a safety hazard for people working in the project area.

g) *No Impact.* The closest evacuation route would be State Route (SR) 99, which is located approximately 1 mile from the project site. Because no construction activity would occur within or adjacent to SR 99, and once completed, the project would not impede any traffic movement on this route, the project would not adversely impact an adopted emergency response plan or emergency evacuation plan.

h) *No Impact*. According to the California Department of Forestry and Fire Protection's (Cal Fire) (2007) Draft Fire Hazard Severity Zones map, the project site is identified as a Local Responsibility Area (LRA) unzoned area. The project site is in an area that is mainly used for agricultural production. The project is not in an area considered a high fire zone or considered susceptible to wildland fires.

Mitigation Measures

None required.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.9	**HYDROLOGY AND WATER QUALITY**. Would the project:				
a)	Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☒
d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☐	☒
e)	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?	☐	☐	☒	☐
f)	Otherwise substantially degrade water quality?	☐	☐	☒	☐
g)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h)	Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☒
i)	Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of a failure of a levee or dam?	☐	☐	☒	☐
j)	Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

SETTING

The proposed project is located in the water service area of the City of Live Oak and in the water reclamation district boundaries of Reclamation District No. 777 (RD 777). The City of Live Oak provides potable water service in Live Oak and RD 777 provides drainage reclamation services to most of the city of. The City operates six existing well facilities, and the district operates six main lateral canals (1, 2, 6, 6A, and 14 and the Main Canal [Live Oak Slough]) in the area in and around the city.

SURFACE WATER FEATURES

The only water feature within the immediate project area is a man-made drainage ditch located adjacent to the Solar Array #2 site. However, as discussed previously in subsection 4.4, Biological Resources, no wetlands or other water features within or adjacent to the project site will be impacted by the proposed project.

According to the Central Valley RWQCB (2010), Morrison Slough, Live Oak Slough, and Wadsworth Canal are all listed as impaired water bodies in accordance with Clean Water Act Section 303(d) for the presence of the following:

- Morrison Slough: diazinon
- Live Oak Slough: diazinon, oxyfluofen, and dissolved oxygen
- Wadsworth Canal: diazinon and chorpyrifos

All of these water bodies are within 1.5 miles of the project site.

STORMWATER DRAINAGE

There is no stormwater infrastructure in the vicinity of the project area. Because of the relatively level topography on the project site, stormwater generated on the site primarily infiltrates into the ground. The proposed project will use the existing natural drainage on the site to drain stormwater.

FLOODING

According to the Federal Emergency Management Administration (FEMA) Flood Insurance Rate Map (FIRM) No. 0603940035B, the project site is located in Zone X, outside of the 100- and 500-year flood zones (FEMA 2015).

According to the Live Oak General Plan EIR, the project site is in the Thermalito Afterbay and Oroville Reservoir dam failure inundation area (Live Oak 2010b, p. 4.5-16).

GROUNDWATER HYDROLOGY AND QUALITY

The project area is located in the Sacramento Valley Groundwater Basin, East Butte Subbasin, as described by California Department of Water Resources Bulletin 118 (DWR 2005). According to Bulletin 118, as updated February 2005, the estimated storage capacity of the subbasin to a depth of 200 feet is approximately 3,128,959 acre-feet. It is estimated that groundwater extractions from the subbasin for agricultural, municipal, industrial, and environmental wetland uses total 180,000 acre-feet annually. The City of Live Oak uses approximately 1,496 acre-feet per year, or less than 1 percent of the total annual subbasin withdrawals, and approximately 0.04 percent of the basin's total estimated storage capacity.

DISCUSSION OF IMPACTS

a) *Less Than Significant Impact*. The proposed project would not result in any wastewater generation and would not contribute to wastewater flows or discharge from a wastewater treatment plant. The project's concrete footings for the solar array located in the vacant field would be the only impervious surface area that would be created for the project. As a result, there would not be a substantial change in the amount of runoff that would be generated on the site. Project operation would include only minimal activity on the site. Solar modules would be rinsed with water approximately two times a year to remove dust and dirt. Because insufficient water would be applied to run off from the areas immediately

below the photovoltaic panels, the rinse water would be absorbed in the ground adjacent to the panels. Additionally, in accordance with National Pollutant Discharge Elimination System (NPDES) regulations, the State of California requires that any construction activity affecting 1 acre or more obtain a General Construction Activity Stormwater Permit (General Permit) to minimize the potential effects of construction runoff on receiving water quality. Performance standards for obtaining and complying with the General Permit are described in NPDES General Permit No. CAS000002, Waste Discharge Requirements, Order No. 2009-0009-DWQ.

