Draft

LITTLE BEAR SOLAR PROJECT

Draft Environmental Impact Report

EIR No. 7225
CUP Nos. 3550, 3551, 3552, 3553, & 3577

Prepared for
County of Fresno Department of
Public Works and Planning

August 2018

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EXECUTIVE SUMMARY

ES.1 Introduction

The Little Bear Solar Project (Project) is proposed by Little Bear Solar 1 LLC, Little Bear Solar 3 LLC, Little Bear Solar 4 LLC, Little Bear Solar 5 LLC, and Little Bear Solar 6 LLC (collectively, Applicant). The Applicant has applied to the Fresno County Department of Public Works and Planning (the County) for five Unclassified Conditional Use Permits (CUP) [1] to construct, operate, maintain, and decommission five photovoltaic (PV) electricity generating facilities and associated infrastructure to be known as Little Bear Solar 1, 3, 4, 5, and 6. No Little Bear 2 facility is proposed. The Project would consist of five individual facilities (each, a Facility), ranging from approximately 161 to 322 acres, with a 60-foot monopole design telecommunications tower and associated equipment proposed at the Little Bear Solar 1 site. There would be one CUP per Facility: CUP Nos. 3550, 3551, 3552, 3553, and 3577 for Little Bears 1, 3, 4, 5, and 6, respectively. The five Facilities would generate a total of up to 180-megawatts alternating current (MWac)[2] on approximately 1,288 acres, presently owned by Westlands Water District (WWD), in unincorporated Fresno County adjacent to and south of the existing North Star Solar Project and would connect to the electrical grid at the existing Mendota Substation, which is owned and operated by Pacific Gas and Electric Company (PG&E) approximately 2 miles west of the Little Bear 1 site. The five Facilities are analyzed as a single "project" for purposes of the California Environmental Quality Act (CEQA).

This Draft Environmental Impact Report (EIR) (EIR No. 7225) has been prepared by Fresno County as the lead agency under CEQA. It provides information about the environmental setting, documents the County's analysis of the environmental impacts of the Project and alternatives, discloses areas of controversy and issues to be resolved, and provides information to meet the needs of other agencies that may be required for their consideration of the Project.

1 The Unclassified CUP process allows the County to consider, in its discretion, uses that would be essential or desirable, but that are not allowed as a matter of right within a zoning district. PV solar power generation facilities may be permitted in any zoning district with the issuance of a CUP.

2 PV panel capacity generally is measured in direct current (DC) watts; however, because the DC output from panels must be converted to alternating current (AC) before being distributed on the electric grid, this EIR reports expected capacity in terms of AC watts. Although preliminary estimates indicate that 180 MWac would be the expected nominal generating capacity of the Project, the actual generating capacity would depend on the efficiency of the PV panels available at the time of construction and the layout and tracking technology approved.

ES.2 Project Summary

ES.2.1 Project Site

The Project site is located in the San Joaquin Valley, approximately 13 miles east of Interstate 5 (I-5), approximately 2.5 miles southwest of the City of Mendota, and adjacent to and west of State Route 33 (SR-33), in unincorporated Fresno County. The site consists of five parcels (APNs 019-110-03ST; 019-110-04ST; 019-110-05ST; 019-110-06ST; 019-110-13ST) located within Sections 13 and 14 of Township 14 South and Range 14 East. The site is bounded by West California Avenue to the north, SR-33 to the east, West Jensen Avenue to the south, and San Bernardino Avenue to the west, and is bisected by two dirt roads: West Adams Avenue, which runs east-west, and South Ohio Avenue, which runs north-south. West California Avenue and SR-33 both are paved two-lane roads.

The Westlands Water District presently owns the proposed site, which is zoned AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) and which has intermittently been dry-farmed for grain or forage crops (such as sorghums, wheat, and barley) or has lain fallow in recent years. Irrigation is not allowed on any of the land within the Project site as a result of a non-irrigation covenant executed by Westlands Water District on December 21, 2006. Surrounding land uses consist primarily of:

- To the east, south, and west of the Project site: agricultural production (including field crops as well as pomegranate and other orchards), a few scattered rural farm residences (the nearest of which is approximately 0.75 mile west of Little Bear 1), and,
- To the north of the Project site: solar energy and transmission-related uses associated with the North Star Solar Project (adjacent to Little Bear 1) and the Federal Correctional Institution, Mendota (FCI Mendota) (approximately 0.5-mile north of Little Bear 6).

ES.2.2 Project Components

The Project consists of two major components: the Solar Facility and the generation tie-line (gen-tie line). The Solar Facility would consist of up to five individual Facilities with arrays of solar PV modules (or panels) and support structures. The approximate generating capacity of each Facility would range between 20 MWac and 50 MWac. Each Facility would include a substation, inverters, transformers, and a 34.5 kilovolt (kV) overhead collection system, and could include an energy storage system (ESS). Other necessary infrastructure would include a permanent operation and maintenance (O&M) building, water storage, meteorological data system, access roads, telecommunications infrastructure, and security fencing.

Little Bear 1 would require the installation of a new 115 kV interconnection to the North Star Solar Project's existing substation, which is located on the northeast corner of San Bernardino Avenue and California Avenue. Interconnection of Little Bears 3, 4, 5, and 6 would require the installation of a new, approximately 2-mile 115 kV gen-tie line across the Project site. The new gen-tie line would tie in to the existing North Star gen-tie line at the southwest corner of San Bernardino Avenue and California Avenue to complete the interconnection to PG&E's existing Mendota

Substation. The Project would operate year-round to generate electricity during daylight hours when electricity demand is typically at its peak.

If approved, the Project would be implemented in three phases. The first phase, Demolition and Construction, would require up to 14 months and up to 750 on-site personnel to complete. The second phase, Operation and Maintenance, is assumed for purposes of this Draft EIR to be coterminous with the CUP period (30 years) although there is the potential for continued use in accordance with County permitting requirements. There would be full-time personnel consisting of plant operators, maintenance technicians, and security personnel during the Operation and Maintenance phase. On a typical day, the number of staff on site may range from none (it is not necessary for staff to be present during plant operations) up to 20 during periodic, routine maintenance events. Non-routine (emergency) maintenance could require additional workers. The final phase, Decommissioning and Site Reclamation, would begin within 6 months after the conclusion of each Facility-specific CUP period (including any extension that may be granted by the County). Each Facility site would be returned to a stable condition comparable to pre-Project conditions in accordance with applicable land use regulations in effect at that time via the implementation of a County-approved Closure, Decommissioning, and Reclamation Plan.

ES.3 Purpose and Use of the Draft EIR

This Draft EIR is an informational document intended to disclose to the public and decision-makers the potential environmental impacts of the Project. This document assesses the direct, indirect, and cumulative environmental impacts that could occur as a result of the Project. The analysis in this document is based upon information submitted to the lead agency, Fresno County, as part of the Applicants' CUP applications to the County Department of Public Works and Planning, as well as from Project-specific and site-specific technical studies and research conducted by the EIR preparers.

This Draft EIR examines the potential impacts of the Project and alternatives to the Project. All of the resource areas in the CEQA Guidelines Appendix G Checklist were studied: Aesthetics, Agriculture and Forest Resources, Air Quality, Biological Resources, Cultural and Paleontological Resources, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Noise, Population and Housing, Public Services, Recreation, Transportation and Traffic, Tribal Cultural Resources, and Utilities and Service Systems. Energy Conservation, addressed in CEQA Guidelines Appendix F, also is examined.

The County will rely on this EIR, along with other information in the formal record, in deciding whether to approve, approve with modifications, or disapprove the CUP applications. Other agencies with trustee responsibilities or permitting authority over the Project also may rely on this document in deciding whether to approve permits or issue other approvals for the Project.

ES.4 Project Objectives

The Applicant's primary objective for the Project is "to generate renewable solar electricity from proven technology, at a competitive cost, with low environmental impact, and deliver it to market as soon as possible" (Little Bear Solar Project 2017). The Applicant also has identified the following specific objectives:

- Construct a project capable of generating approximately 180 MWac of electricity in order to assist the State of California in achieving the Renewables Portfolio Standards (RPS)[3] and Senate Bill (SB) 350[4] greenhouse gas (GHG) reduction goals by providing a significant new source of solar energy.
- Produce, store, and transmit electricity at a competitive cost.
- Site the generating facility in a rural portion of western Fresno County in proximity to an available connection to the existing electrical distribution system.
- Benefit local communities through the creation of jobs, demand for local goods and services, and increased sales and use tax revenue.

In addition, the Applicant has identified an objective to minimize environmental impacts by:

- Utilizing land that is disturbed or previously degraded;
- Using existing electrical distribution and transmission facilities, right-of-way, roads, and other existing infrastructure where practicable;
- Minimizing water use in construction and operations;
- Reducing greenhouse gas emissions; and
- Using a technology that is available, proven, efficient, easily maintained, recyclable, and environmentally sound.

ES.5 Environmental Impacts

Sections 3.2 through 3.20 in Chapter 3, *Environmental Analysis,* provide a detailed discussion of the setting; direct, indirect, and cumulative impacts of the Project and alternatives; and mitigation measures designed to reduce potential significant impacts below established thresholds. Potential impacts to all of the resource areas identified in CEQA Guidelines Appendices F and G have been evaluated.

3 California's original RPS legislation was enacted in 2002. As a result of subsequent amendments to the law, California's electric utilities must derive 50 percent of their retail sales from eligible renewable energy resources in 2030 and all subsequent years. Interim targets include: 33 percent of retail sales by December 31, 2020; 40 percent of retail sales by December 31, 2024; and 45 percent of retail sales by December 31, 2027.

4 In October 2015, Governor Brown signed Senate Bill 350, which requires retail sellers and publicly owned utilities to procure 50 percent of their electricity from eligible renewable energy resources by 2030 (CEC 2017).

ES.5.1 No Impact

The Project would have no impact to any of the following resource considerations:

- Land Use and Planning
- Mineral Resources
- Public Services
- Recreation

ES.5.2 Less than Significant Impacts

The Project would have a less-than-significant impact, or a less-than-significant impact with the implementation of recommended mitigation measures, regarding the following resource considerations:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy Conservation
- Geology, Soils, and Paleontological Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise and Acoustics
- Population and Housing
- Transportation and Traffic
- Tribal Cultural Resources
- Utilities and Service Systems

ES.5.3 Significant and Unavoidable Impacts

Section 15126.2(b) of the CEQA Guidelines requires that the EIR describe any significant impacts, including those that can be mitigated but not reduced to less-than-significant levels. The Project would have no significant and unavoidable impacts.

ES.5.4 Irreversible Impacts

Section 15126.2(c) of the CEQA Guidelines defines an irreversible impact as an impact that uses nonrenewable resources during the initial and continuing phases of the project. Irreversible

impacts also can result from damage caused by environmental accidents associated with a project. Irretrievable commitments of resources are evaluated to ensure that such consumption is justified.

Buildout of the Project would commit nonrenewable resources during project construction and ongoing utility services during Project operations. During operations, some oil, gas, and other fossil fuels and nonrenewable resources would be consumed and irreversible commitments of small quantities of nonrenewable resources would occur as a result of long-term project operations. However, once operational the Project would result in a substantial net benefit with respect to nonrenewable resources as a result of the amount of renewable energy that would be generated.

ES.6 Alternatives to the Project

CEQA requires a lead agency to analyze a reasonable range of alternatives to the Project that could feasibly attain the basic objectives of the project while substantially reducing or eliminating significant environmental effects. CEQA also requires an EIR to evaluate a "no project" alternative to allow decision-makers to compare impacts of approving a project with the impacts of not approving it. The alternatives development process, alternatives eliminated from further consideration, and alternatives considered in the EIR are described in greater detail in Chapter 2, *Description of Project and Alternatives*.

ES.6.1 Alternatives Eliminated from Further Consideration

Alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid or substantially reduce any significant environmental effects (CEQA Guidelines §15126.6[c]). Alternatives that are remote or speculative, or the effects of which cannot be reasonably predicted, also do not need to be considered (CEQA Guidelines §15126[f][2]). The following potential alternatives were eliminated from further consideration in the EIR because they failed to meet most of the Project objectives, were infeasible, or did not avoid or substantially reduce any significant environmental effects:

- **No Groundwater:** Water to supply the Project would come from exclusively non-groundwater sources.
- **Alternative locations:** Alternative locations considered included: i) other potential candidate sites; ii) degraded agricultural lands, and iii) impaired or underutilized lands.
- **Alternative solar technology:** The alternative technology considered was concentrated solar.
- **Alternative Approaches:** Alternative approaches included: i) conservation and demand side management, and ii) other distributed energy resources.

ES.6.2 Alternatives Considered in the EIR

The reasonable range of alternatives analyzed in this Draft EIR is summarized below. Two alternatives to the Project were considered. The Increased Habitat/Reduced Acreage Alternative described in Section 2.6.3.1 was selected through the alternative screening process described in greater detail in Section 2.6.1, *Alternatives Development and Screening Process.* The No Project Alternative also is included as CEQA requires: it is described in Section 2.6.3.2.

Increased Habitat/Reduced Acreage Alternative

Under this Alternative, Little Bear 6 would not be constructed. No solar project-related equipment or infrastructure would be installed on the approximately 161 acres of APN 019-110-13ST located on the south side of West California Avenue between South Ohio Avenue and State Route 33 that are designated for Little Bear 6 in Section 2.5, *Description of the Project*. The on-site 115 kV gen-tie line proposed to interconnect Little Bear 6 would not be constructed; no solar panels, substation, energy storage system, detention pond, or meteorological stations would be constructed in that area; and perimeter chain link fencing would not enclose that quarter section. Land within the Little Bear 6 site would continue to be used as fallowed farm land, and occasionally dry-farmed. Existing foraging, denning, and other habitat value would be maintained on the approximately 161 acres. A large stick nest has been observed on top of the utility pole in the SR-33 right-of-way adjacent to the Little Bear 6 site, approximately 435 feet south of West California Avenue. Although it is believed to have been a common raven's nest in 2016, an adult red-tailed hawk was observed sitting in the nest during the April 2017 survey. Direct impacts to the nest would be avoided by the Increased Habitat Alternative, and the potential for indirect impacts would be reduced commensurate with the greater distance between it and Project-related activities on the sites of Little Bear 3 and Little Bear 5 (LSA 2017). The Project otherwise would be as described in Section 2.5, *Description of the Project*. Compared to the Project, the Increased Habitat/Reduced Acreage Alternative would entail less surface disturbance, less construction dust, reduced construction and decommissioning emissions, and reduced demand for water. The boundaries of the Increased Habitat/Reduced Acreage Alternative reflect the smallest reasonable, potentially feasible extent of solar development, and greatest retention of existing habitat conditions, within the Project site because, if approved, Little Bears 1, 3, 4, and 5 already are subject to contractual obligations to provide power via a Power Purchase Agreement (PPA); no such agreement obligates the Applicant to provide power from Little Bear 6 (First Solar 2016, 2018).

This alternative would meet the basic Project objectives, would avoid or substantially lessen potential significant impacts of the Project, and would meet all feasibility criteria.

No Project Alternative

CEQA Guidelines Section 15126.6(e) requires consideration of a No Project Alternative. This analysis discusses the existing conditions at the time the NOP was published, as well as what reasonably would be expected to occur in the foreseeable future if the Project were not approved, based on current plans and consistent with available infrastructure and community services.

Under the No Project Alternative, the Project site would continue to be used for dry-farmed agriculture and/or left fallow. The Project site is designated "Agriculture" as shown on Fresno County General Plan Countywide Land Use Diagram Figure LU-1a (Fresno County 2000) and is zoned AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) (Fresno County 2017). If the Project were not approved, then other uses consistent with the AE-20 zoning designation could be made on one or more of the parcels that comprise the Project site (Fresno County 2011). Pursuant to Fresno County Ordinance Code Section 816, uses (among others) that are allowed by right without a permit relate to livestock, poultry, and crops; home occupations; agricultural products; apiaries; kennels; and welding and blacksmith shops. No such competing proposals for site use

are before the County. Accordingly, rather than speculate as to possible other uses, the analysis of the No Project Alternative in this Draft EIR assumes a no-development/no Project scenario where the existing agricultural use is continued as it exists under pre-Project conditions.

Under a no-development scenario, the property would continue in agricultural use and the existing environmental setting would be maintained. Changes to that setting, including changes to the landscape (visual resources, habitat, and land use/agriculture); Project-related construction noise, traffic, and air emissions would not occur; and environmental benefits relating to renewable energy would not be realized from solar development of the site. The existing shed and silos would remain in place.

As a no-development alternative, the No Project Alternative would avoid all Project-related impacts. It would cause no new impacts on the physical environment; i.e., existing land uses would continue to affect environmental conditions as they are now. No legal, regulatory, or technical feasibility issues were identified that would eliminate the No Project Alternative from consideration. However, the No Project Alternative would not meet any of the Project objectives.

Comparison of Alternative

Table ES-1 summarizes impacts of the Project and Increased Habitat/Reduced Acreage Alternative.

TABLE ES-1
SUMMARY OF IMPACTS OF THE PROJECT AND INCREASED HABITAT/REDUCED ACREAGE ALTERNATIVE

Resource Area	Project	Increased Habitat/Reduced Acreage Alternative
Aesthetics	Significant and Unavoidable Impacts. **No Preference**	Impacts would be similar but reduced compared to the Project; this would generally not affect significance determinations, which would remain the same as for the Project. **No Preference**
Agriculture and Forestry Resources	Impacts determined to be Less than Significant. **No Preference**	Impacts would be the same as the Project. **No Preference**
Air Quality	Impacts determined to be Less than Significant with Mitigation Incorporated. **No Preference**	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **No Preference**
Biological Resources	Impacts determined to be Less than Significant with Mitigation Incorporated. **No Preference**	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **No Preference**
Cultural Resources	Impacts determined to be Less than Significant with Mitigation Incorporated. **No Preference**	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **No Preference**

TABLE ES-1 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROJECT AND INCREASED HABITAT/REDUCED ACREAGE ALTERNATIVE

Resource Area	Project	Increased Habitat/Reduced Acreage Alternative
Energy Conservation	Impacts determined to be Less than Significant; beneficial contribution resulting from generation of renewable energy. **Environmentally Preferred**	Impacts (including beneficial contribution to energy supply) would be similar to the Project but reduced. **No Preference**
Geology, Soils, and Paleontological Resources	Impacts determined to be Less than Significant with Mitigation Incorporated. **No Preference**	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **No Preference**
Greenhouse Gas Emissions	Impacts determined to be Less than Significant; overall beneficial impact from net GHG reduction. **Environmentally Preferred**	Impacts would be the same as the Project, overall beneficial impact from net GHG reduction would be reduced in comparison to the Project. **No Preference**
Hazards and Hazardous Materials	Impacts determined to be Less than Significant with Mitigation Incorporated. **No Preference**	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **No Preference**
Hydrology and Water Quality	Impacts determined to be Less than Significant. **No Preference**	Impacts to groundwater supplies would be reduced compared to the Project. Other impacts would be similar but reduced compared to the Project this would not affect significance determinations, which would remain the same as for the Project. **Environmentally Preferred**
Land Use and Planning	No Impacts. **No Preference**	No Impacts. **No Preference**
Mineral Resources	No Impacts. **No Preference**	No Impacts. **No Preference**
Noise	Impacts determined to be Less than Significant with Mitigation Incorporated. **No Preference**	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **No Preference**
Population and Housing	Impacts determined to be Less than Significant. **No Preference**	Impacts would be the same as the Project. **No Preference**
Public Services	No Impacts. **No Preference**	No Impacts. **No Preference**
Recreation	No Impacts. **No Preference**	No Impacts. **No Preference**
Transportation and Traffic	Impacts determined to be Less than Significant with Mitigation Incorporated. **No Preference**	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **No Preference**

TABLE ES-1 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROJECT AND INCREASED HABITAT/REDUCED ACREAGE ALTERNATIVE

Resource Area	Project	Increased Habitat/Reduced Acreage Alternative
Tribal Cultural Resources	Impacts determined to be Less than Significant with Mitigation Incorporated. **No Preference**	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **No Preference**
Utilities and Service Systems	Impacts determined to be Less than Significant. **No Preference**	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **No Preference**

ES.7 Environmentally Superior Alternative

An EIR must identify the environmentally superior alternative to the Project. CEQA Guidelines Section 15126.6(e)(2) states that if the No Project Alternative is found to be environmentally superior, then "the EIR shall also identify an environmentally superior alternative among the other alternatives."

The No Project Alternative would avoid all impacts of the Project and would not create any new significant impacts of its own. However, the No Project Alternative would not offset greenhouse gas (GHG) emissions associated with fossil fuel electricity generation. The CEQA Guidelines define the environmentally superior alternative as that alternative with the least adverse impacts to the project area and its surrounding environment; therefore, the No Project Alternative is considered the environmentally superior alternative for CEQA purposes because it would not create any of the localized impacts of the Project, even though it would have a less beneficial impact than that of the Project on GHG emissions. The No Project Alternative would fail to meet any the basic objectives of the Project, including, but not limited to, the generation of renewable solar electricity from proven technology, construction of a project that would assist the State in achieving RPS and SB 350 GHG reduction goals, and benefitting local communities through the creation of jobs, demand for local goods and services and increased sales and use tax revenue.

Determining an environmentally superior alternative can be difficult because of the many factors that must be balanced. For example, as shown in Table ES-1, the Increased Habitat/Reduced Acreage Alternative could be preferred because, relative to the Project, it would require less groundwater and so would have comparatively reduced groundwater supply impacts, and because incrementally reduced impacts would result from the 161 fewer acres of disturbance even though the impact conclusions would be the same as the Project. In turn and also as shown in Table ES-1, the Project could be preferred because it would generate more renewable energy and result in a net GHG emissions reduction benefit relative to the Increased Habitat/Reduced Acreage Alternative. All other impacts of the Project and alternatives would be similar for all environmental resources. The County preliminarily has identified the Project as the environmentally superior alternative because the beneficial effects associated with the greater

amount of renewable energy it would produce would be experienced long-term. Nonetheless, County decision-makers may weigh the relative benefits of the alternatives differently and with additional information received in or developed during the project approval process reasonably could reach a different decision.

ES.8 Areas of Controversy

Areas of controversy were identified through written agency and public comments received during the scoping period; all comments received during the scoping period are provided in Appendix A, *Scoping Report*. Scoping comments received after the close of the scoping period are not included in Appendix A but as noted in Chapter 3, *Environmental Analysis*, have been considered in drafting the EIR. Issues identified as potential areas of controversy prior to the publication of this Draft EIR relate to Agricultural Resources, Air Quality, Biological Resources, Tribal Cultural Resources, and Water Supply.

ES.9 Issues to be Resolved

Section 15123(b)(3) of the CEQA Guidelines requires that an EIR contain issues to be resolved, which include the choice among alternatives and whether or how to mitigate significant impacts. The following major issues are to be resolved:

- Determine whether the EIR adequately describes the environmental impacts of the Project;
- Choose among alternatives;
- Determine whether or not the recommended mitigation measures should be adopted or modified; and
- Determine whether or not additional mitigation measures need to be applied to the Project.

ES.10 Summary of Impacts and Mitigation

Table ES-2 summarizes the environmental impacts of the Project and recommended mitigation measures that, if adopted, would avoid or substantially reduce potential significant impacts of the Project. The analysis of each impact is provided on a resource-by-resource basis in Chapter 3.

TABLE ES-2
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact 3.2-1: The Project would degrade, but not substantially degrade, the existing visual character or quality of public views of the site and its surroundings	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.2-2: The Project would create a new source of glare that could adversely affect daytime views in the area.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.2-3: The Project would contribute to a less-than-significant cumulative impact related to degradation of the existing visual character or quality of public views of the site and its surroundings.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.3-1: The Project would not cause a detrimental impact on the use or management of property in active agricultural use within 0.25 mile (approximately 1,320 feet) of Little Bear 1 or Little Bear 4, including the pomegranate orchard west of San Bernardino Avenue, as a result of a "photovoltaic heat island effect."	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.3-2: The Project would not cause a detrimental impact on the use or management of property in active agricultural use within 0.25 mile (approximately 1,320 feet) of Little Bear 1 or Little Bear 4, including the pomegranate orchard west of San Bernardino Avenue, as a result of substantial glare.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.4-1: Criteria pollutant emissions during Project construction and decommissioning could conflict with the SJVAPCD's air quality plan.	Less than Significant.	No mitigation is required.	Less than Significant.

TABLE ES-2 (CONTINUED)
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact 3.4-2: The Project could exceed SJVAPCD thresholds for criteria air pollutants during Project decommissioning activities.	Significant.	**Mitigation Measure 3.4-2: Voluntary Emission Reduction Agreement for NO_x During Decommissioning** Prior to issuance of county permits for decommissioning activities, the Project Applicant shall provide to the County either: a. A fully-executed Voluntary Emission Reduction Agreement (VERA) with the San Joaquin Valley Air Pollution Control District (SJVAPCD) to fully mitigate Project decommissioning emissions from NO_x; or b. An analysis prepared by an air quality specialist demonstrating that the emissions of NO_x associated with decommissioning would be less than 10 tons per year.	Less than Significant.
Impact 3.4-3: The Project could expose sensitive receptors to substantial pollutant concentrations during construction and decommissioning, including NO_2.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.4-4: The Project could generate odor or dust emissions during Project construction and decommissioning.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.4-5: Project construction and decommissioning activities potentially could expose sensitive receptors to risk of Valley Fever.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.5-1: The Project could have a substantial adverse direct or indirect impact on special-status species.	Significant.	**Mitigation Measure 3.5-1: Preconstruction surveys** ***San Joaquin kit fox:*** Preconstruction surveys shall be conducted by a qualified biologist for the presence of San Joaquin kit fox dens within 14 days prior to commencement of construction activities. The surveys shall be conducted in areas of suitable habitat for San Joaquin kit fox (areas that have been plowed within 12 months prior to the start of ground-disturbing activities are not considered suitable). Surveys need not be conducted for all areas of suitable habitat at one time; they may be phased so that surveys occur within 14 days prior to that portion of the site is disturbed. If no potential San Joaquin kit fox dens are present, no further mitigation is required under this measure. If potential dens are observed and avoidance is determined to be feasible (as defined in CEQA Guidelines §15364 consistent with the USFWS [1999] *Standardized Recommendations for Protection of the San Joaquin Kit Fox*) by a qualified biologist in consultation with the Project Owner and the County, buffer distances shall be established prior to construction activities. If avoidance of the potential dens is not feasible, the following measures are required to avoid potential adverse effects to the San Joaquin kit fox:	Less than Significant.

TABLE ES-2 (CONTINUED)
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact 3.5-1 (cont.)		• If the qualified biologist determines that potential dens are inactive, the biologist shall excavate these dens by hand with a shovel to prevent badgers or foxes from re-using them during construction. • If the qualified biologist determines that a potential non-natal den may be active, an on-site passive relocation program shall be implemented with prior concurrence from the USFWS. This program shall consist of excluding San Joaquin kit foxes from occupied burrows by installation of one-way doors at burrow entrances, monitoring of the burrow for one week to confirm usage has been discontinued, and excavation and collapse of the burrow to prevent reoccupation. After the qualified biologist determines that the San Joaquin kit foxes have stopped using active dens within the Project boundary, the dens shall be hand-excavated as stated above for inactive dens. ***Burrowing owl:*** Prior to the initiation of equipment staging or ground-disturbing activities, biological surveys shall be performed within 14 days Given the large size of the construction site, multiple or ongoing burrowing owl surveys may be required. To protect burrowing owls, the following conditions shall be met prior to construction within each successive work area: • A qualified wildlife biologist (i.e., a wildlife biologist with previous burrowing owl survey experience) shall conduct pre-construction surveys on the site and immediate vicinity only in areas of the site with suitable burrowing habitat to locate any active breeding or wintering burrowing owl burrows no fewer than 14 days prior to ground-disturbing activities (e.g., vegetation clearance, grading, tilling). Areas that have been plowed within 12 months prior to the start of ground-disturbing activities are not considered suitable habitat. The survey methodology shall be consistent with the methods outlined in the CDFW (2012) *Staff Report on Burrowing Owl Mitigation* and shall consist of walking parallel transects 23 to 66 feet (7 to 20 meters) apart, noting any potential burrows with fresh burrowing owl sign or presence of burrowing owls. Copies of the survey results shall be submitted to CDFW and the Fresno County Public Works and Planning Department. The surveys may be conducted concurrently with San Joaquin kit fox surveys. • If active burrowing owl burrows are detected on-site, no ground-disturbing activities, such as vegetation clearance or grading, shall be permitted within a buffer of 330 feet from an active burrow during the breeding season (February 1 to August 31), unless otherwise authorized by a qualified biologist as described below. During the non-breeding (winter) season (September 1 to January 31), no ground-disturbing work shall be permitted within a buffer of 165 feet from the burrow. Depending on the level of disturbance, a smaller buffer may be established by a qualified biologist based on the visibility and sensitivity responses of each individual burrowing owls or pairs.	

TABLE ES-2 (CONTINUED)
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact 3.5-1 (cont.)		• If burrow avoidance is infeasible during the non-breeding season or during the breeding season where resident owls have not yet begun egg laying or incubation or where the juveniles are foraging independently and capable of independent survival, a qualified biologist shall implement a passive relocation program in accordance with the CDFW (2012) *Staff Report on Burrowing Owl Mitigation*. • If passive relocation is anticipated due to on-site burrowing owl populations, a qualified biologist shall prepare a Burrowing Owl Exclusion Plan in accordance with CDFW (2012) *Staff Report on Burrowing Owl Mitigation* and for review by CDFW prior to passive relocation activities. **Mitigation Measure 3.5-2: General Measures for the Avoidance and Protection of Biological Resources** During construction, operation and maintenance, and decommissioning of the facility, the operator and/or contractor shall implement the following general avoidance and protective measures to protect San Joaquin kit fox and other special-status wildlife species: • The operator shall limit the areas of disturbance. Parking areas, new roads, staging, storage, excavation, and disposal site locations shall be confined to the smallest areas possible. All proposed impact areas, including solar fields, staging areas, access routes, and disposal or temporary placement of spoils, shall be delineated with stakes and/or flagging prior to construction to avoid special-status species where possible. Construction-related activities, vehicles and equipment outside of the impact zone shall be avoided. • These areas shall be flagged and disturbance activities, vehicles, and equipment shall be confined to these flagged areas. • Spoils shall be stockpiled in disturbed areas that lack native vegetation. Best Management Practices (BMPs) shall be employed to prevent erosion in accordance with the Project's approved Stormwater Pollution Prevention Plan (SWPPP). All detected erosion shall be remedied within two (2) days of discovery or as described in the SWPPP. • To prevent inadvertent entrapment of wildlife during construction, all excavated, steep-walled holes or trenches with a 2-foot or greater depth shall be covered with plywood or similar materials at the close of each working day, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected by the approved biological monitor for trapped animals. If trapped animals are observed, escape ramps or structures shall be installed immediately to allow escape. If a listed species is trapped, the USFWS and/or CDFW shall be contacted immediately.	

TABLE ES-2 (CONTINUED)
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact 3.5-1 (cont.)		• All construction pipes, culverts, or similar structures with a 4-inch or greater diameter that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for special-status wildlife or nesting birds before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If an animal is discovered inside a pipe, that section of pipe shall not be moved until the Lead Biologist has been consulted and the animal has either moved from the structure on its own accord or until the animal has been captured and relocated by the Lead Biologist. • Vehicles and equipment parked on the sites shall have the ground beneath the vehicle or equipment inspected for the presence of wildlife prior to moving. • Vehicular traffic shall use existing routes of travel. Cross-country vehicle and equipment use outside of the Project properties shall be prohibited. • A speed limit of 20 miles per hour shall be enforced within all construction areas. • A long-term trash abatement program shall be established for construction, operations, and decommissioning and submitted to the County. Trash and food items shall be contained in closed containers and removed daily to reduce the attractiveness to wildlife such as common raven (*Corvus corax*), coyote (*Canis latrans*), and feral dogs. • Workers shall be prohibited from bringing pets and firearms to the Project site and from feeding wildlife in the vicinity. • Intentional killing or collection of any wildlife species shall be prohibited. **Mitigation Measure 3.5-3: Nesting Birds and Bats** If construction is scheduled to commence during the non-nesting season (September 1 to January 31), no preconstruction surveys or additional measures are required for nesting birds, including raptors. To avoid impacts to nesting birds in the Project site and immediate vicinity, a qualified wildlife biologist shall conduct preconstruction surveys of all potential nesting habitat within the Project sites for ground-disturbing activities that are initiated during the breeding season (February 1 to August 31). The survey for special-status raptors shall focus on potential nest sites (e.g., mature trees) within a 0.5-mile buffer around the site in areas where access to neighboring properties is available or visible using a spotting scope. Surveys shall be conducted no more than 14 days prior to construction activities. Surveys need not be conducted for the entire Project site at one time; they may be phased so that surveys occur shortly before a portion of the Project site is disturbed. The surveying biologist must be qualified to determine the status and stage of nesting by migratory birds and all locally breeding raptor species without causing intrusive disturbance. If active nests are found, a suitable buffer (e.g., 300 feet for common raptors; 0.5-mile for Swainson's hawk; 100 feet for passerines) shall be established around active nests and no construction within the buffer allowed until a qualified biologist has determined that the nest is no longer active (e.g., the nestlings have fledged and are no longer reliant on the nest). Encroachment into the buffer may occur at the discretion of a qualified biologist except that encroachment into the buffer for Swainson's hawk must be authorized by the CDFW.	

TABLE ES-2 (CONTINUED)
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact 3.5-1 (cont.)		The Project site may provide suitable roosting habitat for bats within buildings, and provides nighttime foraging habitat. If bats are found on the Project site, roosts shall be protected during the breeding season (March 1 through September 30) with at least a 200-foot no-disturbance buffer. Outside the breeding season, once a qualified biologist has determined the bats have left to forage, reentry into the structures shall be blocked and alternative bat roosting habitat shall be provided onsite or in the vicinity, prior to the structures being removed.	
Impact 3.5-2: The Project could have a substantial adverse effect on state or federally protected wetlands.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.5-3: Construction could interfere substantially with established native resident or migratory wildlife corridors.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.5-4: Construction could conflict with local policies or ordinances protecting biological resources.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.6-1: Ground disturbing activities associated with the Project could cause a substantial adverse change to previously unknown archaeological resources, pursuant to CEQA Guidelines §15064.5.	Significant.	**Mitigation Measure 3.6-1: Implementation of Accidental Discovery Procedures** In the event that unanticipated archaeological resources are encountered during Project activities, compliance with federal and State regulations and guidelines regarding the treatment of cultural resources and/or human remains shall be required, along with implementation of the following mitigation. i. If prehistoric or historic-period archaeological resources are encountered during project implementation, all construction activities within 100 feet shall halt and the County shall be notified. 1) A qualified archaeologist, defined as one meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology, shall inspect the findings and report the results of the inspection to the developer and the County. 2) In the event that the identified archaeological resource is determined to be prehistoric, the County and qualified archaeologist will coordinate with and solicit input from the appropriate Native American Tribal Representatives, as determined by consultation with the Native American Heritage Commission (NAHC), regarding significance and treatment of the resource as a tribal cultural resource. Any tribal cultural resources discovered during project work shall be treated in consultation with the tribe, with the goal of preserving in place with proper treatment.	Less than Significant.

TABLE ES-2 (CONTINUED)
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact 3.6-1 (cont.)		3) If the County determines that the resource qualifies as a historical resource or a unique archaeological resource (as defined pursuant to the CEQA Guidelines) and that the project has potential to damage or destroy the resource, mitigation shall be implemented in accordance with Public Resources Code Section 21083.2 and CEQA Guidelines Section 15126.4. Consistent with CEQA Guidelines Section 15126.4(b)(3), mitigation shall be accomplished through either preservation in place or, if preservation in place is not feasible, data recovery through excavation conducted by a qualified archaeologist implementing a detailed archaeological treatment plan.	
Impact 3.6-2: Ground disturbing activities associated with the Project could result in damage to previously unidentified human remains.	Significant.	**Implement Mitigation Measure 3.6-1, and** **Mitigation Measure 3.6-2: Accidental Discovery of Human Remains** If human remains are uncovered during Project activities, the Project owner shall immediately halt work, contact the Fresno County Coroner to evaluate the remains, and follow the procedures and protocols set forth in CEQA Guidelines Section 15064.4 (e)(1). If the County Coroner determines that the remains are Native American in origin, the Native American Heritage Commission (NAHC) will be notified, in accordance with Health and Safety Code Section 7050.5(c), and Public Resources Code Section 5097.98 (as amended by AB 2641). The NAHC shall designate a Most Likely Descendent (MLD) for the remains per Public Resources Code Section 5097.98, and the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in Public Resources Code Section 5097.98 with the MLD regarding their recommendations for the disposition of the remains, taking into account the possibility of multiple human remains.	Less than Significant.
Impact 3.7-1: Project construction, operation and maintenance, and decommissioning would not result in the wasteful, inefficient, or unnecessary consumption or use of energy.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.8-1: The Project would not cause adverse effects including risk of loss, injury, or death related to strong seismic ground shaking.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.8-2: The Project would not cause adverse effects including risk of loss, injury, or death related to ground failure including liquefaction.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.8-3: The Project would not result in substantial soil erosion or loss of topsoil.	Less than Significant.	No mitigation is required.	Less than Significant.

TABLE ES-2 (CONTINUED)
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact 3.8-4: The Project would not be located on unstable soils or become unstable as a result of the Project including landslides, lateral spreading, subsidence, liquefaction, or collapse.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.8-5: The Project would not create substantial direct or indirect risks to life or property by being located on expansive soils.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.8-6: The Project site would have soils capable of accommodating a septic or other alternative waste water disposal system.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.8-7: Ground disturbing activities associated with the Project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, as defined in CEQA Guidelines §15064.	Significant.	**Mitigation Measure 3.8-7: Paleontological Monitoring** The qualified paleontologist shall oversee paleontological monitoring of all excavation at depths greater than 20 feet in previously undisturbed sediments. Monitoring shall be conducted by a paleontological monitor meeting the standards of the SVP (2010). If a paleontological resource is found, regardless of depth or setting, the Project contractor shall cease ground-disturbing activities within 50 feet of the find and contact the qualified paleontologist. The qualified paleontologist shall evaluate the significance of the resources and recommend appropriate treatment measures. At each fossil locality, field data forms shall be used to record pertinent geologic data, stratigraphic sections shall be measured, and appropriate sediment samples shall be collected and submitted for analysis. Any significant fossils encountered and recovered shall be catalogued and curated at an accredited institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County. Accompanying notes, maps, and photographs shall also be filed at the repository. The qualified paleontologist shall prepare a report documenting evaluation and/or additional treatment of the resource. The report shall be filed with the County and with the repository.	Less than Significant.
Impact 3.9-1: The Project would generate GHG emissions, directly and indirectly.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.9-2: The Project could conflict with an applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.10-1: The Project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	Less than Significant.	No mitigation is required.	Less than Significant.

TABLE ES-2 (CONTINUED)
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact 3.10-2: The Project could create a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving a release of hazardous materials.	Significant.	**Mitigation Measure 3.10-2: Suspected Asbestos-containing Materials** The Project proponent shall continuously comply with the following mitigation in the event that materials suspected to contain asbestos are uncovered during initial demolition and construction activities: 1. In the event that suspect asbestos-containing materials are discovered during Project activities, work within a 100-foot distance of the discovery shall immediately halt and a California-certified asbestos professional shall take samples for analysis of the suspect materials. 2. All damaged asbestos-containing material and asbestos-containing material that would be disturbed by Project activities shall be removed in accordance with federal, state, and local laws and the National Emissions Standards for Hazardous Air Pollutants guidelines before work may recommence. 3. All demolition activities shall be undertaken in accordance with California Occupational Safety and Health Administration standards, as contained in Title 8 of the California Code of Regulations, Section 1529, to protect workers from exposure to asbestos. Demolition shall be performed in conformance with Federal, State, and local laws and regulations so that construction workers and/or the public avoid significant exposure to asbestos-containing materials.	Less than Significant.
Impact 3.10-3: The Project would not expose people or structures to significant risk due to wildland fires.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.11-1: The Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.11-2: The Project would not 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.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.11-3: The Project would not substantially alter the existing drainage pattern such that substantial erosion, siltation, flooding, an exceedance of stormwater system capacity, or impedance to flood flows would occur.	Less than Significant.	No mitigation is required.	Less than Significant.

TABLE ES-2 (CONTINUED)
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact 3.11-4: The Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.14-1: The Project could generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	Significant.	**Mitigation Measure 3.14-1: Noise Reduction for Energy Storage System HVAC Units** Prior to issuance of building permits for the energy storage system (ESS) facility, the Project Applicant shall provide to the County evidence demonstrating that each ESS facility HVAC system will comply with the County noise standards through equipment selection and incorporation of design measures (if applicable). Design measures may include the selection of quieter HVAC units and use of enclosures or otherwise configuring the units in a location that provides an acoustical barrier.	Less than Significant.
Impact 3.14-2: The Project could expose people and/or structures to vibration levels.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.15-1: The Project would not induce substantial unplanned population growth in an area, either directly or indirectly.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.18-1: Construction of the Project would generate a temporary increase in traffic volumes on area roadways, but would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system.	Significant.	**Mitigation Measure 3.18-1a: Construction and Decommissioning Traffic Management Plan** Prior to the issuance of construction or building permits, an Encroachment Permit from Caltrans for the installation of a temporary traffic control and the issuance of decommissioning authorizations, the Applicant and/or its construction contractor shall: • Prepare and submit a Traffic Management Plan to Fresno County Divisions of Public Works and Planning and the Caltrans District 6 office for approval. The Traffic Management Plan must be prepared in accordance with both the California's Manual on Uniform Traffic Control Devices (MUTCD) and Work Area Traffic Control Handbook and must include, but not be limited to, the following issues: – Temporary Traffic Control (TTC) plan that addresses traffic safety and control through the work zone; – Timing of deliveries of heavy equipment and building materials; – Directing construction traffic with a flagger; – Placing temporary signage, lighting, and traffic control devices if required, including, but not limited to, appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic; – Ensuring access for emergency vehicles to the project sites;	Less than Significant.

TABLE ES-2 (CONTINUED)
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact 3.18-1 (cont.)		– Temporarily closing travel lanes or delaying traffic during materials delivery, transmission line stringing activities, or any other utility connections; – Maintaining access to adjacent property; – Specifying both construction/decommissioning-related vehicle travel and oversize load haul routes, minimizing construction/decommissioning traffic during the a.m. and p.m. peak hour, distributing construction/decommissioning traffic flow across alternative routes to access the project sites, and avoiding residential neighborhoods to the maximum extent feasible. • Obtain all necessary permits for the work within the road right of way or use of oversized/ overweight vehicles that would utilize County-maintained roads, which may require California Highway Patrol or a pilot car escort. Copies of the approved traffic plan and issued permits shall be submitted to the Fresno County Divisions of Public Works and Planning. • Overlay (2" Hot Mix Asphalt) California Avenue from Derrick Avenue to the Ohio Street alignment (1 mile) due to roadway impacts resulting from Project-generated construction truck traffic. Maintain the roadway (2-miles) along the frontage of the Project site throughout the construction duration. • Enter into a secured agreement with Fresno County to ensure that any county roads that are demonstrably damaged by project-related activities are promptly repaired and, if necessary, paved, slurry-sealed, or reconstructed as per requirements of the state and/or Fresno County. **Mitigation Measure 3.18-1b: Temporary Traffic Signal** The Applicant shall coordinate with Caltrans and Fresno County to pay for and install a temporary traffic signal at the SR-33/West California Avenue/West Panoche Road intersection prior to the commencement of construction activities. Appropriate warning signs and plaques, as well as advance warning signs, shall be installed along SR-33 to alert drivers of the modified traffic control at West California Avenue. The installation of a temporary traffic control device on a State facility (SR-33) will require an Encroachment Permit from Caltrans, which will be issued upon Caltrans' approval of the Traffic Management Plan (see Mitigation Measure 3.18-1a).	
Impact 3.18-2: Construction of the Project would generate increased traffic volumes on area roadways, and would conflict with an applicable congestion management program, or other standards established for Fresno County or state roads.	Significant.	**Implement Mitigation Measures 3.18-1a and 3.18-1b.**	Less than Significant.
Impact 3.18-3: The Project would not substantially increase traffic hazards.	Less than Significant.	No mitigation is required.	Less than Significant.