General Permit applicants are required to submit to the appropriate regional board Permit Registration Documents for the project, which include a Notice of Intent, risk assessment, site map, signed certification statement, an annual fee, and a stormwater pollution prevention plan (SWPPP). The SWPPP includes pollution prevention measures (erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills), demonstration of compliance with all applicable local and regional erosion and sediment control standards, identification of responsible parties, and a detailed construction timeline. The SWPPP must also include implementation of best management practices (BMPs) to reduce construction effects on receiving water quality by implementing erosion control measures and reducing or eliminating non-stormwater discharges.

Examples of typical construction best management practices included in SWPPPs include, but are not limited to, using temporary mulching, seeding, or other suitable stabilization measures to protect uncovered soils; storing materials and equipment to ensure that spills or leaks cannot enter the storm drain system or surface water; developing and implementing a spill prevention and cleanup plan; and installing sediment control devices such as gravel bags, inlet filters, fiber rolls, or silt fences to reduce or eliminate sediment and other pollutants from discharging to the drainage system or receiving waters. Stormwater pollution prevention plan BMPs are recognized as effective methods to prevent or minimize the potential releases of pollutants into drainages, surface water, or groundwater. Strict SWPPP compliance, coupled with the use of appropriate best management practices, would reduce potential water quality impacts during construction activities.

Implementation of best management practices required as part of the SWPPP would ensure that the proposed project would not create or contribute to any violations of water quality standards or waste discharge requirements. There would be a less than significant impact.

b) *Less Than Significant Impact*. Project operation would include only minimal activity on the site. Routine maintenance would require rinsing of the solar modules with water approximately two times a year to remove dust and dirt. Further, aside from the concrete footings, no impervious surfaces would be developed on the site. The solar panels would simply shed water onto the ground, where water would infiltrate into the permeable soil. Therefore, the proposed project would not interfere with groundwater recharge or otherwise substantially affect groundwater supplies.

c) *No Impact*. There are no watercourses on the project site, and the project will not require recontouring of the land or significant grading.

d) *No Impact*. See Items 4.6(b), 4.9(a), and 4.9(c). No streams or rivers are located on-site. As such, the proposed project will not substantially alter an existing drainage pattern, alter

the course of a stream or river, or increase stormwater runoff such that there would be a potential increase of flooding on- or off-site.

e) *Less Than Significant Impact*. The total surface runoff after the project is constructed would be the same as currently exists. Therefore, the project will not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems.

f) *Less Than Significant Impact*. See Items 4.9(a) through 4.9(d). Because ground disturbance associated with the project would be minimal, the project would not create a potential source of polluted surface runoff. As such, the project would not otherwise substantially degrade water quality.

g) *No Impact*. The project does not include the construction of housing, nor would the project otherwise result in the placement of housing within a 100-year flood hazard area.

h) *No Impact*. According to the FEMA (2015) Flood Insurance Rate Map No. 0603940035B, the project site is located in Zone X, outside of the 100- and 500-year flood zones.

i) *Less Than Significant Impact*. According to the Live Oak General Plan EIR, the site is within the Thermalito Afterbay Dam and Oroville Dam inundation zones (Live Oak 2010b, p. 4.5-16). While the project site is located within the dam inundation areas, the proposed project does not include any buildings that would be occupied. No employees would be based at the project site. The project will not expose people or structures to a significant risk of loss, injury, or death involving flooding.

j) *No Impact*. The project site is not located near an ocean or large body of water with potential for seiche or tsunami. The project site is on level ground and as such, the project area is not at risk of mudflows.

Mitigation Measures

None required.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.10 LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

SETTING

The most prevalent land use in Live Oak is single-family homes; however, when considering the entirety of the city, the dominant land use is agriculture, which occupies 2,800 acres (65 percent) of the city. The proposed project would be located on an existing vacant site or parking area that is designated and zoned for public facility uses.

DISCUSSION OF IMPACTS

a) *No Impact*. The project is located at the edge of the city and would not physically divide an established community.

b) *No Impact*. The project will not conflict with any applicable land use plans, policies, or regulations. Therefore, no impact would occur.

c) *No Impact.* The project will not conflict with any applicable habitat conservation plan or natural community conservation plan.

Mitigation Measures

None required.