TABLE ES-2 (CONTINUED)
SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact 3.18-4: The Project would not result in inadequate emergency access.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.18-5: Construction-generated traffic of the Project could, when combined with traffic generated by other projects anticipated to use SR-33, combine to cause a significant adverse cumulative impact relating to traffic flow (LOS) conditions on SR-33.	Significant.	**Implement Mitigation Measure 3.18-1a.**	Less than Significant.
Impact 3.19-1: Ground disturbing activities associated with the Project could cause a substantial adverse change to previously unknown archaeological resources that are also Tribal Cultural Resources, as defined in Public Resources Code Section 21074(a).	Significant.	**Implement Mitigation Measures 3.6-1 and 3.6-2.**	Less than Significant.
Impact 3.20-1: The Project could result in the construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities that would cause significant environmental effects.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.20-2: The Project could require water supplies exceeding existing entitlements and resources to serve Project construction, operation and maintenance, and decommissioning.	Less than Significant.	No mitigation is required.	Less than Significant.
Impact 3.20-3: The Project would not generate solid waste in excess of State or local standards or in excess of the capacity of local infrastructure.	Less than Significant.	No mitigation is required.	Less than Significant.

ES.11 References

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CHAPTER 1
Introduction

1.1 Purpose of this Document

This Draft Environmental Impact Report (Draft EIR) is an informational document intended to disclose to the public and decision-makers the potential environmental impacts of the Little Bear Solar Project (Project). The Project is proposed by Little Bear Solar 1 LLC, Little Bear Solar 3 LLC, Little Bear Solar 4 LLC, Little Bear Solar 5 LLC, and Little Bear Solar 6 LLC (collectively, Applicant). The Applicant has applied to the Fresno County Department of Public Works and Planning (the County) for five Unclassified Conditional Use Permits (CUPs)[1] to construct, operate, maintain, and decommission five photovoltaic (PV) electricity-generating facilities and associated infrastructure to be known as Little Bear Solar 1, 3, 4, 5, and 6. No Little Bear 2 facility is proposed. The Project would consist of five individual facilities (each, a Facility), ranging from approximately 161 to 322 acres, with a 60-foot monopole design telecommunications tower and associated equipment proposed at the Little Bear Solar 1 site. There would be one CUP per facility: CUP Nos. 3550, 3551, 3552, 3553, and 3577 for Little Bears 1, 3, 4, 5, and 6, respectively. The five Facilities would generate a total of up to 180-megawatts alternating current (MWac)[2] on approximately 1,288 acres of Westlands Water District-owned lands in unincorporated Fresno County adjacent to and south of the existing North Star Solar Project. These Facilities would connect to the electrical grid at the existing Mendota Substation, which is owned and operated by Pacific Gas and Electric Company (PG&E) approximately 2 miles west of the Little Bear 1 site. The five Facilities are analyzed as a single "project" for purposes of the California Environmental Quality Act (CEQA).

This Draft EIR examines the potential impacts of the Project and alternatives on the environment. All of the resource areas in the CEQA Guidelines Appendix G Checklist were studied: Aesthetics, Agriculture and Forest Resources, Air Quality, Biological Resources, Cultural and Paleontological Resources, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Noise, Population and Housing, Public Services, Recreation, Transportation and Traffic, Tribal

1 The Unclassified CUP process allows the County to consider, in its discretion, uses that would be essential or desirable, but that are not allowed as a matter of right within a zoning district. PV solar power generation facilities may be permitted in any zoning district with the issuance of a CUP.

2 PV panel capacity generally is measured in direct current (DC) watts; however, because the DC output from panels must be converted to alternating current (AC) before being distributed on the electric grid, this EIR reports expected capacity in terms of AC watts. Although preliminary estimates indicate that 180 MWac would be the expected nominal generating capacity of the Project, the actual generating capacity would depend on the efficiency of the PV panels available at the time of construction and the layout and tracking technology approved.

Cultural Resources, and Utilities and Service Systems. Energy Conservation, addressed in CEQA Guidelines Appendix F, also has been examined.

1.2 Project Overview

The Project consists of two major components: The Solar Facility and the generation tie-line (gen-tie line). The Solar Facility would consist of up to five individual Facilities with arrays of solar PV modules (or panels) and support structures. The approximate generating capacity of each Facility would range between 20 MWac and 50 MWac. Each Facility would include a substation, inverters, transformers, and a 34.5 kilovolt (kV) overhead collection system, and could include an energy storage system (ESS). Other necessary infrastructure would include a permanent operation and maintenance (O&M) building, water storage, meteorological data system, access roads, telecommunications infrastructure, and security fencing.

Little Bear 1 would require the installation of a new 115 kV interconnection to the North Star Solar Project's existing substation, which is located on the northeast corner of San Bernardino Avenue and California Avenue. Interconnection of Little Bears 3, 4, 5, and 6 would require the installation of a new, approximately 2-mile 115 kV gen-tie line across the Project site. The new gen-tie line would tie in to the existing North Star gen-tie line at the southwest corner of San Bernardino Avenue and California Avenue to complete the interconnection to PG&E's existing Mendota Substation. The Project would operate year-round to generate electricity during daylight hours when electricity demand is typically at its peak.

If approved, the Project would be implemented in three phases. The first phase, Demolition and Construction, would require up to 14 months and up to 750 on-site personnel to complete. The second phase, Operation and Maintenance, is assumed for purposes of this Draft EIR to be coterminous with the CUP period (30 years) although there is the potential for continued use in accordance with County permitting requirements. There would be on-site personnel consisting of plant operators, maintenance technicians, and security personnel during the Operation and Maintenance phase. On a typical day, the number of staff on site may range from none (it is not necessary for staff to be present during plant operations) up to 20 during periodic, routine maintenance events. Non-routine (emergency) maintenance could require additional workers. The final phase, Decommissioning and Site Reclamation, would begin within 6 months after the conclusion of each Facility-specific CUP period (including any extension that may be granted by the County). Each Facility site would be returned to a stable condition comparable to pre-Project conditions in accordance with applicable land use regulations in effect at that time via the implementation of a County-approved Closure, Decommissioning, and Reclamation Plan.

1.3 Use of this Document by Agencies

CEQA Guidelines Section 15124(d) requires that an EIR contain a statement briefly describing the intended uses of the EIR. The CEQA Guidelines indicate that the EIR should identify the ways in which the Lead Agency and any responsible agencies would use this document in their approval or permitting processes. The following discussion summarizes the roles of the agencies and the intended uses of the EIR. See also Section 2.7, *Permits and Approvals*.

Fresno County has the primary responsibility for considering whether to approve the requested CUPs for the Project, is the CEQA "Lead Agency" for purposes of this Draft EIR, and has directed the preparation of this Draft EIR. This analysis will be used by the County, in conjunction with other information developed in the County's formal record, when considering whether to approve, approve with conditions, or deny one, multiple, or all five of the requested CUPs. Other necessary County approvals may include an encroachment permit from the Road Maintenance and Operations Division of the Department of Public Works and Planning if work is to be performed within a County right-of-way, and/or building and grading permits for the erection, demolition, or conversion of any building or structure.

Other agencies also may rely on information in this Draft EIR to inform their own permitting decisions and approvals for the Project, including the following:

- San Joaquin Valley Unified Air Pollution Control District approval of stationary and/or mobile sources may be required.
- California Department of Fish and Wildlife (CDFW) authorization may be required pursuant to the agency's lake and streambed alteration regulatory authority (Fish & Game Code §1600 et seq.) and/or if the proposed activities could result in "take" as defined in the California Endangered Species Act (CESA) (Fish & Game Code§2050 et seq.).US Fish and Wildlife Service consultation / authorization may be required if the proposed activities could result in "take" as defined in the Federal Endangered Species Act (FESA).
- California Regional Water Quality Control Board authorization may be required if construction activities disturb more than 1 acre, pursuant to the National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Associated with Construction Activity.

1.4 Public Participation

1.4.1 Scoping

On September 7, 2017, the County published and distributed a Notice of Preparation (NOP) to advise interested local, regional, state, and federal agencies, as well as the public, that an EIR would be prepared for the Project. The NOP was sent to a mailing list that included Tribes; local, state, and federal agencies; 30 property owners within 1 mile of the Project site; other interested parties; and the Governor's Office of Planning and Research, State Clearinghouse. The NOP and NOP mailing list are included in the Scoping Report provided as Appendix A. The NOP also was posted with the Mendota City Clerk and Fresno County Clerk. Additionally, an electronic copy of the NOP was posted on the County's website. The NOP solicited comments on the scope, content, and format of the EIR. Agencies and members of the public were encouraged to submit their comments to the County by either U.S. mail or e-mail. In addition to the NOP, the County notified the public about the public scoping meeting through a newspaper legal advertisement published in the Business Journal on September 11, 2017. Notifications provided basic Project information, the date, time, and location of the scoping meeting, and a brief explanation of the public scoping process.

The County conducted a public scoping meeting on Thursday, September 14, 2017 from 5:30 p.m. to 7:30 p.m. at the City of Mendota City Council Chambers, located at 643 Quince Street, Mendota, California. The Public Scoping Meeting presentation included an overview of the environmental review process, Project description, Project overview, potential environmental impacts, and role of the public comments. Meeting attendees included: Christina Monfette and Chris Motta of Fresno County Department of Public Works and Planning; Janna Scott, Jill Feyk-Miney, and Larry Kass of ESA; and representatives from First Solar. No members of the public attended the scoping meeting.

Four letters were received during the scoping period. Issues raised in each are summarized in the Scoping Report provided in Appendix A, and copies of the letters themselves are provided there. Additional letters were received after the scoping period from the Dumna Wo Wah Tribal Government (2017), Picayune Rancheria of the Chukchansi Indians (2017), U.S. Fish and Wildlife Service (2017), Native American Heritage Commission (2017), Fresno County Fire (2017), and the Westlands Water District (2017). Input provided in these letters has been considered in the analysis documented in this EIR.

1.4.2 Public Comment on the Draft EIR

This Draft EIR is available to Tribes, federal, state, and local agencies and to interested individuals who may wish to review and comment on the report. An electronic copy of the Draft EIR and reference materials relied upon in its drafting will be provided via the County's website: http://www.co.fresno.ca.us/EIR.

Printed or CD copies of the Draft EIR will be available to check out at each of the locations listed below. CDs will contain copies of the reference materials cited and relied upon in the analysis.

- Fresno County Public Works and Planning Department, 2220 Tulare Street, Fresno;
- Fresno County Main Library, Reference Department, 2420 Mariposa Street, Fresno; and
- Fresno County Library Mendota Branch Library, 1246 Belmont Avenue, Mendota.

Written comments may be submitted to the County during a 45-day public review period. Written comments on this Draft EIR will be accepted via regular mail and e-mail, and at a public meeting that will be noticed under separate cover. All comments received will be addressed in a Response to Comments document, which, together with this Draft EIR, will constitute the Final EIR for the Project.

1.5 References

Dumna Wo Wah Tribal Government, 2017. Letter of Robert Ledger, Tribal Chairman, to Fresno County Planning Department dated October 17, 2017.

Fresno County Fire, 2017. Letter of Chris Christopherson, Battalion Chief, to Christina Monfette dated October 27, 2017.

Native American Heritage Commission, 2017. Letter of Sharaya Souza, Staff Services Analyst, to Christina Monfette dated October 31, 2017.

Picayune Rancheria of the Chukchansi Indians, 2017. Email of Tara C. Estes-Harter, THPO/Cultural Resources Director Picayune Rancheria of the Chukchansi Indians, to Christina Monfette dated October 31, 2017.

U.S. Fish and Wildlife Service, 2017. Letter of Patricia Cole, Chief, San Joaquin Valley Division, to Ms. Christina Monfette dated October 13, 2017.

Westlands Water District, 2017. Letter of Russ Freeman, Deputy General Manager of Resources, to Ms. Christina Monfette dated October 12, 2017.

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CHAPTER 2
Description of Project and Alternatives

2.1 Project Overview

The Little Bear Solar Project (Project) is proposed by Little Bear Solar 1, LLC, Little Bear Solar 3, LLC, Little Bear Solar 4, LLC, Little Bear Solar 5, LLC, and Little Bear Solar 6, LLC (collectively, Applicant). The Applicant has applied to the Fresno County Department of Public Works and Planning (the County) for five Unclassified Conditional Use Permits (each, a CUP)[1] to construct, operate, maintain, and decommission five photovoltaic (PV) electricity generating facilities and associated infrastructure. The Project would consist of five individual facilities (each, a Facility), to be known as Little Bear Solar 1, 3, 4, 5, and 6, ranging from approximately 161 to 322 acres, with a 60-foot monopole design telecommunications tower and associated equipment proposed at the Little Bear Solar 1 site. There would be one CUP per facility: CUP Nos. 3550, 3551, 3552, 3553, and 3577 for Little Bears 1, 3, 4, 5, and 6, respectively. (No Little Bear 2 facility is proposed.) The five Facilities are analyzed as a single "Project" for purposes of the California Environmental Quality Act (CEQA). The County, as the CEQA Lead Agency, is preparing this Environmental Impact Report (EIR) (EIR No. 7225) to document its analysis of the potential direct, indirect, and cumulative impacts of the Project described in Section 2.5, *Description of the Project*, and the alternatives described in Section 2.6, *Description of Alternatives*.

The Project would generate up-to 180 megawatts alternating current (MWac)[2] on approximately 1,288 acres of land, presently owned by Westlands Water District (WWD), in unincorporated Fresno County adjacent to and south of the existing North Star Solar Project. The Project would connect to the electrical grid at the existing Mendota Substation, which is owned and operated by Pacific Gas and Electric Company (PG&E) approximately 2 miles west of the Little Bear 1 site.

The Project would operate year-round and produce electric power during daylight hours when electricity demand is typically highest. Each Facility would have the option to include an Energy Storage System to extend the period of time each day that the Project could contribute PV-generated energy to the electrical grid. The Project would share, where feasible, an existing approximately 2-mile long 115 kilovolt (kV) generation tie-line (gen-tie line) between the North

1 The Unclassified CUP process allows the County to consider, in its discretion, uses that would be essential or desirable, but that are not allowed as a matter of right within a zoning district. PV solar power generation facilities may be permitted in any zoning district with the issuance of a CUP.

2 PV panel capacity generally is measured in direct current (DC) watts; however, because the DC output from panels must be converted to alternating current (AC) before being distributed on the electric grid, this EIR reports expected capacity in terms of AC watts. Although preliminary estimates indicate that 180 MWac would be the expected nominal generating capacity of the Project, the actual generating capacity would depend on the efficiency of the PV panels available at the time of construction and the layout and tracking technology approved.

Star Substation and PG&E's Mendota Substation. The components of each Facility are summarized in **Table 2-1**.

TABLE 2-1
LITTLE BEAR FACILITIES OVERVIEW

Facility	Assessor's Parcel Number (APN)	Approximate Acreage	Approximate Generating Capacity (MWac)	Interconnection	Other facilities and Infrastructure
Little Bear 1	019-110-04ST 019-110-05ST	322	40	Interconnection via the existing 115 kV gen-tie line accessed at the North Star Solar Project substation. Would require construction of an approximately 600-foot gen-tie line between the Little Bear 1 substation and the North Star Solar Project substation.	• Will include an onsite substation, meteorological (met) station, and storm water retention basins, as required. • May include a common O&M building and a microwave/ satellite communication tower, both of which would be shared by Little Bear 3, 4, 5, and 6; and may include an Energy Storage System
Little Bear 3	019-110-06ST	161	20	Interconnection via a 115 kV electric line originating at the Little Bear 6 substation and exiting the Project as a second circuit on the existing 115 kV gen-tie line, which was analyzed and approved as part of the North Star Solar Project gen-tie line, switching station, and related facilities.	Each of Little Bear 3, 4, 5, and 6: • Would include an onsite substation, met station, and storm water retention basins, as required. • May include an Energy Storage System
Little Bear 4	019-110-03ST	322	50		
Little Bear 5	019-110-13ST	322	50		
Little Bear 6	019-110-13ST	161	20		
Total		**1,288**	**180**		

SOURCE: Little Bear Solar Project 2017

2.2 Location of the Site

The Project site is located in the San Joaquin Valley, approximately 13 miles east of Interstate 5 (I-5), approximately 2 miles southwest of the City of Mendota, and adjacent to and west of State Route 33 (SR-33), in unincorporated Fresno County. The site consists of five parcels (APNs 019-110-03ST; 019-110-04ST; 019-110-05ST; 019-110-06ST; 019-110-13ST) located within Sections 13 and 14 of Township 14 South and Range 14 East. The site is bounded by West California Avenue to the north, SR-33 to the east, West Jensen Avenue to the south, and San Bernardino Avenue to the west, and is bisected by two dirt roads: West Adams Avenue, which runs east-west, and South Ohio Avenue, which runs north-south. West California Avenue and SR-33 both are paved, two-lane roads. The other roads are unimproved, single-lane dirt roads. During construction, the Project may use a portion of the North Star Solar Project site for construction worker parking and to locate temporary construction offices. See **Figure 2-1**.

2.3 Existing Land Uses

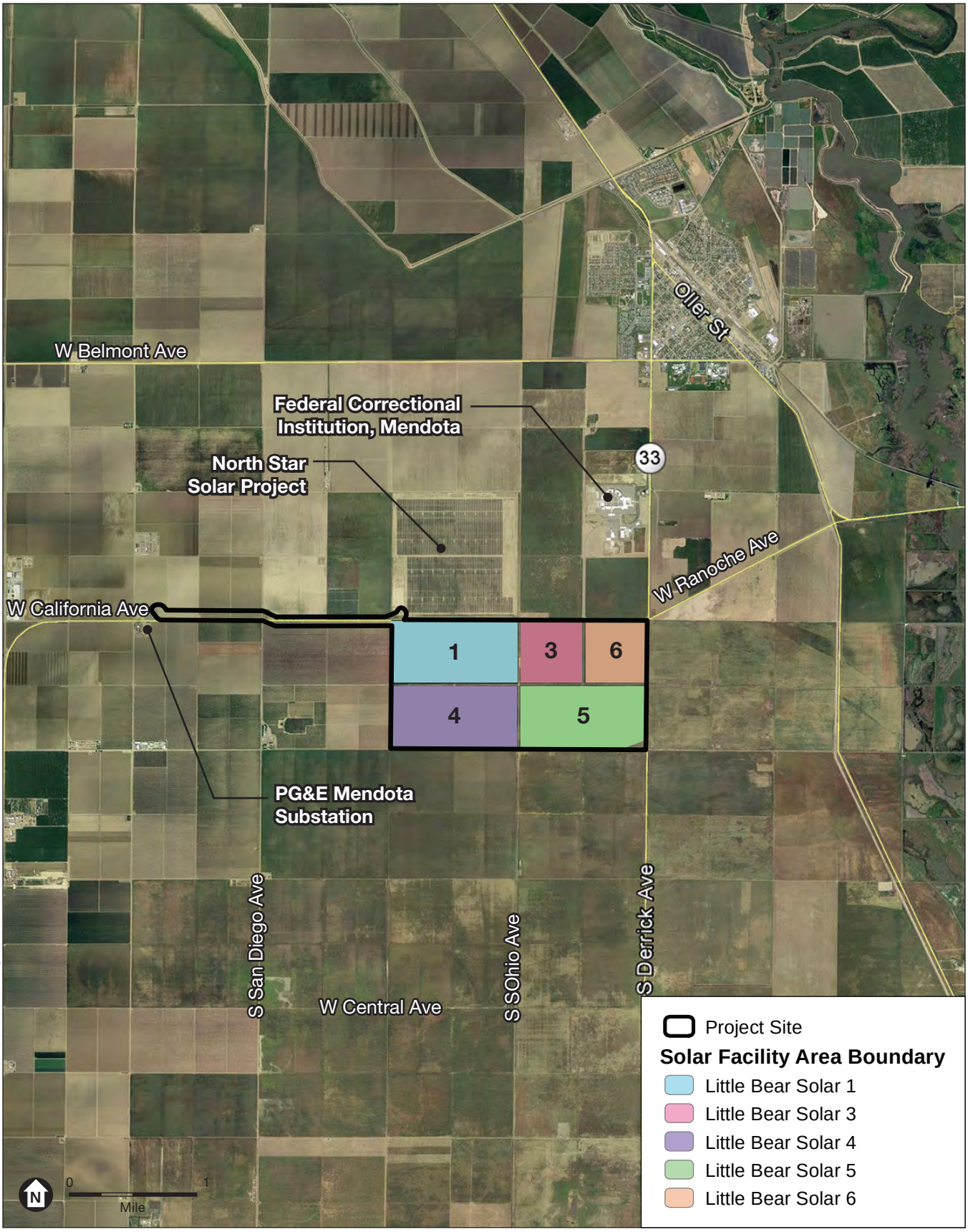
2.3.1 On-site Land Uses

The WWD currently owns the proposed site, which is zoned AE-20 (Exclusive Agricultural, 20-acre minimum parcel size Zone District). As described in the Applicant's Initial Study Application, the site intermittently has been dry-farmed for grain or forage crops (such as sorghums, wheat, and barley) or has lain fallow in recent years. Abandoned irrigation and drainage features are present throughout the site, including piping. However, irrigation is not allowed on any of the land within the Project site due to restrictive covenants recorded against the parcels by the WWD. Because cultivation occurs without the benefit of irrigation, crop productivity depends entirely on rainfall. An approximately 5,000 square-foot metal storage shed and approximately 2,500 square-feet of metal storage silos are located on parcel 019-110-06ST (Little Bear 3), just east of South Ohio Avenue. These structures would be removed as part of the Project (see Section 2.5.4, *Demolition and Construction*). Electric and phone lines are present along the perimeter. An electric line bisects the Project site, running north-south, parallel to South Ohio Avenue. These would not be affected by the Project.

2.3.2 Surrounding Uses

Surrounding land uses consist primarily of agricultural production to the east, south, and west of the Project site (including field crops, pomegranate and other orchards) and a few scattered rural farm residences (the nearest of which is approximately 0.75 mile west of Little Bear 1. To the north of Little Bear 1 and Little Bear 4, and to the northwest of Little Bear 3, 5, and 6, solar energy and transmission-related uses are associated with the North Star Solar Project. The Federal Correctional Institution, Mendota (FCI Mendota), a medium security federal prison that houses approximately 813 inmates, is located approximately 0.5-mile north of Little Bear 6 (Federal Bureau of Prisons 2017a, 2017b, 2017c).

The Fresno County Planning Commission adopted a Mitigated Negative Declaration (State Clearinghouse No. 2012031015), mitigation monitoring and reporting program (MMRP), and approved CUP No. 3314 on April 12, 2012, for the North Star Solar Project - a 60 MWac PV solar power generation facility with a parking area and other related infrastructure on 640 acres located directly across West California Avenue from Little Bear 1. The Planning Commission adopted a second Mitigated Negative Declaration (State Clearinghouse No. 2013101043), MMRP, and CUP No. 3413 on November 14, 2013, for a 115 kV gen-tie line, associated communications line, and 115 kV switching station to connect the North Star Solar Project to the Mendota Substation (Fresno County 2013). Site preparation, utility pole placement, gen-tie line installation, erection and connection, and secondary communications options including microwave and underground fiber optic lines (including periodic monitoring) all were analyzed (Fresno County 2013 Exhibit 7). Commercial operation of the North Star Solar Project, including these features, began in June 2015 (First Solar and Southern Power Company 2017). Power from the project is being transmitted from the on-site switching station to the Mendota Substation along an approximately 2-mile long, single circuit 115 kV gen-tie line along the north and south sides of West California Avenue. Although Fresno County analyzed and approved the North Star



SOURCE: ESA, 2017

First Solar Little Bear

Figure 2-1
Project Location Map

Solar Project Gen-Tie Line, Switching Station and Related Facilities with two circuits on the gen-tie line (Fresno County 2013), only one circuit has been strung and is in use by the North Star Solar Project; stringing of the second circuit may occur concurrently with the construction of the Little Bear Solar Project.

2.4 Project Objectives

The Applicant's primary objective for the Project is "to generate renewable solar electricity from proven technology, at a competitive cost, with low environmental impact, and deliver it to market as soon as possible" (Little Bear Solar Project 2017). The Applicant also has identified the following specific objectives:

- Construct a project capable of generating approximately 180 MWac of electricity in order to assist the State of California in achieving the Renewables Portfolio Standards (RPS)[3] and SB 350[4] greenhouse gas (GHG) reduction goals by providing a significant new source of solar energy.
- Produce, store, and transmit electricity at a competitive cost.
- Site the generating facility in a rural portion of western Fresno County in proximity to an available connection to the existing electrical distribution system.
- Benefit local communities through the creation of jobs, demand for local goods and services and increased sales and use tax revenue.

In addition, the Applicant has identified an objective to minimize environmental impacts by:

- Utilizing land that is disturbed or previously degraded;
- Using existing electrical distribution and transmission facilities, right-of-way, roads, and other existing infrastructure where practicable;
- Minimizing water use in construction and operations;
- Reducing GHG emissions; and
- Using a technology that is available, proven, efficient, easily maintained, recyclable, and environmentally sound.

3 California's original RPS legislation was enacted in 2002. As a result of subsequent amendments to the law, California's electric utilities must derive 50 percent of their retail sales from eligible renewable energy resources in 2030 and all subsequent years. Interim targets include: 33 percent of retail sales by December 31, 2020; 40 percent of retail sales by December 31, 2024; and 45 percent of retail sales by December 31, 2027.

4 In October 2015, Governor Brown signed Senate Bill 350, which requires retail sellers and publicly owned utilities to procure 50 percent of their electricity from eligible renewable energy resources by 2030 (CEC 2017).

2.5 Description of the Project

The Project consists of two major components: The Solar Facility and the Generation Tie-Line (**Figure 2-2**). As described in more detail in Section 2.5.1, the Solar Facility would consist of up to five individual Facilities with arrays of solar PV modules (or panels) and support structures. The approximate generating capacity of each Facility can be found in Table 2-1. Each Facility also would include a substation, inverters, transformers, and a 34.5 kV overhead collection system, and could include an Energy Storage System. Other necessary infrastructure may include a permanent operation and maintenance building, water storage, meteorological data system, telecommunications infrastructure, access roads, and security fencing.

As described in more detail in Section 2.5.2, Little Bear 1 would require the installation of a new 115 kV interconnection to the North Star Solar Project's existing substation, which is located on the northwest corner of San Bernardino Avenue and California Avenue. Little Bears 3, 4, 5, and 6 would require the addition of a new electric conductor to the existing, approximately 2-mile 115 kV gen-tie line in order to interconnect the Project to PG&E's existing Mendota Substation.

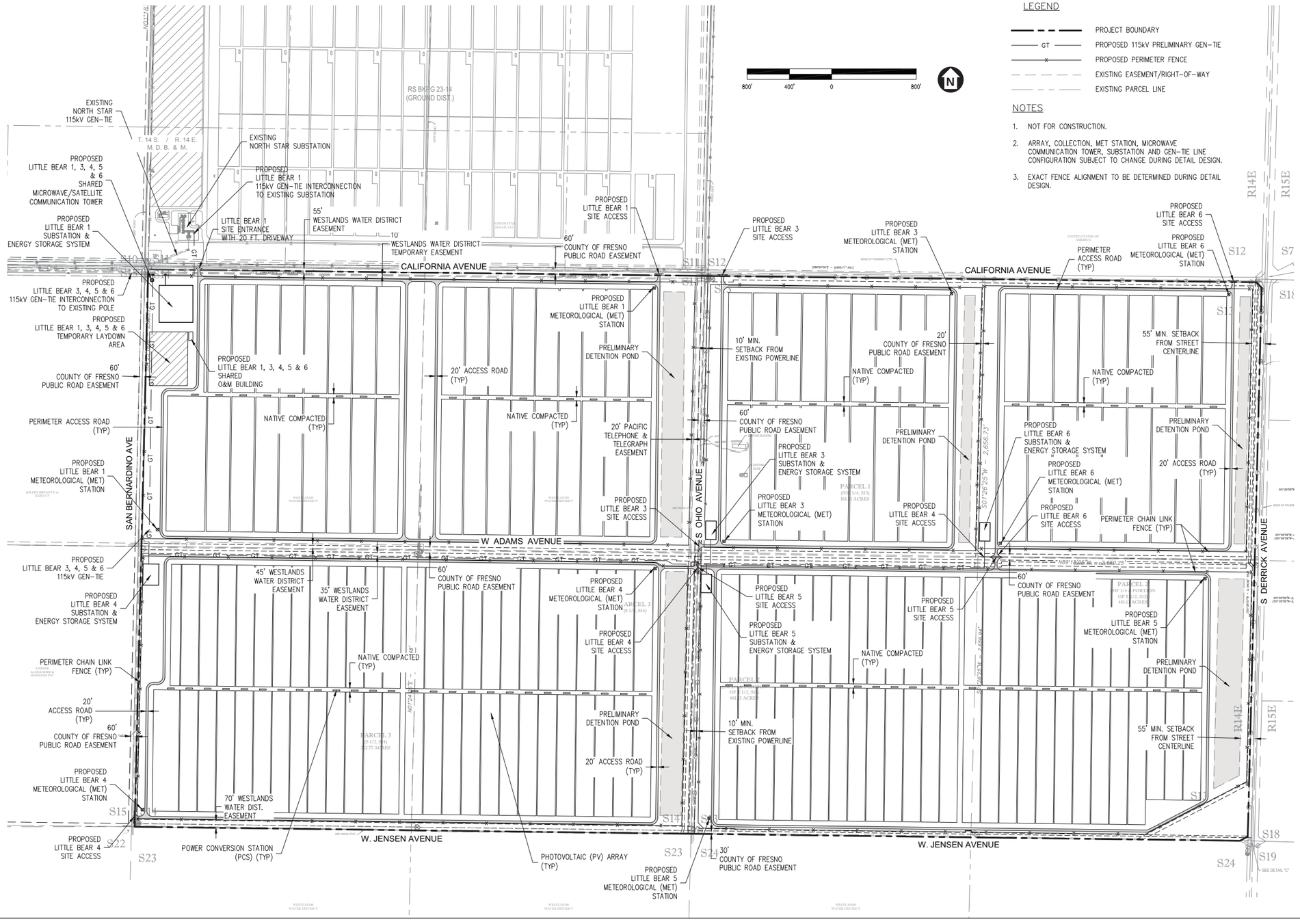
2.5.1 The Solar Facility

2.5.1.1 Solar PV Generating Components

The Project would install arrays of solar PV modules to convert solar energy directly to electrical power to supply the existing electrical grid. The solar PV modules would convert the sunlight striking the modules into low voltage DC power. Power from groups of modules would be combined at an inverter, where the power would be converted to AC power and transformed to higher voltage to provide for transmission to the substation.

The Project would use thin film or other (monocrystalline or polycrystalline) PV solar modules most likely mounted on a single-axis horizontal tracking system. PV modules would be installed on a rack with a rotating-gear drive that tracks the sun. When the sun is directly overhead, the modules would be at a 0-degree angle (level to the ground). The tracking units would be arranged in north-to-south oriented rows, and would be powered by a drive motor to track the east-west path of the sun on a single axis throughout the day. At a horizontal position, the modules would be approximately 6 to 10 feet above the ground surface. The highest point for a horizontal tracker, approximately 13 feet above the ground surface, would occur during the early morning and evening hours. **Figure 2-3**, shows the detail of a typical PV solar single axis horizontal tracker.[5] The module mounting system would be supported by steel posts driven into the ground, typically to a depth of 4 to 5 feet. The steel posts may be galvanized to resist corrosion. Cathodic protection may be used to provide additional corrosion protection if warranted by site soil conditions.

[5] It is possible, although less likely, that fixed-tilt arrays, which do not track the sun, would be installed in combination with or instead of the tracking system. If installed, fixed-tilt arrays would be positioned to face south at a tilt between 20 and 25 degrees from horizontal (ground surface) to receive optimal solar energy throughout the year. The rows in each array would be oriented in an east to west direction. The maximum height for fixed-tilt arrays would be approximately 13 feet above the ground.



SOURCE: First Solar, 2017

First Solar Little Bear

Figure 2-2
Proposed Site Plan

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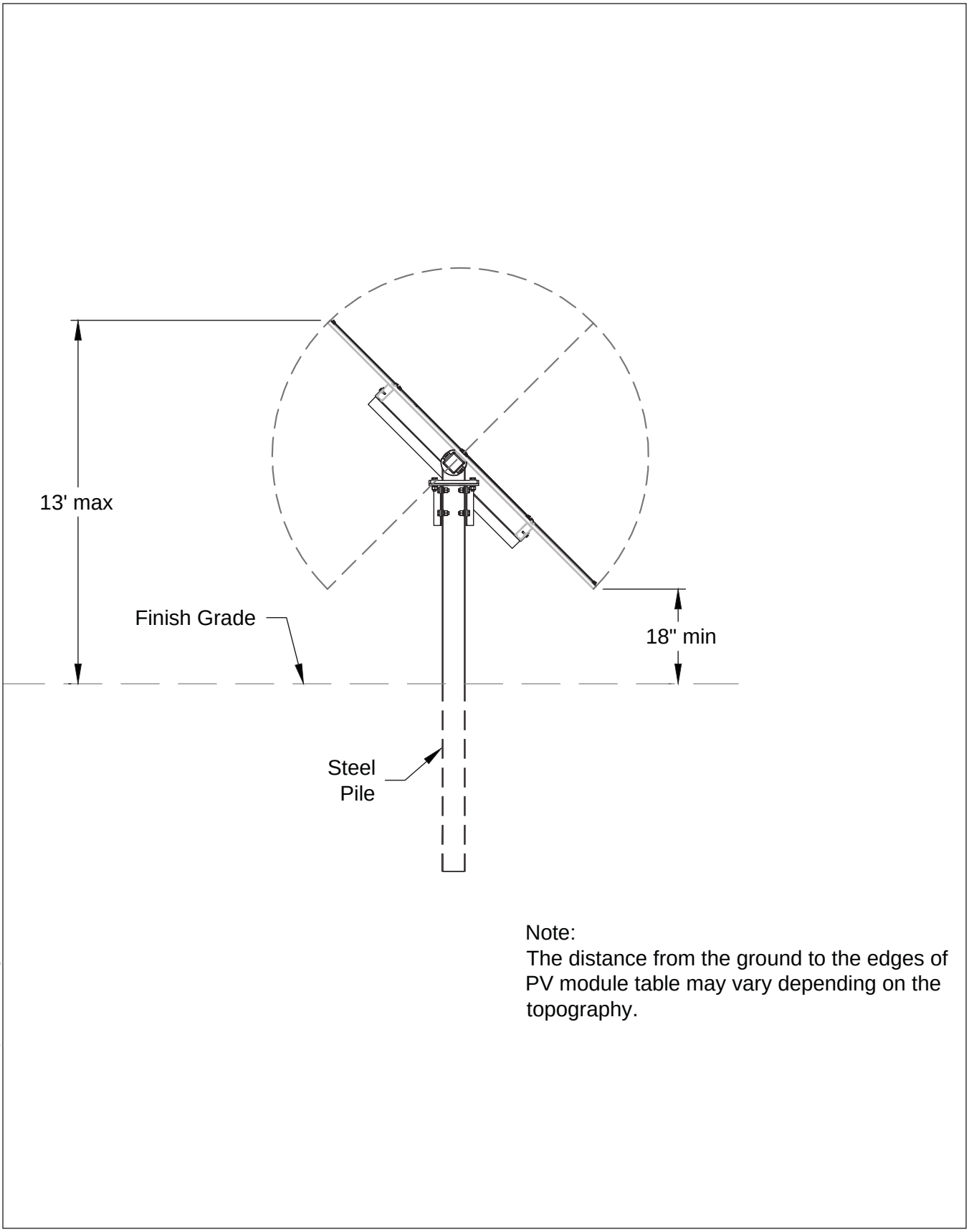

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SOURCE: First Solar, 2017

First Solar Little Bear

Figure 2-3
Typical PV Solar Tracker

Each solar array would include PV modules installed in rows and connected to an approximately 2 to 4 MWac Power Conversion Station (PCS). The PCS would include inverters which would convert the DC power into AC power, and transformers that would increase the AC power output to 34.5 kV for collection to the PV combining switchgear (PVCS). Each Facility would include a combination underground and overhead 34.5 kV AC collection system to convey electricity from the arrays to the Facility PVCS and substation.

2.5.1.2 Project Substations

Each Facility would include an onsite substation that would contain one or more 34.5 kV to 115 kV step-up transformers, breakers, bus work, protective relaying, meters, site control center building, backup power, and associated substation equipment, as well as a dedicated perimeter fence.

2.5.1.3 Energy Storage Systems

The Project could include up to five Energy Storage Systems that, combined, would provide up to 720 MWhrs of electrical storage. Each Energy Storage System would be sited in an area adjacent to the Facility substation in a separate, fenced enclosure. While the size of any individual Energy Storage System would depend on its designed capacity, the combined footprint of all Energy Storage System areas for the Project is expected to be less than 4.5 acres. Each Energy Storage System would consist of self-contained, rack-mounted battery storage modules, converters, switchboards, integrated heating, ventilation, and air conditioning (HVAC) units, inverters, transformers, and controls placed in a prefabricated metal container or within a building. The battery storage modules would use proven storage technologies such as lithium ion, sodium-sulphur, or vanadium-redox-flow batteries. Each Energy Storage System used on site would be designed, operated, and ultimately disposed of in compliance with all applicable requirements.[6]

2.5.1.4 Other Infrastructure

Operation and Maintenance Building

The Project may include construction of a single operations and maintenance (O&M) building of approximately 2,000 square feet with an estimated maximum height of 18 feet, with a parking area and other associated facilities potentially including a septic system. The permanent building could be shared by any or all of the Facilities and would house administrative offices, a control room and maintenance equipment. The building would be supported by a concrete foundation, and an area adjacent to the building either would be graveled or paved. The O&M building would be constructed within the Little Bear 1 site. If a Facility would not require the use of the shared O&M building, then storage enclosures would be installed on concrete pads or compacted soil

[6] Such requirements may include, for example, Section 608 of the International Fire Code (IFC), which has been adopted by the State of California and Fresno County, to minimize risk of fire from stationary battery storage systems and contain fire in the event of such an incident; Article 480 of the Electrical Code, which identifies insulation and venting requirements for stationary storage batteries to further reduce potential fire risk; Health and Safety Code Section 25500 et seq. which requires the preparation of hazardous materials release response plans such as a Hazardous Material Business Plan (HMBP) under specified circumstances; and Title 22 of the California Code of Regulations Sections 66273.9 and 66273.2, which govern appropriate disposal of batteries as hazardous waste whether or not they are rechargeable.

within the Facility site. Typical storage containers are 8 feet in height and 20 or 40 feet in length. Each Facility may have up to three storage enclosures.

Water Storage

Portable, aboveground water storage tanks would be used to store water for the duration of construction activities and would be removed at the completion of construction. The temporary water storage tanks may be located at the North Star Solar Project site or on the Little Bear 1 site if a water pipeline is used to transport water from the North Star well. If an O&M building is constructed, a permanent water storage tank for fire protection and, if needed, sanitation would be installed. The tank would be located adjacent to the O&M building, its dimensions would be approximately 18 feet high and 12 feet in diameter, and it would hold approximately 15,200 gallons.

Stormwater Retention

If deemed necessary based on preconstruction drainage analysis and local grading requirements, each Facility may include on-site detention or retention basins along its eastern boundary that would serve to retain stormwater runoff. Such basins are expected to remain dry except during or after a rain event.

Meteorological Data Collection System

The Project would have up to 20 meteorological stations within the solar field: each Facility would have between two and four approximately 20-foot-tall steel-lattice meteorological towers mounted on concrete foundations and installed around the perimeter of the solar field.

Telecommunications Facilities

Telecommunications would be provided either by a local provider or via a microwave/satellite communications lattice tower that would be approximately 60 feet tall. A typical lattice tower would include four concrete foundations, each approximately 2 to 3 feet deep. The proposed location for the communications tower is depicted on Figure 2-2 within the Little Bear 1 site at the southeastern corner of California Avenue and San Bernardino Avenue and would be authorized as part of CUP 3550.

Fencing, Lighting, and Solar Facility Site Security

Security at the Project site would be maintained by a combination of perimeter security fencing and controlled access gates (physical locks). The Project may include electronic security systems that use remote monitoring. If monitoring systems are used, alarms would register on-site or in an offsite monitoring location and would not be audible or visible from neighboring properties. Perimeter fencing would be approximately 6-foot-high chain-link topped with three strands (1 foot) of barbed wire. Fencing also would be “wildlife-friendly,” in that it would use one of several potential designs that would allow San Joaquin kit fox to pass through the fence while still providing for solar facility security and exclusion of other unwanted species (i.e., large domestic dogs and coyotes), and fence posts would be capped to prevent potential entrapment of birds or other small species. Internal fencing would be installed around each solar Facility’s substation to provide increased security around the medium-and high-voltage electrical equipment and around

each Facility's Energy Storage System. Internal fences would be 6-foot-high chain-link topped with 1 foot of barbed wire, or a seven-foot-high chain-link fence with no barbed wire.

Motion-activated security lighting would be used on the on-site storage and operations structures and adjacent parking area and Facility substations. No security lighting is planned for fence lines or interior roads. All lighting would be shielded or downward facing consistent with local design requirements.

Access and Circulation

Access to the Project site would be provided from driveways located at 10 access points. Construction access to the Project site is proposed to occur primarily from West California Avenue. No driveways onto SR-33 are proposed. All access points are shown on Figure 2-2.

All access points would meet applicable County standards. County road rights-of-way are 60 feet wide along San Bernardino Avenue (western edge of the Project site) and West Adams Avenue (which bisects the Project site in an east-west direction), and 30 feet wide along South Ohio Avenue (which bisects the site in a north-south direction) and West Jensen Avenue (which is the southern boundary of the Project site). Project infrastructure would be set back at least 50 feet from the property line at San Bernardino Avenue (which is the same as the centerline). Project infrastructure also would be set back at least 50 feet from SR-33.

The Project would include an estimated 42 acres of private perimeter roads and interior access ways for construction and operation. These access ways would be approximately 20 feet wide and composed of native compacted soil. Proposed locations are shown on Figure 2-2. The final design of access ways and driveways would be subject to Fresno County Fire Department review prior to construction.

Most construction workers are expected to arrive at the Project site in the morning and leave during the afternoon each work day. The majority are expected to use State Route 180 (SR-180) to commute from the Fresno area, although some workers from the north and south may use SR-33. The deliveries of equipment and material that would occur throughout the day are expected to use SR-33 to reach West California Avenue from the south. Deliveries from the Fresno area most likely would reach the site via SR-180. No heavy loads would arrive at the site from the west, by way of West California Avenue.