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

SETTING

The State Mining and Geology Board has the responsibility to inventory and classify mineral resources and could, if appropriate, designate such mineral resources as having a statewide or regional significance. If such a designation occurs, the local agency (i.e., city or county) must adopt a management plan for such identified resources. Neither the State nor the City identifies the project site as a mineral resources site.

DISCUSSION OF IMPACTS

a) *No Impact*. The project does not involve the loss of an available known mineral resource that would be of value to the region.

b) *No Impact*. See Item 4.11(a). According to California Geological Survey (2007) maps, there are no locally important mineral resources in the project area.

Mitigation Measures

None required.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.12 NOISE. Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies?	☐	☒	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or a public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

SETTING

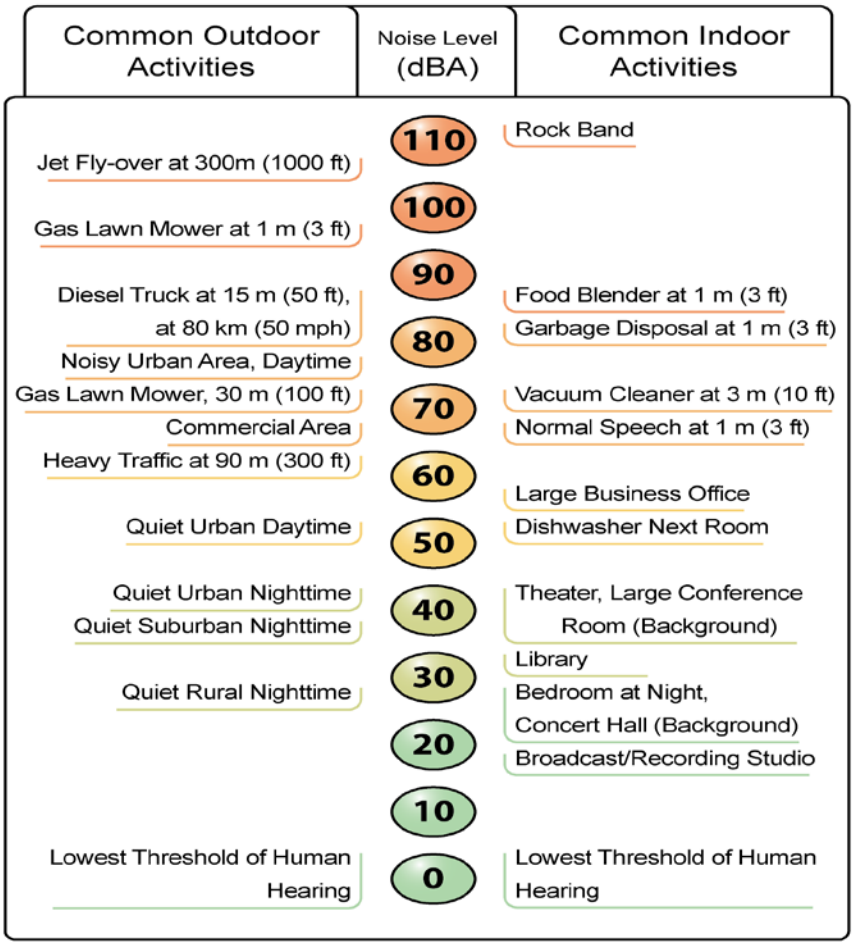
The existing noise sources on the project site are related to the operations of the WWTP facilities. The closest noise-sensitive receptors are the residential units located approximately 1,000 feet to the northeast of the site.

There is no completely satisfactory way to measure the subjective effects of noise or of the corresponding reactions of annoyance and dissatisfaction. An important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called "ambient" environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged. Regarding increases in A-weighted noise levels (dBA), the following relationships should be noted for understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dB cannot be perceived by humans.
- Outside of the laboratory, a 3 dB change is considered a just-perceivable difference.
- A change in level of at least 5 dB is required before any noticeable change in community response would be expected. An increase of 5 dB is typically considered substantial.
- A 10 dB change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Figure 4.12-1 illustrates the typical noise levels for a community.

FIGURE 4.12-1
TYPICAL COMMUNITY NOISE LEVELS



Source: Caltrans 2013, p. 20

Point source noise is usually associated with a source that remains in one place for extended periods of time, such as with most construction activities. A few examples of point sources of noise are pile drivers, jackhammers, rock drills, or excavators working in one location. The standard reduction for point source noise is 6 dB per doubling of distance from the source. **Table 4.12-1** shows examples of the reduction of noise levels based on the standard reduction for point source noise.