2.5.2 Gen-tie Lines

The Project would, where feasible, share the existing 2 mile-long 115 kV gen-tie line and underground communication lines between the North Star Substation and PG&E's Mendota Substation. New overhead gen-tie lines and transmission structures would also be needed for the interconnection of Little Bear 1, and Little Bear 3, 4, 5, and 6. The designs for these facilities would follow the most recent Avian Power Line Interaction Committee guidance, currently 2012, to reduce the potential for avian injury and mortality from collisions (APLIC 2012) and electrocution (APLIC 2006). Such guidance is considered standard in the industry to prevent bird mortality from transmission facilities, and prevent associated power outages.

2.5.2.1 Interconnection of Little Bear 1

The Little Bear 1 Facility would include the construction of a new, approximately 600-foot overhead 115 kV gen-tie line from the onsite substation that would connect to the North Star Substation. The new gen-tie line would cross over West California Avenue and, like the existing North Star gen-tie line, also would cross over the existing PG&E distribution lines located on the north and south sides of the street. See **Figure 2-4**. Up to six new transmission structures would be required. See **Figure 2-5**. The connection of Little Bear 1 to the North Star Substation and its potential impacts of its construction, operation and maintenance are analyzed as part of the Project in Chapter 3, *Environmental Analysis*.

To reach PG&E's existing Mendota Substation from the North Star Substation, the Little Bear 1 Facility would utilize the North Star Solar Project's existing overhead 115 kV gen-tie line and existing communication line. Construction, operation and maintenance of the North Star Solar Project's existing infrastructure is not analyzed as a part of the Little Bear Solar Project because, as explained in Section 2.3.2, *Surrounding Uses*, these activities and their environmental impacts have been analyzed pursuant to CEQA and approved by Fresno County.

2.5.2.2 Interconnection of Little Bears 3, 4, 5, and 6

The remaining Facilities each would connect to the Mendota Substation through a combination of new and existing transmission infrastructure. A new, approximately 2.25-mile-long, 115 kV gen-tie line, requiring approximately 24 new structures, would originate at the Little Bear 6 Facility substation and run west along West Adams Avenue (north of Little Bears 4 and 5) before turning north along San Bernardino Avenue and then briefly west on West California Avenue, where the electric conductors would then be strung as a second circuit on the existing North Star Solar Project 115 kV transmission line structures leading to the Mendota Substation. This new line to be constructed as part of the Project is shown in blue on **Figure 2-6**.

Accommodating the second circuit on the existing North Star Gen-Tie Line structures would require installation of approximately 10 to 12 additional gen-tie poles near the intersection of West California Avenue and North San Diego Avenue (shown in yellow on Figure 2-6). These new poles would be required to enable the second electrical circuit to undercross an existing PG&E transmission line along North San Diego Avenue. Finally, within and immediately outside of the Mendota Substation fence line, PG&E would construct approximately two new poles (shown in yellow) to guide the second gen-tie circuit into the Mendota Substation.

The interconnection of Little Bear 3, 4, 5, and 6 via the infrastructure shown in blue and yellow on Figure 2-6 and the potential impacts of its construction, operation and maintenance are analyzed as part of the Project in Chapter 3, *Environmental Analysis*. Project-related use of the North Star Solar Project's existing infrastructure, including work necessary to string a second circuit, is not analyzed as a part of the Little Bear Solar Project because, as explained in Section 2.3.2, *Surrounding Uses*, these activities and their environmental impacts have been analyzed pursuant to CEQA and approved by Fresno County.

2.5.3 Water, Waste, and Hazardous Materials

2.5.3.1 Water and Wastewater

Water demand would vary over the life of the Project. During the initial demolition and construction phase, it is anticipated that the Project would require an estimated daily maximum of 179,000 gallons of non-potable water (up to 200 acre-feet [af][7] over the entire demolition and construction phase) for dust suppression and other purposes (Little Bear Solar Project 2017). The average water use during the Project's operation and maintenance phase is estimated to be 3,500 gallons-per-day of non-potable water (an approximate total of 5 af per year, i.e., up to 1 af per Facility per year) for PV solar panel washing and other uses (Little Bear Solar Project 2017). Bottled water would be procured by O&M staff and stored on-site for consumption. During decommissioning and site reclamation, the Project would require an estimated daily maximum of 179,000 gallons of water (up to a total of 200 af over the approximately 14-month period) for uses similar to those needed during demolition and construction.

For water used during construction, the Project could access and withdraw water from an existing well on the North Star Solar Project site. The North Star well has demonstrated sufficient capacity to meet the Project's need (West Yost Associates 2018). Water from the North Star well would be pumped to aboveground tanks or ponds near the well and then transferred, as needed, to water trucks. Alternatively, water from the North Star well would be delivered to aboveground tanks or ponds on the Project site by a pipeline (combination of aboveground and belowground). Underground sections of the pipeline would be placed in an excavated trench, approximately 2-feet deep. To cross West California Avenue, the pipeline would be placed in a casing installed using either trenching or directional boring. If trenching is used, temporary lane closures of approximately four hours on West California Avenue would be required. Although not expected to be necessary, contingent sources of water for Project construction could include delivery of water from the WWD[8] or use of an existing agricultural supply well located on West California Avenue, approximately 1.5 miles west of the Project site.

Water used during O&M could be supplied by the WWD and delivered to the Project site by existing pipelines. The wells on the North Star site could provide an alternative source of water for O&M. Water from the North Star wells would be delivered by pipeline as described above.

Nominal liquid (human) waste would be generated during demolition and construction, operation and maintenance, and decommissioning and site reclamation: The Project does not propose or require occupied structures and no more than 750 personnel would be on-site during construction. Portable facilities would be provided for construction workers during construction. Either portable restrooms would be provided or a septic system would be installed for use for the duration of the Project depending on final design of the O&M building, if constructed.

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7 One acre-foot (af) of water equals 325,851 gallons – approximately the amount needed to cover an acre (roughly a football field) of ground one foot deep.

8 The Project site does not receive water from WWD's agricultural water service contract, but is eligible to receive water from the District's Central Valley Project contract supply for municipal and industrial uses in accordance with the District's *Terms and Conditions for Municipal and Industrial Water Service and Regulations Regarding the Application for and Use of Municipal and Industrial Water Within Westlands Water District* (Westlands Water District 2017b).

SOURCE: First Solar, 2017

First Solar Little Bear

Figure 2-4
Little Bear 1 Interconnection Plan

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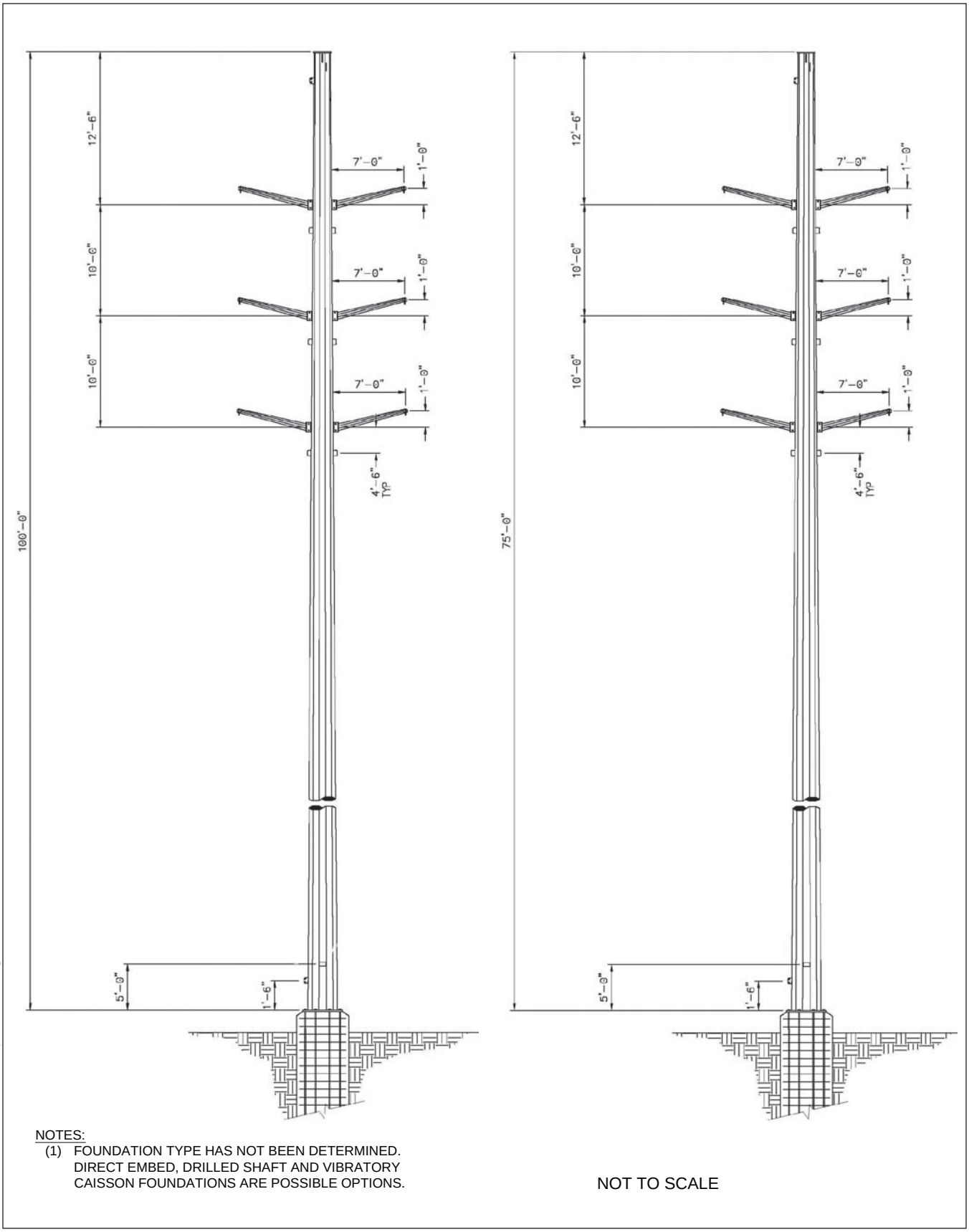

NOTES:
(1) FOUNDATION TYPE HAS NOT BEEN DETERMINED. DIRECT EMBED, DRILLED SHAFT AND VIBRATORY CAISSON FOUNDATIONS ARE POSSIBLE OPTIONS.

NOT TO SCALE

SOURCE: First Solar, 2017

First Solar Little Bear

Figure 2-5
Typical Transmission Structures

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SOURCE: First Solar, 2017

First Solar Little Bear

Figure 2-6
Little Bear 3, 4, 5 & 6 Interconnection Plan

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If the design for the O&M building includes sinks or toilets, a sanitary waste collection system would be necessary. Sanitary waste is expected to average less than 30 gallons per day during operations and either would be collected in above-ground storage tanks or routed to an in-ground septic system. An in-ground septic system would include a septic tank (up to 750 gallons) and an approximately 3,000 square foot leach field located in proximity to the O&M building.

2.5.3.2 Solid Waste

The majority of waste generated during demolition and construction would be non-hazardous and consist primarily of cardboard, wood pallets, copper wire, scrap metal, common trash, and wood wire spools. Construction waste materials such as metal and wood would be separated from the waste stream and recycled whenever feasible. Non-recyclable construction waste would be placed into commercial trash dumpsters located onsite. Dumpsters would be collected as needed by a commercial service and delivered to a landfill, such as the American Avenue Landfill. Construction would generate an average of approximately 20 cubic yards of solid waste per week over the period of construction.

During operation and maintenance activities, the Project would generate a small amount of waste associated with maintenance activities, such as broken or rusted metal, defective or malfunctioning equipment, electrical materials, empty containers, other miscellaneous solid waste, and typical refuse from the O&M staff. Approximately 1 cubic yard of waste per week would be accumulated in an onsite dumpster that would be collected weekly by a commercial waste management service.

The waste generated during decommissioning and site reclamation would be similar to that generated during demolition and construction: primarily non-hazardous and recycled whenever feasible. Damaged panels would be disposed of in compliance with applicable requirements. Non-recyclable waste would be disposed of in a landfill.

2.5.3.3 Hazardous Waste and Hazardous Materials

During all Project phases, activities may involve the transportation, use, or temporary storage of a variety of hazardous materials in the ordinary course of work, such as batteries, hydraulic fluid, diesel fuel, insulation oil for the transformers,[9] grease, lubricants, paints, solvents, and adhesives. For example, electrical equipment used by the Project, such as inverters and transformers, typically contain dielectric insulating fluid. The insulating fluid, which would be formulated from either vegetable or mineral oil, would be contained in the equipment and not routinely handled by O&M staff. Tracker motors and drive supports could require periodic application of grease at the interface of moving parts. During construction, diesel fuel and gasoline may be stored onsite for refueling equipment and vehicles (trucks and buggies). These materials would be stored and handled in a manner to prevent accidental release. Standard construction practices would be observed such that any incidental releases would be appropriately contained and remediated as required by regulation.

[9] For example, mineral oil is a highly refined hydrocarbon-based oil used as an insulation medium and coolant in substation transformers and other electrical equipment.

All hazardous materials would be used, stored, and disposed of in accordance with the manufacturers' specifications and consistent with applicable regulatory requirements. Workers would be trained to engage in safe work practices and to properly identify and handle any hazardous materials on-site.

As discussed in Section 2.5.1.3, *Energy Storage Systems*, batteries may be considered hazardous waste in California when they are discarded, whether or not they are rechargeable. Accordingly, the battery modules included in each Facility's Energy Storage System eventually would be disposed of in accordance with the applicable hazardous waste requirements identified in Footnote 6.

2.5.4 Demolition and Construction

2.5.4.1 Demolition

The existing metal shed and storage silos on the Little Bear 3 site (APN 019-110-06ST) would be demolished. The shed roof would be removed, and walls dismantled. The silos would be pulled down and crushed, the concrete foundation would be broken up, and resulting rubble would be loaded into a dump truck and removed from the Project site. Demolition products including steel and concrete would be recycled to the extent feasible and otherwise disposed of as described in Section 2.5.3.2, *Solid Waste*.

2.5.4.2 Site Preparation

Fencing

Site preparation work would begin with the installation of the perimeter fencing described under "Fencing, Lighting, and Solar Facility Site Security" in Section 2.5.1.4 and signage for construction access.

Temporary Construction Facilities and Staging Areas

Construction of the Project would require the installation of temporary facilities, which would be removed once construction is completed, including one or more construction staging areas. These areas may include construction office trailers, a first aid station, parking, tools/trash/recycling storage, and portable toilets. They also may include laydown areas where equipment and materials would be received and stored and may include an area for assembling the support structures. Proposed locations of these temporary areas are shown on Figure 2-2 as the cross-hatched areas within the Little Bear 1 site adjacent to San Bernardino Avenue and within the North Star Solar Project site just north of the North Star Substation. Temporary power for use during construction would be available via a hook-up to the existing local distribution system available in the staging area within the North Star Solar Project site. If needed, portable generators would be used to supply power for temporary facilities on the Project site.

If the North Star Solar Project site is used, the construction office trailers and workforce parking needs would be sited in the same location as during the construction of the North Star project, shown as the cross-hatched area on Figure 2-2. A little over 20 acres is available on the North Star Solar Project site, of which approximately 5 acres would be sufficient to accommodate the

Project's peak construction workforce. Communications infrastructure for the Project would include a new microwave/satellite communication tower to be shared by all of the Facilities. It would be located at the corner of West California Avenue and San Bernardino Avenue within the Little Bear 1 site (APNs 019-110-04ST and 019-110-05ST). Underground water line(s) to connect the Project site to the North Star Solar Project site also would be installed if water is not trucked from the North Star wells, as described in Section 2.5.3.1.

Land Preparation

To prepare the solar field for post and PV module installation, limited ground disturbance is proposed for the Project, with mowing being the preferred approach, and "disk-and-roll" and conventional grading to be used only where necessary. Mowing would leave vegetation with roots intact while providing necessary clearance for equipment and solar plant site-related uses. Disk and roll would involve the use of conventional farming equipment (tractors pulling disking equipment) to till under vegetation and compact the resulting surface. Conventional grading would involve cut-and-fill leveling of the ground. Herbicide may be used if necessary to control vegetation that cannot be adequately controlled through mowing and/or where leaving vegetation root structure in place may be beneficial (e.g., prevention of erosion and dust generation). Herbicide would be applied by qualified personnel following product label instructions and applicable regulations. The use of conventional grading techniques generally would be limited to approximately 16.4 acres of the Project site for access roads, parking, each Facility's substation and Energy Storage System, building or equipment foundations, detention and retention ponds, and laydown areas.

Temporarily excavated soils would be stabilized with water or palliative as needed to prevent dust. Excavated soils would be stored away from waterways or otherwise stabilized or contained (e.g., silt fencing or wattles) to prevent erosion into waterways. Long term stockpiling of excavated soils is not expected to be required. Excavated areas would be stabilized in accordance with applicable requirements.

Road corridors, buried electrical lines, PV array locations, and the locations of other facilities are typically flagged and staked in order to guide construction activities; GIS/GPS-controlled equipment also may be used. Flags and stakes would be removed shortly following the construction of the components they mark; however, flags and stakes for temporarily buried infrastructure (e.g., electrical or water lines) would remain in place until those components are removed.

2.5.4.3 Solar Facility Construction and Installation

Construction activities associated with installation of the solar fields would include the following:

- Installation of overhead, aboveground, or underground cable;
- Installation of steel posts and table frames;
- Installation of PV modules;

- Installation of concrete pads or precast vaults for the PCS, PVCS, and other electrical equipment;
- Installation of PCS, PVCS, and other electrical equipment on skids, within shelters, or on engineered piles. The PCS may contain the inverter, medium voltage transformer, communications, tracker control or other equipment possibly with back-up power source; the PVCS will contain switchgear, communication and metering equipment possibly with back-up power;
- Installation of collection system poles and lines; and
- Concrete may be required for the footings, foundations, pads for the transformers, substation equipment, and the O&M buildings. Final concrete specifications would be determined during detailed design engineering in accordance with applicable building codes. Concrete would be delivered to the site by truck.

Substation Construction

The Project would contain up to five onsite substations (one for each Facility). Each substation would be separately fenced to provide increased security around the medium- and high-voltage electrical equipment. Each substation area would be excavated, a copper grounding grid would be installed, and then the foundations for transformers and metal structures would be installed. The area first would be backfilled, compacted and leveled, and then aggregate rock base would be applied. Equipment would be installed and connected, including transformers, breakers, bus-work, and metal dead-end structures. The transformers contain an insulating oil: the oil tank would either be filled at the manufacturing facility and shipped to the Project site or the transformers could be shipped with the oil tank empty and filled onsite. The substations would have a site control center equipment building, which would house substation and plant control equipment, meters, battery or generator backup and other electrical equipment which would be located in or next to the substations.

Energy Storage Systems

Energy Storage System construction would include moving the prefabricated enclosures or buildings with a crane or forklift to the appropriate location. The location would depend on final design and could require construction of concrete foundations to support Energy Storage System components. Each Energy Storage System would include electrical switching and transformers and connect to the 34.5 kV bus in the Facility substation. The electrical interconnection would be either underground or overhead, or a combination of both.

O&M Area

If constructed, the common O&M area is proposed to be located adjacent to the temporary laydown area within the Little Bear 1 site (APNs 019-110-04ST and 019-110-05ST) (see Figure 2-2). It would include a permanent building constructed atop a poured concrete foundation. The driveway and parking area for the O&M building would be compacted native soil and/or road base aggregate. Final design for the O&M building would depend on Project needs and would be subject to state and local building codes and design standards.

2.5.4.4 Gen-Tie Line Construction and Stringing

As described in Section 2.5.2, *Gen-tie Lines*, the Project would use the existing North Star Solar Project gen-tie line infrastructure to the extent possible. Interconnecting the Project with the existing North Star gen-tie line would require new poles on the Project site. The precise locations of new poles would be identified and finalized as part of the final design of the Project. For purposes of analysis, it is assumed that up to 30 new poles would be required for both the Little Bear 1 and Little Bear 3, 4, 5 and 6 interconnections. During construction of the new 115 kV gen-tie line the location of each transmission pole would be surveyed and staked. Foundations for each transmission pole would be constructed, the transmission poles erected, and transmission pole arms and insulators installed. After transmission pole installation occurs, conductor stringing and terminations would be performed to ensure the new 115 kV gen-tie line is operating correctly. An overhead fiber optic communication line between the Project and the Mendota substation would be installed on the gen-tie line towers, adjacent to the existing North Star communication line.

Construction of the new transmission poles for the 115 kV gen-tie line would require temporary construction areas at each new structure and at locations required for conductor stringing and pulling operations. Each stringing and pulling operation consists of a puller set-up positioned at one end and a tensioner set-up with wire reel stand truck positioned at the other end.

The dimensions of the area needed for the wire stringing set-ups associated with wire installation are variable and depend upon terrain. These activities generally require an area of approximately 50 feet wide by 100 feet in length within the Project area.

2.5.4.5 Construction Schedule and Workforce

Construction of the Facilities would overlap within a total construction period lasting between approximately 10 to 14 months. Within this overall period, the construction of individual Facilities would last approximately 6 to 10 months. Construction is expected to commence in the fourth quarter of 2019.

Hours

Construction generally would occur Monday through Friday, during daytime hours (7 a.m. to 10 p.m.). If nighttime work hours (10 p.m. to 7 a.m.) and work on weekends is necessary (for example, to make up schedule deficiencies, complete critical construction activities, or avoid dangerous work conditions during hot weather), such work would occur consistent with Fresno County General Plan and County code provisions. Construction requirements would require some nighttime activity for installation, service or electrical connection, inspection, and testing activities. Nighttime activities would be performed with temporary lighting, which would be directed downward to minimize impacts to neighboring properties and wildlife in the Project vicinity.