TABLE 4.12-1
EXAMPLE NOISE REDUCTION OVER DISTANCE

Noise Attenuation	
Distance from Source (feet)	**Point Source (-6dB)**
50	95 dBA
100	89 dBA
200	83 dBA
400	77 dBA
800	71 dBA
1,600	65 dBA

DISCUSSION OF IMPACTS

a) *Less Than Significant Impact With Mitigation Incorporated*. The project will generate temporary elevated noise levels during the construction phase; however, surrounding land uses are agricultural. Construction noise will likely consist of heavy equipment, air compressors, and delivery trucks. **Table 4.12-2** illustrates the noise levels for various types of construction equipment at 50 feet from the source.

TABLE 4.12-2
TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS

Equipment	Typical Noise Level (dBA Lmax) 50 Feet from Source
Auger Drill Rig	84
Air Compressor	78
Backhoe	78
Compactor	83
Concrete Mixer Truck	79
Concrete Pump Truck	81
Crane, Mobile	81
Drill Rig Truck	79
Dozer	82
Generator	81
Grader	89
Jackhammer	89
Loader	85
Pickup Truck	75
Paver	77
Pneumatic Tool	85
Roller	80
Tractor	84

Source: FHWA 2011, p. 9

Although construction noise is temporary in nature, it could pose a nuisance to nearby noise-sensitive receptors. Provisions in Chapter 9.30, Noise Regulation, of the Live Oak Municipal Code limit the majority of construction to between the hours of 7 a.m. and 10 p.m. for projects within 500 feet of a residential dwelling, which greatly reduces potential noise impacts. While there are no residential uses within 500 feet of the project site, implementation of mitigation measure **MM 4.12.1** would further ensure potential noise impacts would be reduced to a level considered less than significant.

b) *Less Than Significant Impact With Mitigation Incorporated*. During grading and construction, the project may generate limited groundborne vibration as a result of heavy equipment operations. Although this would be a temporary impact and would cease completely at the end of construction activities, implementation of mitigation measure **MM 4.12.1** would reduce groundborne vibration and noise impacts to a level considered less than significant.

c) *No Impact*. The operation of the solar arrays would not produce noise, as this is a fixed system and would not use any motors to adjust the panels as a solar tracking system would. Therefore, the project would have no impact regarding permanent ambient noise.

d) *Less Than Significant Impact*. See Item 4.12(a).

e) *No Impact*. The closest airport to the project site is Sutter County Airport, which is located more than 10 miles to the southeast. The project site is not located within an airport land use plan area.

f) *No Impact.* The closest private airport is the Bowles Airport, located approximately 1.7 miles to the southwest. However, this airport is of adequate distance from the project site that no people working in the project area would be exposed to excessive noise levels. As such, no impact would result.

Mitigation Measures

MM 4.12.1 The contractor shall verify that all equipment used for construction of the project includes the following noise reduction devices:

- All vehicles and engines shall be equipped with the appropriate manufacturer's noise reduction device(s), including but not limited to a manufacturer's muffler (or equivalently rated material) that is free of rust, holes, and exhaust leaks.
- All engine housing doors shall be kept closed and noise-insulating material shall be mounted on the engine housing to reduce noise, to the extent practical without interfering with the manufacturer's guidelines for engine operation or exhaust.
- Portable compressors, generators, pumps, and other such devices shall be covered with noise-insulating fabric to the extent practical without interfering with the manufacturer's guidelines for engine operation or exhaust. The contractor shall further reduce noise by operating such devices at lower engine speeds during work to the maximum extent possible.
- Construction equipment not actively being utilized shall be turned off.

- Vehicle idling on-site shall be limited to 5 minutes.
- Reduced-volume backup alarms shall be used for all construction vehicles when practicable.

Timing/Implementation: *During construction activities*

Enforcement/Monitoring: *City of Live Oak Building and Code Enforcement*

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.13 POPULATION AND HOUSING. Would the project:				
a) Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

SETTING

According to the California Department of Finance (DOF), as of January 1, 2015, the city had an estimated population of 8,546. As of January 2015, there were an estimated 2,605 housing units in the city with an average household size of 3.47 persons per household (DOF 2015).

DISCUSSION OF IMPACTS

a) *No Impact*. The proposed project does not include the construction of any new homes. Further, employment opportunities would be limited to a minimal construction crew and limited maintenance activities thereafter. As such, the proposed project is unlikely to result in a demand for new housing.

b) *No Impact*. The project would not displace any housing or persons.

c) *No Impact*. See Item 4.13(b).