Workforce

The on-site construction workforce would consist of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel. It is anticipated that a peak work force of up to 750 on-site personnel would be expected during Project construction. The duration of the peak workforce is estimated to be 120 days. Based on demographics and experience with the North Star Solar Project, a majority of the construction workforce is expected to come from the Fresno regional area.

2.5.4.6 Construction Access, Traffic, and Equipment

Local construction access to the Project site would occur from West California Avenue. No points of ingress/egress are proposed directly onto SR-33. Proposed locations of driveways for the individual Facilities are shown on Figure 2-2. If construction worker parking is located at the North Star Solar Project, vehicles would use the existing North Star Solar Project entrance on West California Avenue.

Traffic resulting from construction activities would be temporary (i.e., up to 14 months) and could occur along area roadways as workers and materials are transported to and from the Project site. The majority of construction workers would be expected to arrive at the Project site in the morning and depart during the afternoon each weekday. Most workers would be expected to use SR-180 to commute from the Fresno area, although some commutes from the north and south using SR-33 are expected. Construction workers would be encouraged to carpool in order to minimize vehicle trips.

Deliveries of construction equipment and materials would occur throughout the day. Deliveries would be expected to use SR-33 to reach West California Avenue. Deliveries from the Fresno area would be expected to use SR-180 to reach the Project site. No heavy loads would arrive at the Project site from the west via West California Avenue. Most equipment and material would be delivered to the temporary laydown area in the western area of Little Bear 1 (APNs 019-110-04ST and 019-110-05ST).

Typical equipment during construction would include scrapers, dozers, tractors, backhoes, excavators, and other common types of construction equipment. Additional details about equipment types, average daily worker trips, and use assumptions are provided in Table 6 of the Air Quality and Greenhouse Gas Emissions Analysis Technical Report provided in Appendix E.

2.5.4.7 Stormwater and Dust Control

The Project site would include retention or detention basins to manage storm water runoff in compliance with local design standards, as shown on Figure 2-2. Site preparation and construction activities would be performed in accordance with a Stormwater Pollution Prevention Plan (SWPPP), or similar plan as appropriate, which incorporates stormwater Best Management Practices to reduce the adverse effects of erosion and sedimentation. Such practices would include, for example, the use of water trucks to manage dust; silt fencing, straw bales and temporary catch basins, and inlet filters to control stormwater; and truck tire muck shakers, or similar devices, to prevent mud and debris from being carried onto roadways.

Project construction activities would comply with all applicable San Joaquin Valley Air Pollution Control District rules and regulations, including Rule 9510 (Indirect Source Review) and Regulation VIII (Fugitive Dust Rules).

Coccidioidomycosis, more commonly known as "Valley Fever," is primarily a disease of the lungs caused by the spores of the Coccidioides immitis fungus ("cocci"). The spores can be found in some areas naturally occurring in soils, can become airborne when the soil is disturbed, and can subsequently be inhaled into the lungs. There is the potential that both dust and cocci spores could be stirred up during excavation, grading, and earth-moving activities, exposing construction workers to dust and potentially the cocci spores and thereby to the potential of contracting Valley Fever. Reduction of the potential for exposure to dust and the cocci spores can be accomplished by project design features that minimize soil disturbance (e.g., limiting grading, trenching, excavations where feasible), and providing dust control, training, job hazard assessments, and personal protective respiratory equipment when appropriate.

2.5.5 Operation and Maintenance

Operation and maintenance of the Project would require on-site personnel consisting of plant operators, maintenance technicians, and security personnel. Operations and maintenance staff typically would work during regular business hours Monday through Friday. On a typical day, the number of staff on site may range from none (it is not necessary for staff to be present during plant operations) to 15-20 during periodic, routine maintenance events. Non-routine (emergency) maintenance or major repairs could require additional workers and may also require work to occur at night when the Project is not generating power to the grid.

The solar modules at the site would operate during daylight hours, 7 days a week, 365 days a year. A solar PV project uses no process water, gas, or fuels for the power generation process. The maintenance protocol is mainly routine inspections. Preventive maintenance kits and certain critical spare equipment would be stored on-site. The frequency and type of maintenance is described in **Table 2-2**. During the first year of operation, inspections shown as semi-annually would be performed quarterly, inspections shown as annual would be performed semi-annually in order to identify initial issues that may arise early in the project's life. At designated intervals, approximately every 10 to 15 years, major equipment maintenance would be performed.

Operation and maintenance would require the use of vehicles and equipment including crane trucks for major equipment maintenance, mowers or other vegetation management equipment, and additional maintenance equipment such as forklifts, manlifts, and chemical application equipment for weed abatement. Pick-up trucks would be in daily use on the site. No heavy equipment would be used during normal plant operation. The Project would receive service power from PG&E and would have emergency generators available onsite.

TABLE 2-2
ROUTINE MAINTENANCE PROTOCOL

Equipment	Maintenance Interval	Task
PV Modules	Quarterly	• Visually inspect panels for breakage and secure mounting • Visually inspect modules for discoloration • Visually inspect wiring for connections and secure mounting • Visually inspect mounting structure for rust and erosion around foundations • Manually clean localized debris from bird droppings, etc.
	Semi-Annually	• Clean modules if determined necessary
Inverters	Semi-annually	• Perform temperature checks on breakers and electrical terminations • Visual inspection of all major components and wiring harnesses for discoloration or damage • Measure all low voltage power supply levels • Inspect/remove any dust/debris inside cabinet • Inspect door seals • Check proper fan operation • Inspect and clean (replace if necessary) filters • Check electrical termination torque • Check the operation of all safety devices (e-stop, door switches, ground fault detection)
	Annually	• Check all nuts, bolts and connections for torque and heat discoloration • Calibrate control board and sensors • Inspect air conditioning units for proper operation
Medium voltage transformers	Semi-annually	• Perform temperature check • Inspect door seals • Record all gauge readings • Clean any dirt/debris from low voltage compartment
Substation transformers	Semi-annually	• Inspect access doors/seals • Inspect electronics enclosure and sensor wiring • Record all gauge readings
	Annually	• Inspect fans for proper operation • Calibrate temperature and pressure sensors • Pull oil sample for oil screening and dissolved gas analysis
Breakers and switchgear	Semi-annually	• Inspect for discoloration of equipment and terminations • Inspect door seals
	Annually	• Check open/close operation
Overhead gen-tie lines	Annually (and after heavy rains)	• Visual inspection of poles and wires • Visual inspection of supports/insulators • Visual inspection for discoloration at terminations
Roadways	Annually (and after heavy rain)	• Inspect access ways and internal roads for erosion
Vegetation	Semi-annually	• Inspect for localized vegetation control as necessary to restrict height to less than 12 inches to address faster growth vegetation • Apply herbicides as necessary to control noxious weeds
	Every 3 years	• Mow as required to reduce vegetation height to 9 inches

TABLE 2-2 (CONTINUED)
ROUTINE MAINTENANCE PROTOCOL

Equipment	Maintenance Interval	Task
O&M Buildings	Semi-annually	• Check smoke detectors • Apply pesticides as necessary to control rodents and insects
	Annually	• Check weather stripping and door/window operation • Check emergency lighting • Inspect electrical service panel
Backup Power	Annually	• Visually inspect backup power system • Perform functional test of backup power system
Fencing	Quarterly (and after heavy rain)	• Inspect fence and posts to maintain "wildlife friendly" features and correct any erosion at base

2.5.6 Decommissioning and Site Reclamation

The Project is anticipated to be in commercial operation for approximately 30 years from the commencement of operations, with a potential for continued use in accordance with County requirements, which may include new or amended use permits. Within six months after the conclusion of each Facility-specific CUP period (including any extension that may be granted by the County), decommissioning and site reclamation of that Facility site would occur. Decommissioning and site restoration activities are expected to require a smaller workforce than construction, and to take approximately 14 months to complete.

Each Facility site would be returned to a stable condition comparable to pre-Project conditions in accordance with applicable land use regulations in effect at that time via the implementation of a County-approved Closure, Decommissioning, and Reclamation Plan. The Plan, when final and following County approval, would provide for pre-decommissioning activities; removal of above- and below-ground facilities; and management, disposal, and recycling of debris. With agency approval, below-ground structures such as pipelines, electrical lines and conduits, or concrete slabs could be left in place to minimize soil disturbance. Post-demolition site restoration activities would restore pre-Project topographical contours as required based on expected future use of the site and could include disking to loosen compacted soils and revegetation with broadcast of a rangeland seed mix of grasses and forage crops if required. An initial draft Closure, Decommissioning and Reclamation Plan is included as Appendix B1.

2.5.7 Applicant Proposed Measures and Design Features

The Applicant proposes to take certain actions for the purpose of reducing the potential significance of anticipated environmental impacts of the Project. These measures are elements of the Project, either as a specific design feature or as an Applicant-Proposed Measure (APM). Where the analysis of individual resources relies on these APMs or design features to reduce anticipated effects, the relevant section so notes. By contrast, mitigation measures are not elements of the Project and are structured in accordance with the criteria in CEQA Guidelines Section 15370. To assure that the APMs and design features are implemented, they would be

included with the mitigation measures and conditions of approval in the final Mitigation Monitoring and Reporting Program, an initial draft of which is provided in Appendix N.

2.5.7.1 Voluntary Emissions Reductions Agreement (VERA)

The Applicant proposes to enter into and implement a Voluntary Emissions Reductions Agreement (VERA) with the San Joaquin Valley Air Pollution Control District (SJVAPCD) to offset Project-generated air emissions in excess of mass annual thresholds. A VERA is a contractual agreement between a project applicant and the SJVAPCD where the applicant may fully mitigate project emission impacts by providing funds to the SJVAPCD to facilitate the development and implementation of emission reduction projects. Implementation of the proposed VERA would assure that the Project's emissions would not exceed the SJVAPCD significance thresholds. See Section 1.3 of the Air Quality and Greenhouse Gas Emissions Analysis Technical Report that was prepared for the Project, which is provided in Appendix E of the Draft EIR, for additional details.

2.5.7.2 Valley Fever Management Plan

During the demolition, construction, and decommissioning phases of the Project, the Applicant proposes to implement several measures intended to reduce worker exposure to the *Coccidioides immitis (C. immitis)* fungus that causes Valley Fever. Prior to ground disturbing activities, a Valley Fever Management Plan will be provided to the County and shall include a program to limit the potential for exposure to *C. immitis* from construction activities and to identify appropriate worker training, dust management and safety procedures that shall be implemented, as needed, to minimize personnel and public exposure to *C. immitis*. In addition to awareness and recognition training, these measures include performing job hazard assessments (JHAs) for all job classifications employed on site. These JHAs will identify the potential for exposure as well as the appropriate precautions and controls to minimize exposure.

2.5.7.3 Wildlife-friendly Features

As described in Section 2.5.1.4, *Other Infrastructure*, the Applicant proposes to reduce potential impacts to wildlife by installing "wildlife-friendly" fencing, which would be designed to allow San Joaquin kit fox to pass through the fence while still providing for solar facility security and exclusion of other unwanted species (i.e., large domestic dogs and coyotes). Fence posts would be capped to prevent potential entrapment of birds or other small species. As described in Section 2.5.2, *Gen-tie Lines*, the design of new overhead gen-tie lines and transmission structures would follow the most recent Avian Power Line Interaction Committee guidance, currently 2012, to reduce the potential for avian injury and mortality from collisions (APLIC 2012) and electrocution (APLIC 2006). Further, the proposed use of motion-activated security lighting (rather than lighting that would remain on from dusk to dawn) would reduce adverse impacts to nocturnal species, potentially including foraging, sheltering, mating and reproducing, communicating, and migrating behaviors.

2.5.7.4 Shared Facilities with the North Star Solar Project

The Project would share, where feasible, the existing 2 mile-long 115 kV gen-tie line and underground communication lines between the North Star Substation and PG&E's Mendota Substation; may share a portion of the North Star Solar Project site for construction worker

parking, temporary construction offices, and temporary water storage tanks; and may use water from the North Star Solar Project well. To the extent the sharing of this existing infrastructure would be feasible, the Applicant would avoid creating new impacts, including the avoidance of potential impacts to aesthetics and avian species that otherwise would result from new power lines and poles along West California Avenue, potential grading or hazardous materials impacts that could result if all construction workers were to park commute vehicles on the Project site, and potential impacts to groundwater supply and soils from the normal use of potential contaminants (such as sealants) in the well-drilling process.

2.5.7.5 Compliance with Applicable Laws and Standards

The Applicant would comply with all applicable laws and standards, including, but not limited to, those governing the use, storage, and disposal of hazardous materials; worker training and safe work practices; air quality (such as the San Joaquin Valley Air Pollution Control District's indirect source rule and fugitive dust regulation), water quality (e.g., local design standards for retention or detention basins to manage storm water runoff), and Energy Storage Systems more generally (see Draft EIR Chapter 2's footnote 6 for details). Similarly, site preparation and construction activities would be performed in accordance with a SWPPP, or similar plan that incorporates stormwater BMPs to reduce the adverse effects of erosion and sedimentation, and herbicide would be applied by qualified personnel following product label instructions and applicable regulations. Compliance with these requirements would avoid or reduce potential adverse environmental impacts to soil, air quality, surface water and groundwater quality, human health, fire-related risk, and other environmental considerations.

2.5.7.6 Worker Environmental Awareness Program (WEAP)

Prior to the issuance of grading or building permits and for the duration of construction activities, the Project owner, or its contractor, shall implement a Worker Environmental Awareness Program (WEAP) to train construction personnel how to recognize and protect environmental and cultural resources on the Project site. The WEAP training shall include the following topic areas:

- **Biological Resources:** Training will include a review of the special status species and other sensitive biological resources that could exist in the Project area, the locations of sensitive biological resources and their legal status and protections, and measures to be implemented for avoidance of these sensitive resources. Covered resources would include the San Joaquin kit fox, Swainson's hawk and the burrowing owl.

- **Cultural and Paleontological Resources:** The training shall include an overview of potential cultural and paleontological resources that could be encountered during ground-disturbing activities to facilitate worker recognition and avoidance as well as appropriate notifications and work restrictions should potential resources be encountered.

- **Paleontological Resources:** The training shall include an overview of potential paleontological resources that could be encountered during ground disturbing activities to facilitate worker recognition and avoidance as well as appropriate notifications and work restrictions should potential resources be encountered.

The WEAP also will include information on other compliance matters, as appropriate, such as stormwater management, handling and storage of hazardous materials and compliance with dust control measures. The WEAP training will be mandatory for all construction personnel and certain site visitors and vendors. A copy of the training transcript and/or training video, as well as a list of the names of all personnel who attended the training and copies of the signed acknowledgement forms shall be made available upon request.

2.6 Description of Alternatives

CEQA requires a lead agency to analyze a reasonable range of alternatives to a proposed project that could feasibly attain most of the basic objectives of the project while substantially reducing or eliminating significant environmental effects. CEQA also requires an EIR to evaluate a "no project" alternative to allow decision-makers to compare impacts of approving a project with the impacts of not approving it. This section describes the key considerations used to identify and screen potential alternatives, explains why some potential alternatives were eliminated from further consideration, and describes those alternatives that were carried forward for analysis in this Draft EIR.

2.6.1 Alternatives Development and Screening Process

The County screened and thereafter selected alternatives to be discussed based on the following key provisions of the CEQA Guidelines (14 Cal. Code Regs. §15126.6):

- The discussion of alternatives shall focus on reasonable, feasible alternatives to the proposed project or its location that are capable of avoiding or substantially lessening any significant effects of the proposed project, even if these alternatives would impede to some degree the attainment of the proposed project objectives, or would be costlier.
- The No Project Alternative shall be evaluated, along with its impacts. The no project analysis shall discuss the existing conditions at the time the notice of preparation was published, as well as what would be reasonably expected to occur in the foreseeable future if the proposed project were not approved, based on current plans and consistent with available infrastructure and community services.
- The range of alternatives required in an EIR is governed by a "rule of reason," meaning the EIR must evaluate only those alternatives necessary to permit a reasoned choice.
- For alternative locations, only locations that would avoid or substantially lessen any of the significant effects of the proposed project need be considered for inclusion in the EIR.
- An EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote and speculative.

The range of feasible alternatives is selected and discussed in a manner to foster meaningful public participation and informed decision making. Among the factors that may be taken into account when addressing the feasibility of alternatives (as described in CEQA Guidelines §15126.6(f)(1)) are environmental impacts, site suitability, economic viability, social and political acceptability, technological capacity, availability of infrastructure, general plan consistency,

regulatory limitations, jurisdictional boundaries, and whether the proponent could reasonably acquire, control, or otherwise have access to an alternative site.

The County used a liberal definition of "potentially significant" to identify resource areas where the Project could have a potential to cause significant unavoidable impacts and avoid excluding alternatives that may provide some overall environmental benefit. The results of this initial inquiry are provided in **Table 2-3**. Because this screening-level projection of potential impacts was developed prior to completion of the impact analysis presented in Chapter 3, *Environmental Analysis*, the screening process identified more "potentially significant" impacts than subsequently were identified by the analysis.

TABLE 2-3
PRELIMINARY SUMMARY POTENTIAL SIGNIFICANT ENVIRONMENTAL IMPACTS

Issue Area	Impact
Air Quality	• Generation of dust, vehicle emissions associated with site preparation-related ground disturbance
Biological Resources	• Onsite foraging and denning habitat for listed or other special status species would be lost until decommissioning is complete.
Hydrology and Water Quality	• The Project's water demand could contribute to a cumulatively significant local groundwater drawdown.

2.6.2 Alternatives Rejected from Detailed Consideration

As noted above, potential alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid or substantially reduce any significant environmental effects (14 Cal. Code Regs. §15126.6(c)). Alternatives that are remote or speculative, or the effects of which cannot be reasonably predicted, also do not require consideration (14 Cal. Code Regs. §15126(f)(2)). The County considered several potential alternatives to determine whether they could reduce impacts to Biological Resources and Hydrology and Water Quality. Per CEQA, the lead agency may make an initial determination as to which alternatives are feasible and warrant further consideration and which are infeasible. The following potential alternatives initially were considered but then eliminated from further consideration. Each potential alternative is discussed below, including the rationale for not carrying it forward for more detailed environmental review.

2.6.2.1 No Groundwater Alternative

A widespread groundwater overdraft condition exists in western Fresno County, where the aquifers are generally semi-confined to confined, and reliance on groundwater to meet urban and agricultural demand is high (Fresno County 2000b). This is particularly true within the WWD because of limited groundwater recharge, periodic droughts, and inadequate surface water supplies (Fresno County 2000b). The Project site overlies the San Joaquin Valley Groundwater Basin's Westside Subbasin, which has been designated by the California Department of Water Resources as "high-priority" and subject to a condition of critical overdraft (Fresno County 2017b). Overdraft conditions have resulted in undesirable effects in western Fresno County,

including land subsidence, lowering of water tables, reducing groundwater storage capacity, increased risk of cross-contamination of aquifers as a result of well-deepening or drilling of new wells, and the spreading of groundwater contamination resulting from expanded or new cones of depression (Fresno County 2000b).

As proposed, the Project could withdraw groundwater from two existing wells on the North Star Solar Project site. Up to a total of 200 af would be needed during the 14-month period, up to 5 acre-feet per year (afy) would be needed for the 30-year CUP period, and up to a total of 200 af would be needed during the 14-month decommissioning and site reclamation period. A No Groundwater Alternative would match the description of the Project precisely as described in Section 2.5, *Description of the Project*, with the exception that no groundwater would be used for Project purposes. Instead, Central Valley Project (CVP) water would be delivered by the WWD. The CVP is a federal water management project implemented in California under the supervision of the United States Bureau of Reclamation. The WWD is a CVP contractor with allocations for municipal and industrial and agricultural uses (Westlands Water District 2017b).

However, a No Groundwater Alternative has not been carried forward for more detailed review because it has been determined to be infeasible. CEQA Guidelines Section 15364 defines feasible as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." The WWD cannot guarantee that the necessary amount of water would be available to meet the demand. See, e.g., Westlands Water District 2017a ("in the decade since 2006, [the District has] experienced allocations ranging from zero to 80 percent. For three consecutive years, 2014, 2015, and 2016, the allocation amounted to zero."); compare, Westlands Water District 2018a ("The total water available is about 13 percent short of the 1.4 million acre-feet required to water the entire irrigable area in Westlands. In order to adapt to ongoing supply shortages, Westlands continues to fund increased education and technology enabling growers to effectively utilize water allotments….") and Westlands Water District 2018b ("Unlike water agencies with more abundant supplies, Westlands must allocate (ration) water to its farmers, even in the wettest years… the total water available is about 215,000 acre-feet (15 percent) short of the 1,500,000 acre-feet required to irrigate the entire District."). Although the percentage of shortage varies, any failure of the supply to meet the demand could preclude completion of the solar plant in a reasonably timely way. Further, WWD's water year ends on February 28 (Westland Water District 2018c), so it is possible that the District could supply water in the first water year but not in the second, leaving the Project's demand unmet for the full duration of the approximately 14-month construction or decommissioning period.

2.6.2.2 Alternative Sites

Other Potential Candidate Sites

The Project site is uniquely suited for solar development for following reasons:

- The Project site is degraded, poorly drained farmland subject to restrictive covenants prohibiting the use of irrigation water on the property. It is not subject to a Williamson Act contract and is not designated as Prime or another category of special-status farmland.

- The Project site is flat and will require minimal grading, resulting in limited alteration of existing drainage patterns or surface disturbance.
- The Project has rights to use existing private infrastructure, such as the North Star Gen-tie Line, and would avoid the costs and impacts associated with building similar infrastructure at another location. Further, the Project would help maximize the utilization of this existing infrastructure.
- The Mendota Substation has been determined to be a desirable place to interconnect an energy generation project because power injected at this location helps stabilize the electric grid.