Mitigation Measures

None required.

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

SETTING

Live Oak is served by the Live Oak Fire Department, which is operated by the Sutter County Fire Services under a contract with the City. Law enforcement services are provided by the Sutter County Sheriff's Department, which has a substation in Live Oak. The city is served by the Live Oak Unified School District.

DISCUSSION OF IMPACTS

a) *No Impact*. The proposed project will not result in the construction of any new residential units and would provide limited new employment opportunities. The project site is currently served by the Live Oak Fire Department. The project would not affect the provision of fire protection services, and no new or expanded facilities will be required.

b) *No Impact*. The proposed project will not result in the construction of any new residential units and would provide limited new employment opportunities. The project site is currently served by the Sutter County Sheriff's Department via a service contract to provide law enforcement to the city. The project would not affect the provision of police protection services, and no new or expanded facilities will be required.

c) *No Impact*. The proposed project will not result in the construction of any new residential units. Therefore, it would not affect school enrollment or generate a need for new facilities.

d) *No Impact*. The proposed project will not result in the construction of any new residential units and would provide limited new employment opportunities. Therefore, the use of existing parks and other recreational facilities will not be increased, and no new or expanded facilities will be required.

e) *No Impact*. The proposed project will not result in the construction of any new residential units and would provide limited new employment opportunities. Therefore, no new or expanded governmental services or facilities will be required.

Mitigation Measures

None required.

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

SETTING

There are five parks in Live Oak: Oak Tree Park, Date Street Park, Pennington Ranch Park, Live Oak Soccer Park, and Live Oak Memorial Park.

DISCUSSION OF IMPACTS

a) *No Impact*. The proposed project will not result in the construction of any new residential units and would provide limited new employment opportunities. Therefore, the use of existing parks and other recreational facilities will not be increased significantly, and no new or expanded facilities will be required.

b) *No Impact*. See Item 4.15(a). The project does not include recreational facilities, nor does it require the construction or expansion of recreational facilities.

Mitigation Measures

None required.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.16 TRANSPORTATION/TRAFFIC. Would the project:				
a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	☐	☐	☒	☐
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒

SETTING

According to the Live Oak 2030 General Plan, the Circulation Diagram is designed to provide acceptable traffic operations in the planning area with buildout of the General Plan. The project site is located at the existing WWTP site. The only access to the WWTP is via Treatment Plant Access Road. Other than adjacent agricultural fields, the WWTP is the only destination on this roadway. No other development would be accessed from Treatment Plant Access Road.

DISCUSSION OF IMPACTS

a) *Less Than Significant Impact*. Although the project will not result in any long-term modifications to traffic load, capacity, or travel routes in and around the city, there will be a temporary increase in construction-related traffic during the construction period. Construction-related traffic includes construction workers, delivery trucks, and heavy equipment. However, the addition of temporary construction-related traffic on the surrounding roadways will not significantly impact the roadways' current level of service.

Therefore, the proposed project will not cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system and will not result in a significant decrease in the existing level of service for the adjacent roadways.

b) *No Impact*. See Item 4.16(a). Because all project-related improvements will be located outside of area roadways, the project will not result in long-term impacts to level of service standards within or outside the city.

c) *No Impact.* The project site is more than 2 miles from any public airport. The closest public airport to the project site is Sutter County Airport, which is located more than 10 miles to

the southeast. The closest private airport is the Bowles Airport located approximately 1.7 miles from the project site. No project components would change air traffic patterns or result in substantial safety risks.

d) *No Impact*. The project would not result in increased hazards since all project components would be located outside of area roadways.

e) *No Impact.* The project would be located outside of area roadways and would have no impact on emergency access.

f) *No Impact*. The project will not conflict with any adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Therefore, no impacts would occur.

Mitigation Measures

None required.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4.17 UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e) Result in a determination by the wastewater treatment provider that 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?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

SETTING

WATER, WASTEWATER, AND STORM DRAINAGE

Water in Live Oak is currently supplied entirely from groundwater sources. The Live Oak groundwater wells are located in the Sacramento Valley Groundwater Basin, East Butte Subbasin. According to the California Department of Water Resources' publication California's Groundwater: Bulletin 118, as updated February 2005, the estimated storage capacity of the subbasin to a depth of 200 feet is approximately 3,128,959 acre-feet. It is estimated that groundwater extractions from the subbasin for agricultural, municipal, industrial, and environmental wetland uses total 180,000 acre-feet annually. The City of Live Oak uses approximately 1,496 acre-feet per year, or less than 1 percent of the total annual subbasin withdrawals, and approximately 0.04 percent of the basin's total estimated storage capacity.