For these reasons, and as described below, no other sites were considered for the Project.

Other Degraded Agricultural Lands

Fresno County actively participated in the Central Valley Renewable Energy Project, which identified opportunities and constraints for renewable energy development in Fresno County and elsewhere in the southern San Joaquin Valley to focus the siting of new renewable energy projects in low-conflict or impaired areas, or on degraded agricultural lands to accelerate renewable energy development while protecting natural resources. Defenders of Wildlife synthesized input received from the County and other government agencies, renewable energy developers, agricultural interests, the conservation community, and published a report called *Smart from the Start: Responsible Renewable Energy Development in the Southern San Joaquin Valley* (Defenders of Wildlife 2012).

One key recommendation of the report is that renewable energy development be focused on impaired or degraded lands, such as "agricultural lands that are demonstrably chemically or physically impaired" (Defenders of Wildlife 2012). The report describes WWD lands, which include the Project site, as an example of smart-from-the-start renewable energy project siting (see, e.g., Defenders of Wildlife 2012, p. 8). Because the Project is proposed on a site expressly recommended in the report, the County did not consider other degraded agricultural lands within the County as potential alternative sites.

Impaired or Underutilized Lands

A second key recommendation made in *Smart from the Start: Responsible Renewable Energy Development in the Southern San Joaquin Valley* is that renewable energy development be focused on "brownfields, closed landfills, Superfund sites, Resource Conservation and Recovery Act (RCRA) and closed mine lands" (Defenders of Wildlife 2012). The County researched potentially contaminated and underutilized sites identified as appropriate for solar-PV projects as part of the United States Environmental Protection Agency's Re-Power America's Lands Project and reviewed the RE–Powering Screening Dataset (which provides details for more than 80,000 sites nationwide that have been pre-screened for renewable energy potential) to identify potential utility-scale or large-scale solar PV energy sites in Fresno County that were located on existing contaminated lands, landfills, or mines (USEPA 2017a, 2017b).

This effort resulted in the identification of 195 contaminated land sites in Fresno County, only three of which were noted as suitable for large or utility scale PV solar development. None of the three sites is reported to have an estimated solar PV capacity potential greater than approximately 73 MW: the Orange Avenue Disposal Inc. site located at 3280 South Orange Avenue in Fresno has an estimated solar PV capacity potential of approximately 7 MW; the Southeast Regional Solid Waste Disposal Site located at 12716 Dinuba Avenue in Selma has an estimated solar PV capacity potential of approximately 22 MW; and the American Avenue Landfill site located at 18950 West American Avenue in Kerman has an estimated solar PV capacity potential of approximately 73 MW (USEPA 2017b). The American Avenue Landfill site also is insufficient in that the power line serving the site is scaled only for distribution at 69 kV (USEPA 2017b). These sites were eliminated from further consideration as inadequately sized or served to meet the Project objective of establishing a solar PV energy-generating facility of a sufficient size and configuration to produce approximately 180 MWac of electricity.

2.6.2.3 Alternative Solar Technology: Concentrated Solar

A concentrated solar (parabolic trough) power system was considered as a potential alternative to the Project. However, for the reasons discussed below, this type of system was not carried forward for detailed consideration. Concentrated solar power systems use reflective surfaces in large arrays to focus the sun's energy on a fixed point to produce intense heat from which electricity can be generated. Parabolic troughs concentrate sunlight onto individual units, each of which is equipped with receiver tubes filled with a heat transfer fluid. The transfer fluid is super-heated before being pumped to heat exchangers that transfer the heat to boil water and run a conventional steam turbine to produce electricity. Although concentrated solar power systems can store heated fluids to deliver electricity even when the sun is not shining, these systems can cause environmental issues related to reflectivity, and thermal plumes, and radar interference (FAA 2010).

The land required to develop a concentrated solar energy facility is comparable to that required for a PV project – approximately 6.2 acres per MWac for solar thermal relative to between 5.5 acres per MWac for fixed-tilt PV and 6.5 acres per MWac for single-axis tracker (Renewable Energy World 2013). Use of a concentrated solar technology would meet most of the basic Project objectives; however, use of this technology would not avoid or substantially lessen any of the potential significant effects of the Project and could generate new significant impacts such as those associated with the use, transport, disposal of hazardous materials (the heat transfer fluid); greater water demand (to generate steam to power turbines connected to electrical power generators); and as a result of the solar thermal arrays' reflective surfaces, causing or contributing to substantial glint- or glare-related impacts. Accordingly, a concentrated solar power system alternative was not considered further.

2.6.2.4 Alternative Approaches

The County considered whether conservation and demand side management or another distributed energy resources-only alternative could provide a reasonable feasible alternative to the Project and elected not to carry them forward for further consideration. These approaches are part of a sustainable energy future; however, these methods alone will not meet the State's renewable energy goals. PG&E, together with the State's other investor-owned utilities, must increase

renewable electricity generation by approximately 24 percent between 2016 and 2020 to meet its RPS of 33 percent of electricity generation from renewables by 2020 (Next 10 2017). Therefore, it is critical for PG&E and other utilities to supplement these methods by considering renewable energy resources in planning for future energy needs.

Conservation and Demand Side Management

Conservation and demand side management consists of a variety of approaches to reduce electricity use and shift electrical demand to times of the day when energy demand is lower. It includes increased energy efficiency and conservation, building and appliance standards, fuel substitution, and load management. Implementation of conservation and demand side management techniques could result in a reduction in demand thus reducing the need for new generation, and thereby serve the region's growing demand for power.

Increased energy efficiencies and reductions in energy demand would not meet Project objectives including the generation of approximately 180 MWac of renewable electricity from proven technology, assisting the State in achieving its RPS and SB 350 GHG reduction goals by providing a significant new source of solar energy, producing and transmitting electricity at a competitive cost; and locating a solar energy generating facility in rural western Fresno County near an available connection to the existing electrical distribution system. This potential was not carried forward for more detailed review because it would not meet most of the basic Project objectives.

This potential alternative also was not carried forward because reliance on conservation and demand side management alone would be a technically infeasible alternative to the Project. The level of efficiency presumed to result in the baseline condition is quite aggressive: the 2008 adoption and 2011 amendment by the California Public Utilities Commission (CPUC) of the State's first long-term Energy Efficiency Strategic Plan provides an integrated framework of goals and strategies for saving energy during the 2009 to 2020 timeframe (CPUC 2008, 2011). The plan champions four specific programmatic initiatives relating to residential and commercial new construction. It would be speculative to assume that incremental savings beyond these levels could be achieved.

Other Distributed Energy Resources

In addition to energy efficiency and demand response, the range of distributed energy resources includes energy storage and "behind the meter" options such as customer generation (e.g., rooftop solar) and alternative fuel vehicles (e.g., electric vehicles). Fresno County is already a leader in these areas. According to the 2017 California Green Innovation Index, Fresno County ranks first among California counties for industrial solar capacity installed, fourth for commercial solar, and sixth for residential solar; further, the number of clean vehicle rebates given in Fresno per 1 million people increased by 52 percent between 2014 and 2015 (Next 10 2017). Nonetheless, an Other Distributed Energy Resources Alternative would not meet Project Objectives relating to the generation of approximately 180 MWac of renewable electricity from proven technology, providing a significant new source of solar energy, producing and transmitting electricity at a competitive cost, and locating a solar energy generating facility in rural western Fresno County near an available connection to the existing electrical distribution system. In addition, the

implementation of a range of distributed energy resources would be an infeasible alternative to the Project because the Applicant does not own or have a right to use the many sites that would be required to generate a comparable amount of solar-generated energy as the Project.

2.6.3 Alternatives Evaluated in Detail in this EIR

2.6.3.1 Increased Habitat/Reduced Acreage Alternative

Under this Alternative, Little Bear 6 would not be constructed. No solar project-related equipment or infrastructure would be installed on the approximately 161 acres of APN 019-110-13ST located on the south side of West California Avenue between South Ohio Avenue and State Route 33 that are designated for Little Bear 6 in Section 2.5, *Description of the Project*. The on-site 115 kV gen-tie line proposed to interconnect Little Bear 6 would not be constructed; no solar panels, substation, Energy Storage System, detention pond, or meteorological stations would be constructed in that area; and perimeter chain link fencing would not enclose that quarter section. Land within the Little Bear 6 site would continue to be used as fallowed farm land, and occasionally dry-farmed. Existing foraging, denning, and other habitat value would be maintained on the approximately 161 acres. A large stick nest has been observed on top of the utility pole in the SR-33 right-of-way adjacent to the Little Bear 6 site, approximately 435 feet south of West California Avenue. Although it is believed to have been a common raven's nest in 2016, an adult red-tailed hawk was observed sitting in the nest during the April 2017 survey. Direct impacts to the nest would be avoided by the Increased Habitat Alternative, and the potential for indirect impacts would be reduced commensurate with the greater distance between it and Project-related activities on the sites of Little Bear 3 and Little Bear 5 (LSA 2017). The Project otherwise would be as described in Section 2.5, *Description of the Project*. Compared to the Project, the Increased Habitat/Reduced Acreage Alternative would entail less surface disturbance, less construction dust, reduced construction and decommissioning emissions, and reduced demand for water. The boundaries of the Increased Habitat/Reduced Acreage Alternative reflect the smallest reasonable, potentially feasible extent of solar development, and greatest retention of existing habitat conditions, within the Project site because, if approved, Little Bears 1, 3, 4, and 5 are already subject to contractual obligations to provide power via a Power Purchase Agreement; no such agreement obligates the Applicant to provide power from Little Bear 6 (First Solar 2016, 2018).

2.6.3.2 No Project Alternative

CEQA Guidelines Section 15126.6(e) requires consideration of a No Project Alternative. This analysis discusses the existing conditions at the time the NOP was published, as well as what reasonably would be expected to occur in the foreseeable future if the Project were not approved, based on current plans and consistent with available infrastructure and community services.

If the No Project Alternative is implemented, the Project site would continue to be used for dry-farmed agriculture and/or left fallow. The Project site is designated "Agriculture" as shown on Fresno County General Plan Countywide Land Use Diagram Figure LU-1a (Fresno County 2000a) and is zoned AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) (Fresno County 2017a). If the Project were not approved, then other uses consistent with the AE-20 zoning designation could be made on one or more of the parcels that comprise the Project site

(Fresno County 2011). Pursuant to Fresno County Ordinance Code Section 816, uses (among others) that are allowed by right without a permit relate to livestock, poultry, and crops; home occupations; agricultural products; apiaries; kennels; and welding and blacksmith shops. No such competing proposals for site use are before the County. Accordingly, rather than speculate as to possible other uses, the analysis of the No Project Alternative in this Draft EIR assumes a no-development/no Project scenario where the existing agricultural use is continued as it exists under pre-Project conditions.

Under a no-development scenario, the property would continue in agricultural use and the existing environmental setting would be maintained. Changes to that setting, including changes to the landscape (visual resources, habitat, and land use/agriculture); Project-related construction noise, traffic, and air emissions would not occur; and environmental benefits relating to renewable energy would not be realized from solar development of the site. The existing shed and silos would remain in place.

As a no-development alternative, the No Project Alternative would avoid all Project-related impacts. It would cause no new impacts on the physical environment; i.e., existing land uses would continue to affect environmental conditions as they are now. No legal, regulatory, or technical feasibility issues were identified that would eliminate the No Project Alternative from consideration. However, the No Project Alternative would not meet any of the Project objectives.

2.7 Permits and Approvals

Permits and approvals that could be required to construct, operate and maintain, and decommission the Project include the following:

- Five Unclassified Conditional Use Permits: CUP Nos. 3550, 3551, 3552, 3553, and 3577 for Little Bears 1, 3, 4, 5, and 6, respectively. Further, an Encroachment Permit would be required for any improvements within the County right-of-way prior to commencement of construction.
- San Joaquin Valley Unified Air Pollution Control District: District approval of Indirect Source Review, stationary and/or mobile sources may be required.
- California Department of Fish and Wildlife authorization may be required pursuant to the agency's lake and streambed alteration regulatory authority (Fish & Game Code §1600 et seq.) and/or if the proposed activities could result in "take" as defined in the California Endangered Species Act (CESA) (Fish & Game Code§2050 et seq.).
- US Fish and Wildlife Service consultation / authorization may be required if the proposed activities could result in "take" as defined in the Federal Endangered Species Act (FESA).
- Water Quality Control Board authorization may be required if construction activities disturb more than 1 acre, pursuant to the National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Associated with Construction Activity.
- Fresno County approvals may be required if work is to be performed within a County right-of-way (i.e., an encroachment permit from the Road Maintenance and Operations Division of

the Department of Public Works and Planning) or for the erection, demolition, or conversion of any building or structure (i.e., building and grading permits).

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CHAPTER 3
Environmental Analysis

3.1 Introduction to Environmental Analysis

3.1.1 Overview

This chapter describes and analyzes the direct, indirect, and cumulative environmental impacts of the Project and alternatives, including the No Project Alternative. This chapter examines the potential environmental impacts associated with the Project and alternatives as they relate to the following areas of environmental consideration:

3.2 Aesthetics
3.3 Agriculture and Forestry Resources
3.4 Air Quality
3.5 Biological Resources
3.6 Cultural Resources
3.7 Energy Conservation
3.8 Geology, Soils, and Paleontological Resources
3.9 Greenhouse Gas Emissions
3.10 Hazards and Hazardous Materials
3.11 Hydrology and Water Quality
3.12 Land Use and Planning
3.13 Mineral Resources
3.14 Noise and Acoustics
3.15 Population and Housing
3.16 Public Services
3.17 Recreation
3.18 Transportation and Traffic
3.19 Tribal Cultural Resources
3.20 Utilities and Service Systems

Analysis within each issue area considers all components of the Project discussed in Chapter 2, *Description of Project and Alternatives*. Within each of the environmental areas listed above, the discussion of Project impacts is provided in the following format:

- Environmental Setting, Regional and Local.
- Regulatory Setting, Federal, State, and Local (i.e., applicable laws, regulations, plans, and standards).
- Significance Criteria.
- Direct and Indirect Effects (i.e., impacts) the Project and Alternatives, including mitigation measures where potential significant impacts are identified.
- Cumulative Effects.

For each resource area, this document provides information about the physical and regulatory setting (baseline conditions) to aid in understanding of potential impacts and the threshold used to determine their significance. Mitigation measures are recommended where feasible to reduce potential significant impacts below the established thresholds. Throughout Chapter 3, both impacts and the corresponding mitigation measures are identified by a bold letter-number designation (e.g., **Impact 3.1-1** and **Mitigation Measure 3.1-1**).

In performing the analysis for this Draft EIR, the EIR Preparers relied on available published studies and reports and conducted independent investigations as needed. Information provided by or on behalf of the Applicants also was independently reviewed and determined to be suitable for reliance on (in combination with other materials in the formal record) in the preparation of the EIR. The specific documents considered and relied upon are cited in each section. Copies of site-specific or Project-specific reports are provided in the Appendices to this EIR. Copies of other cited reference materials also are available for agency and public review. See Section 1.4.2, *Public Comment on the Draft EIR*, regarding public review copies of reference materials.

3.1.2 Environmental Assessment Methodology

3.1.2.1 Environmental Baseline

The analysis of each issue area begins with a description of the actual physical environmental conditions in the area where a project and its alternatives would be implemented. These conditions also are referred to as the "baseline" relative to which Project-caused changes are analyzed to determine whether the change is significant for purposes of CEQA (CEQA Guidelines §§15125, 15126.2). For this Project, baseline conditions are those as they existed in September 2017 when the Notice of Preparation was published unless as otherwise noted. The effects of the Project and alternatives are defined as changes to the environmental setting that are attributable to Project components or activities. Consistent with CEQA, an EIR need not analyze the effects of the existing environment on a project (including its users or occupants) unless the project exacerbates those conditions.

3.1.2.2 Impact Significance Criteria

CEQA lead agencies rely on impact significance criteria as benchmarks to determine whether changes caused by the Project or an alternative to the existing environment would be a significant adverse effect. A significant effect on the environment is "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project" (CEQA Guidelines §15382).

To guide the Lead Agency in determining whether the Project may cause a significant impact on the environment, the Preparers of this EIR have considered the series of questions provided in CEQA Guidelines Appendices F and G. The Governor's Office of Planning and Research (OPR) describes the list of questions in Appendix G as "only a sample," "not an exhaustive list of all potential impacts," and as something that "can be tailored to address local conditions and project characteristics" (OPR 2017). The impact significance criteria relied upon in this EIR differ from the CEQA Guidelines Appendix G checklist in that they: delete redundant questions; add

questions that, although required by current law, tend to be overlooked in the environmental review process; add questions required by changes in the law since the last consolidated update of the CEQA Guidelines; move questions related to paleontological resources from the Cultural Resources section to the Geology, Soils and Paleontology section consistent with Assembly Bill (AB) 52; and consider Project-specific inquiries and local considerations, such as potential impacts of the Project on pollinators and the neighboring pomegranate orchard (see Section 3.5, *Biological Resources*, and Section 3.3, *Agriculture and Forestry Resources*, respectively). A brief explanation of differences is provided on a resource-by-resource basis throughout this Chapter 3.

3.1.2.3 Impact Significance Conclusions

This EIR evaluates the environmental consequences that would be caused by the Project and alternatives. It identifies impacts numerically and sequentially by resource area. An impact statement precedes the discussion of each impact and provides a summary of the impact topic. Each potential impact is categorized as one of the following:

- **No Impact:** This signifies that a project or an alternative would not cause any change in the environment relative to the applicable significance criterion; under these circumstances, no mitigation measures would be required or may be imposed.
- **Less than Significant Impact:** This signifies that a project or an alternative could cause an adverse change in the environment, but not one that would be substantial, relative to the applicable significance criterion; under these circumstances, no mitigation measures would be required or may be imposed.
- **Less than Significant with Mitigation Incorporated:** This signifies that a project or an alternative could cause an adverse change in the environment that would be substantial relative to the applicable significance criterion, but that the implementation of one or more feasible mitigation measures would reduce the significance of the impact below the established threshold.
- **Significant and Unavoidable:** This signifies that a project or an alternative could cause a substantial adverse change in the environment relative to the applicable significance criterion; however, either no feasible mitigation measures are available, or, even with implementation of feasible mitigation measures, the significance of the impact would remain above the established threshold.

To avoid or reduce potential significant impacts where feasible, alternatives have been considered or mitigation measures have been recommended to address them. The effectiveness of recommended mitigation measures has been evaluated by analyzing the impact remaining after the implementation of the measure. In some cases, the implementation of more than one mitigation measure may be needed to reduce the significance of an impact below an established threshold. The mitigation measures recommended in this document are identified on a resource-by-resource basis in this Chapter 3 and are presented in the Draft Mitigation Monitoring and Reporting Program included as Appendix N.

3.1.3 Cumulative Effects Approach

As defined in CEQA Guidelines section 15355, the term "cumulative impacts" refers to two or more individual effects, which, when considered together, are considerable or that compound or increase other environmental impacts. "The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time." CEQA Guidelines §15355(b); see also, CEQA Guidelines §15130(a)(1).

The analysis in this chapter evaluates whether the incremental impacts of the Project and alternatives, when combined with the impacts of other cumulative projects would cause or contribute to a significant cumulative impact. The Project's incremental contribution to any significant cumulative impact also is evaluated to determine whether it would be cumulatively considerable. Incremental Project-specific impacts would be cumulatively considerable if they are "significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects" (CEQA Guidelines §15065(a)(3)).

3.1.3.1 Projects Considered in the Cumulative Impact Analysis

A blend of two approaches is used to analyze cumulative effects in this Draft EIR: the "list-of-projects" approach and the "summary of projections" approach (CEQA Guidelines §15130(b)). The list-of-projects approach considers the incremental effects of a proposed project viewed in combination with the effects of past, present, and reasonably foreseeable probable future projects that could cause environmental impacts that are closely related to those of the project proposed. Factors considered in determining whether a project is a cumulative project include whether it would cause impacts of the same nature as the proposed project in the same area at the same time. A list of projects within a 15-mile radius of the Project site that would cause impacts that could combine with those of the Project is provided in **Table 3.1-1**, their locations are shown in **Figure 3.1-1**. Although the list of projects is based on a 15-mile radius, the geographic area of cumulative consideration is established on a resource-by-resource basis throughout Chapter 3 as dictated by relevant physical boundaries (such as the extent of the groundwater basin) and is not limited by the area shown in Figure 3.1-1.

The summary of projections approach evaluates the impacts of a proposed project in the context of projections made in one or more local, regional, or statewide planning documents or environmental analysis that has been adopted or certified, such as the Fresno County General Plan and the San Joaquin Valley Air Pollution Control District Planning Air Quality Plans. Such plans are prepared by local agencies to meet the requirements of state law and may contain the preparing agencies' comprehensive, long-term visions for physical development or resources conservation within the region.