Existing water, wastewater, and storm drainage facilities are adjacent to the project site and provide services for the WWTP. No additional water, wastewater, or stormwater facilities will be required to serve the proposed project.

SOLID WASTE

The City is part of the Yuba-Sutter Regional Waste Management Authority (YSRWMA). Solid waste management plays an important role in planning for growth in Sutter County and is conducted under a joint powers agreement (JPA) with Sutter County, Yuba County, the Cities of Live Oak, Yuba City, Marysville, and Wheatland, and the City of Gridley in Butte County (YSRWMA 2016).

According to the California Department of Resources Recycling and Recovery (CalRecycle), the YSRWMA sends all of the solid waste within the authority's jurisdiction to the Recology Ostrom Road Landfill. During 2014, residents and business disposed of 197,308 tons of solid waste (CalRecycle 2014). The Ostrom Road Landfill has an anticipated cease operations date of December 31, 2066 (CalRecycle 2016).

DISCUSSION OF IMPACTS

a) *No Impact*. The proposed project is the installation and operation of two solar arrays to supply electricity to the WWTP. These uses do not require sewer service. As a result, the project will have no impact on existing wastewater collection and treatment systems or exceed the wastewater treatment requirements of the Central Valley Regional Water Quality Control Board.

b) *No Impact*. The proposed project is the installation and operation of two solar arrays to supply electricity to the WWTP. The project would not require the expansion or construction of new water or wastewater facilities to serve the project.

c) *No Impact*. The proposed project will not include the construction of new stormwater drainage facilities or the expansion of existing facilities, nor would the project require the expansion of existing facilities to serve the project. Therefore, no impact would occur.

d) *Less Than Significant Impact*. The only water services needed for the proposed project would be the water used to clean the solar panels. The amount of cleaning depends on local conditions such as the amount of airborne dust and dirt, rainfall, and other conditions leading to debris accumulation on the modules. The modules will be mounted with a tilt that should provide cleaning of moderate dirt with rainfall. During periods of low rainfall or high dirt accumulation, additional manual cleaning may be required to maintain full electric generation potential. For this area assuming normal winter rainfall and summer agriculture, cleaning twice during the summer should be sufficient. As a result, the project will have a less than significant impact on existing water treatment and conveyance systems. The project will not require additional wastewater service in the future, as existing wastewater facilities are located on-site and no additional employees will be required to operate the project.

e) *No Impact*. See Item 4.17(a).

f) *Less Than Significant Impact*. Waste generated by the project would be negligible. Per the City's General Plan (2010a), Policy Public-14-5, the solid waste generated during construction and maintenance activities would be recycled or reused to aid in reducing the city's overall waste stream. The waste would be transported off-site and be disposed of at the Ostrom Road Landfill. Under existing state permits, this site may accept 3,000 tons of solid waste per day until the year 2066. The majority of solid waste produced from the project would occur during the construction phase. Once operational, the project would

produce no solid waste. The project's daily contribution to the landfill's capacity is considered inconsequential.

g) *No Impact*. The proposed project will comply with all state and federal statutes regarding solid waste.

Mitigation Measures

None required.

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

DISCUSSION OF IMPACTS

a) *Less Than Significant Impact With Mitigation Incorporated*. Subsection 4.4, Biological Resources, identifies a number of project-related potential impacts to wildlife species. All of these impacts would be reduced to a less than significant level with implementation of mitigation measures **MM 4.4.1** through **MM 4.4.13**. Additionally, mitigation measures **MM 4.5.1** and **MM 4.5.2** would reduce impacts to California history or prehistory to a less than significant level. Finally, with the implementation of mitigation measures proposed in the air quality and noise subsections of this Initial Study, all potential project impacts would be reduced to a level that is considered less than significant.

b) *No Impact*. The proposed project would not result in any cumulative impacts.

c) *Less Than Significant Impact With Mitigation Incorporated*. The proposed project would result in potentially significant impacts from air quality emissions and construction noise, which could adversely affect human beings. However, implementation of mitigation measures **MM 4.3.1** and **MM 4.12.1** would reduce all potential air quality and noise impacts to a less than significant level. The proposed project, as conditioned, would not cause substantial adverse effects on human beings.

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5.0 REFERENCES

5.1 DOCUMENTS REFERENCED IN INITIAL STUDY AND/OR INCORPORATED BY REFERENCE

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