TABLE 3.1-1
LITTLE BEAR SOLAR GENERATING FACILITY PROJECT CUMULATIVE IMPACT ANALYSIS PROJECTS LIST

Map Key	Project Name / Applicant	Location	Approximate Distance from Project Site	Description	Status
City of Mendota					
1	CalRenew-1 (Swinerton Renewable Energy)	East of West Belmont Avenue. East of the William Robert Johnston Municipal Airport.	Within 10 miles (2.8 miles northeast of Little Bear 6)	5 MW solar project on approximately 50-acres that delivers power to PG&E under a long-term power purchase agreement.	Construction began in August 2009; project is in operation.
County of Fresno					
2	North Star Solar Project (First Solar, Inc.)	South side of Whitesbridge between San Bernardino and Ohio Ave	Within 2 miles (adjacent, directly north of Little Bear 1)	Approximately 626-acre, 60-MWac PV solar facility and gen-tie line to PG&E's Mendota Substation.	Solar plant site approved by Fresno Planning Commission in 2012; gen-tie line approved by Fresno Planning Commission November 14, 2013; project is in operation.
3	Citizen Solar B	East side of North San Diego Avenue between Whitesbridge Avenue and West California Avenue	Within 2 miles (adjacent, directly northwest of Little Bear 1)	40-acre, 5 MW PV solar facility.	Approved by Fresno Planning Commission on April 14, 2016.
4	RE Tranquillity #1	Seven miles southwest of the community of Tranquillity, south of Manning Avenue between San Benito Avenue and San Bernardino Avenue	Within 10 miles (approximately 7.5 miles south of Little Bear 4 and 5)	600-acre, 50 MW PV solar facility.	Fresno Planning Commission Approved; EIR certified October 9, 2014.
5	RE Tranquillity #2	Seven miles southwest of the community of Tranquillity, south of Manning Avenue between San Benito Avenue and San Bernardino Avenue	Within 10 miles (approximately 7.5 miles south of Little Bear 4 and 5)	500-acre PV, 50 MW solar facility	Fresno Planning Commission Approved; EIR Certified October 9, 2014; Planning Commission Approved Ext 1 September 15, 2016.
6	RE Tranquillity #3	Seven miles southwest of the community of Tranquillity, south of Manning Avenue between San Benito Avenue and San Bernardino Avenue	Within 10 miles (approximately 7.5 miles south of Little Bear 4 and 5)	200-acre, 20 MW PV solar facility	Fresno Planning Commission Approved; EIR Certified October 9, 2014; Planning Commission Approved Ext 1 September 15, 2016.
7	RE Tranquillity #4	Seven miles southwest of the community of Tranquillity, south of Manning Avenue between San Benito Avenue and San Bernardino Avenue	Within 10 miles (approximately 7.5 miles south of Little Bear 4 and 5)	200-acre,20 MW PV solar facility	Fresno Planning Commission Approved; EIR Certified October 9, 2014; Planning Commission Approved Ext 1 September 15, 2016.

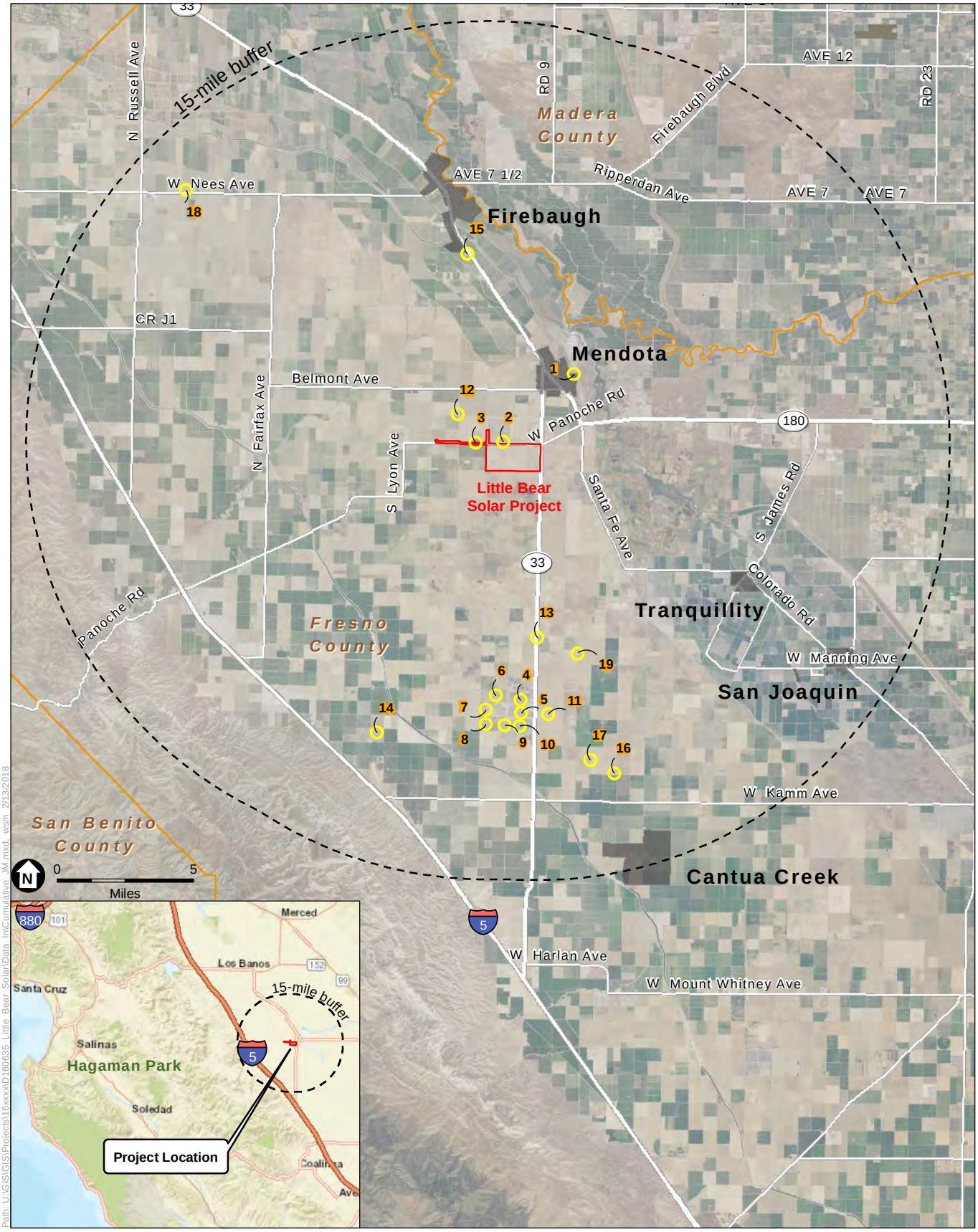
TABLE 3.1-1 (CONTINUED)
LITTLE BEAR SOLAR GENERATING FACILITY PROJECT CUMULATIVE IMPACT ANALYSIS PROJECTS LIST

Map Key	Project Name / Applicant	Location	Approximate Distance from Project Site	Description	Status
County of Fresno (cont.)					
8	RE Tranquillity #5	Seven miles southwest of the community of Tranquillity, south of Manning Avenue between San Benito Avenue and San Bernardino Avenue	Within 10 miles (approximately 7.5 miles south of Little Bear 4 and 5)	200-acre, 20 MW PV solar facility	Fresno Planning Commission Approved; EIR Certified October 9, 2014; Planning Commission Approved Ext 1 September 15, 2016.
9	RE Tranquillity #6	Seven miles southwest of the community of Tranquillity, south of Manning Avenue between San Benito Avenue and San Bernardino Avenue	Within 10 miles (approximately 7.5 miles south of Little Bear 4 and 5)	200-acre, 20 MW PV solar facility	Fresno Planning Commission Approved; EIR Certified October 9, 2014; Planning Commission Approved Ext 1 September 15, 2016.
10	RE Tranquillity #7	Seven miles southwest of the community of Tranquillity, south of Manning Avenue between San Benito Avenue and San Bernardino Avenue	Within 10 miles (approximately 7.5 miles south of Little Bear 4 and 5)	400-acre, 20 MW PV solar facility	Fresno Planning Commission Approved; EIR Certified October 9, 2014; Planning Commission Approved Ext 1 September 15, 2016.
11	RE Tranquillity #8	Seven miles southwest of the community of Tranquillity, south of Manning Avenue between San Benito Avenue and San Bernardino Avenue	Within 10 miles (approximately 7.5 miles south of Little Bear 4 and 5)	1,432-acre, 200 MW PV solar facility	Fresno Planning Commission Approved; EIR Certified October 9, 2014; Planning Commission Approved Ext 1 September 15, 2016.
12	Silverado Power, LLC	North side of Whitesbridge Avenue between North San Diego Avenue and Washoe Avenue	Within 2 miles (approximately 1.4 miles northwest of Little Bear 1)	Two PV solar facilities with related improvements such as 70-foot high electrical utility pole, two substations, and nine-foot tall chain link fences. The two projects would consist of one 161-acre PV solar facility and one 321-acre solar facility.	Fresno Planning Commission approved Ext 1 on February 12, 2015. No permit has been issued for this project.
13	RE Adams East, LLC	East side of State Route 33 between South Avenue and West Manning Avenue	Within 10 miles (approximately 6 miles south-southeast of Little Bear 5)	322.4-acre PV solar facility with related improvements including two substations, two 50-foot tall electrical utility towers, six utility poles up to 85 feet tall to interconnect to existing distribution lines, 10 approximately 1,400 sf inverter/transformer areas, and a seven 8-foot tall chain link fence in an AE-20 zoned district	No permit has been issued for the project.

TABLE 3.1-1 (CONTINUED)
LITTLE BEAR SOLAR GENERATING FACILITY PROJECT CUMULATIVE IMPACT ANALYSIS PROJECTS LIST

Map Key	Project Name / Applicant	Location	Approximate Distance from Project Site	Description	Status
County of Fresno (cont.)					
14	Three Rocks Solar, LLC	Southside of Rose Avenue between South Douglas and Ormsby Avenues	Within 15 miles (approximately 10.2 miles southwest of Little Bear 4	100-acre PV solar facility and related improvements such as a substation with 11 70-foot tall electrical utility poles and a 100-foot tall electrical utility pole, 13 inverter/transformer units, a 20,000 sf O&M building, a 375sf power distribution center, and a 6.6-foot-tall chain-link fence on AE-20 zoned land.	No permit has been issued for the project.
15	Eslinger Biodiesel	35831 West. Bullard Avenue, Fresno	Within 10 miles (approximately 7 miles northwest of Little Bear 1)	Solid waste processing facility (biodiesel production)	No permit issued for the project.
16	Giffen Solar Park LLC	North Side of Mountain View Avenue between Oil City Avenue and South Stanislaus Avenue	Within15 miles (approximately 10.6 miles southwest of Little Bear 5)	316-acre PV solar facility and expansion of an existing 70 kV substation and installation of a 70 kV double-circuit power line to be constructed under CPUC jurisdiction.	Fresno County Planning Commission approved Ext 1 on June 30, 2016. A permit has been issued for the substation. No permit has been issued for the solar facility.
17	Aspiration Solar G, LLC	East of South Oil City Avenue between West Nebraska Avenue and West Mountain Avenue	Within 15 miles (approximately 10.6 miles Southeast of Little Bear 5)	120-acre, 9 MW PV solar facility with related improvements.	Fresno Planning Commission Approved permit for PV panels October 22, 2015. No permit has been issued for the substation.
18	Gestamp Solar	North side of West Nees between Millux Avenue and Russell Avenue	Within 15 miles (approximately 14 miles northwest of Little Bear 1)	196.99-acre PV solar facility with related improvements, including a substation with an 80-foot tall electrical utility pole, 20 approximately 160sf inverter/transformer buildings, a 1,200 sf maintenance building and a 6-foot tall chain link fence. Located in an AE-20 zone.	Planning Commission Approved Ext 3 December 8, 2016. No permit has been issued for the project.
19	Scarlet Solar Energy Project/ Recurrent Energy	South of West South Avenue, north of West Dinuba Avenue, east of SR-33, and west of South San Mateo Avenue. Northeast of and adjacent to the Tranquillity Solar Generating Facility (projects 4-11, above).	Approximately 6 miles south of Little Bear 5.	4,069-acre PV solar facility to generate up to 400 MWac and related improvements, including eight substations, up to 7.2 miles of 230 kV gen-tie line, a 200 MW energy storage system (consisting of battery or flywheel enclosures and electrical cabling), and other necessary infrastructure.	Draft EIR in progress.

SOURCES: Fresno County 2018, City of Mendota 2017, Fresno County Department of Transportation 2017, Caltrans 2017, Renewable Energy World 2010.



SOURCE: ESRI (2018); ESA (2018)

Little Bear Solar Project

Project Location
Cumulative Projects

Figure 3.1-1
Potentially Cumulative Projects within 15-miles of the Little Bear Solar Site

3.1.3.2 Cumulative Impacts Analysis

Incremental impacts resulting from initial demolition and construction, operation and maintenance, and decommissioning and site restoration could combine with the incremental impacts of other projects to cause or contribute to cumulative effects. Direct and indirect effects of the Project are analyzed on a resource-by-resource basis in Sections 3.2 through 3.20. Where the Project would cause no impact to a given resource, it could not cause or contribute to any cumulative impact related to such resources. See, e.g., Section 3.13, *Mineral Resources*, and Section 3.17, *Recreation*.

For the remaining resource areas, this Draft EIR analyzes potential incremental impacts of the Project combined with the incremental of past, other present, and reasonably foreseeable future projects, and determines whether the incremental impacts of the Project are cumulatively considerable. As noted above, the geographic scope of the cumulative effects analysis for each resource area is tailored to the natural boundaries of the affected resource. Unless otherwise noted in the analysis, potential cumulative effects could occur at any time during the conditional use permit period, from the moment on-site construction activities begin to the conclusion of post-Project decommissioning and site restoration activities. Existing conditions within the cumulative impacts area of effects reflect a combination of the natural condition and the effects of past actions in the affected area.

3.1.4 Growth Inducement

Section 15126.2(d) of the CEQA Guidelines provides the following guidance regarding growth-inducing impacts:

> *A project is identified as growth-inducing if it would foster economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment.*

Growth inducement can be a result of new development that increases employment levels, removes barriers to development, or provides resources that lead to secondary growth. With respect to employment, the Project would require up to 750 on-site personnel during Project construction. The existing construction labor pool in Fresno County is sufficient for meeting Project needs.[1] Following construction, the Project would require up to eight full-time personnel (or personnel hours totaling eight full-time positions). On a typical day, the number of staff on site may range from none (it is not necessary for staff to be present during plant operations) up to 20 during periodic, routine maintenance events. Non-routine (emergency) maintenance could require additional workers. Decommissioning and site restoration activities are expected to require a smaller workforce than construction; decommissioning and site restoration-related activities are expected to take approximately 14 months to complete. Because construction and decommissioning are temporary, the Project is unlikely to cause substantial numbers of people to relocate to Fresno

[1] The unemployment rate in the Fresno Metropolitan Statistical Area was 7.5 percent in September 2017 as compared to 4.7 percent for California and 4.1 percent for the nation during the same period (State of California Employment Development Department 2017). While the number of construction jobs has been on the rise since 2011, it has not recovered to 2007/2008 levels (U.S. Department of Labor Bureau of Labor Statistics 2017).

County. Therefore, this Project would not result in a large increase in employment levels that would significantly induce growth.

While it is expected that construction workers would commute to the Project site instead of relocating to Fresno County, even if all workers were to migrate into Fresno County, the existing available housing supply could accommodate them without requiring new construction.[2] Therefore, the Project is not expected to induce population growth, the housing and provision of services for which could cause significant adverse environmental impacts.

Although the Project would contribute to the energy supply, which supports growth, the development of power infrastructure is a response to increased market demand, and the availability of electrical capacity by itself does not ensure or encourage growth within a particular area. Other factors such as economic conditions, land availability, population trends, availability of water supply or sewer services, and local planning policies have a more direct effect on growth.

3.1.5 Irreversible Impacts

Section 15126.2(c) of the CEQA Guidelines defines an irreversible impact as an impact that uses nonrenewable resources during the initial and continuing phases of the project. Irreversible impacts also can result from damage caused by environmental accidents associated with a project. Irretrievable commitments of resources should be evaluated to ensure that such consumption is justified.

Buildout of the Project would commit nonrenewable resources during Project construction and ongoing utility services during Project operations. During operations, oil, gas, and other fossil fuels and nonrenewable resources would be consumed and irreversible commitments of small quantities of nonrenewable resources would occur as a result of long-term operations. However, once operational, the Project would result in a substantial net benefit associated with the amount of renewable energy that would be generated.

3.1.6 References

California Governor's Office of Planning and Research (OPR), 2017. Proposed Updates to the CEQA Guidelines. November 2017.

Renewable Energy World, 2010. CalRENEW-1 Starts Delivering Electricity to PG&E. http://www.renewableenergyworld.com/articles/2010/06/calrenew-1-starts-delivering-electricity-to-pg-e.html. June 3, 2010.

Sperling's BestPlaces, 2017. Housing: Fresno County. http://www.bestplaces.net/housing/city/california/fresno. Accessed October 31, 2017.

[2] Fresno County's vacancy rate for residential rentals is higher than the national average: 3.82 percent compared to 2.34 percent (Sperling's BestPlaces 2017).

State of California Employment Development Department, 2017. Fresno Metropolitan Statistical Area (MSA). http://www.labormarketinfo.edd.ca.gov/file/lfmonth/frsn$pds.pdf. October 20, 2017.

U.S. Department of Labor Bureau of Labor Statistics, 2017. Databases, Tables & Calculators by Subject: State and Area Employment, Hours, and Earnings for Fresno, California. https://data.bls.gov/timeseries/SMU06234202000000001?amp%253bdata_tool=XGtable&output_view=data&include_graphs=true. Data extracted October 31, 2017.

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3.2 Aesthetics

This section identifies and analyzes issues related to Aesthetics in the context of the Project and alternatives. The following section discusses the physical and regulatory setting; the criteria used to determine significance of environmental impacts; the methodology used to evaluate impacts; and the results of the impact assessment. The County did not receive any scoping comments regarding Aesthetics (Appendix A).

3.2.1 Visual Concepts and Terminology

Individuals' values, familiarity with a landscape, concern for a landscape, or interpretation of scenic quality can lead to varying individual determinations of scenic quality and varying individual responses to changes made to a landscape. Due to unique individual attachments to values for a particular landscape, visual changes will inherently affect viewers differently. However, general assumptions can be made about viewer sensitivity to scenic quality and visual changes. For the purpose of this analysis, visual or aesthetic resources are defined as both the natural and built features of the landscape that contribute to the public's experience and appreciation of a given environment. Definitions of the following terms and concepts are provided in order to aid the readers' understanding of the content in this section.

Visual Quality is defined as the overall visual impression or attractiveness of an area as determined by the particular landscape characteristics, including landforms, rock forms, water features, and vegetation patterns. The attributes of line, form and color combine in various ways to create landscape characteristics whose variety, vividness, coherence, uniqueness, harmony, and pattern contribute to the overall visual quality of an area. For the purposes of this EIR, visual quality is defined according to three levels:

- *Indistinctive, or industrial*: generally lacking in natural or cultural visual resource amenities typical of the region
- *Representative*: typical or characteristic of the region's natural and/or cultural visual amenities
- *Distinctive*: unique or exemplary of the region's natural or cultural scenic amenities

Viewer Exposure addresses the variables that affect viewing conditions from potentially sensitive areas. Viewer exposure considers the following factors:

- Landscape visibility (i.e., the ability to see the landscape)
- Viewing distance (i.e., the proximity of viewers to the Project)
- Viewing angle – whether the Project would be viewed from above (superior), below (inferior) or from a level line of sight (normal)
- Extent of visibility – whether the line of sight is open and panoramic to the Project area or restricted by terrain, vegetation and/or structures
- Duration of view

Viewer Types and Volumes of use pertain to the types of use (e.g., public viewers including recreationalist and motorist) and amounts of use (e.g., number of recreational users or motorists) that various land uses receive. Generally, recreational users are expected to be highly concerned with scenery and landscape character whereas people who commute through a landscape daily to work are expected to have a lower concern for visual, scenic quality.

Visual Sensitivity is the overall measure of an existing landscape's susceptibility to adverse visual changes. People in different visual settings, typically characterized by different land uses surrounding a project, have varying degrees of sensitivity to changes in visual conditions depending on the overall visual characteristics of the place. In areas of more distinctive visual quality, such as designated scenic highways, designated scenic roads, parks, and recreation and natural areas, visual sensitivity is characteristically more pronounced. In areas of more indistinctive or representative visual quality, sensitivity to change tends to be less pronounced, depending on the level of visual exposure. This analysis of visual sensitivity is based on the combined factors of visual quality, viewer types and volumes, and visual exposure to the Project. Visual sensitivity is reflected according to high, moderate, and low visual sensitivity ranges.

Definitions for the following terms also are provided as they are used to describe and assess the aesthetic setting and impacts from the Project.

Color is the property of reflecting light of a particular intensity and wavelength (or mixture of wavelengths) to which the eye is sensitive. It is the major visual property of surfaces.

Contrast is the opposition or unlikeness of different forms, lines, colors, or textures in a landscape. The contrast can be measured by comparing the project features with the major features in the existing landscape.

Form is the mass or shape of an object or objects which appear unified.

A *Key Observation Point (KOP)* is a point on a travel route or at a use area or a potential use area, where the view of a proposed activity would be most revealing. For the purposes of the following analysis, KOPs describe locations from which setting photographs were taken. KOPs for this Project are shown in Figure 3.2-1, *Key Observation Points and Visual Simulation Location Map*.

Landscape character is the arrangement of a particular landscape as formed by the variety and intensity of the landscape features and the four basic elements of form, line, color, and texture. These factors give the area a distinctive quality that distinguishes it from its immediate surroundings.

Line is the path, real or imagined, that the eye follows when perceiving abrupt differences in form, color, or texture. Within landscapes, lines may be found as ridges, skylines, structures, changes in vegetative types, or individual trees and branches.

Scenic vista is an area that is designated, signed, and accessible to the public for the purposes of viewing and sightseeing.

A ***scenic highway*** is any stretch of public roadway that is designated as a scenic corridor by a federal, state, or local agency.

Sensitive receptors or sensitive viewpoints include individuals or groups of individuals that have views of a site afforded by a scenic vista, scenic highway, residence, or public recreation area.

Texture is the visual manifestations of the interplay of light and shadow created by the variations in the surface of an object or landscape.

The ***viewshed*** for a project is the surrounding geographic area from which the project is likely to be seen, based on topography, atmospheric conditions, land use patterns, and roadway orientations.

Finally, a ***Visual Simulation Location (VSL)*** is a location representative of particularly sensitive or representative views of how the Project would alter a given landscape and, therefore, used to construct a visual simulation of pre-development and post-development views of the Project site.

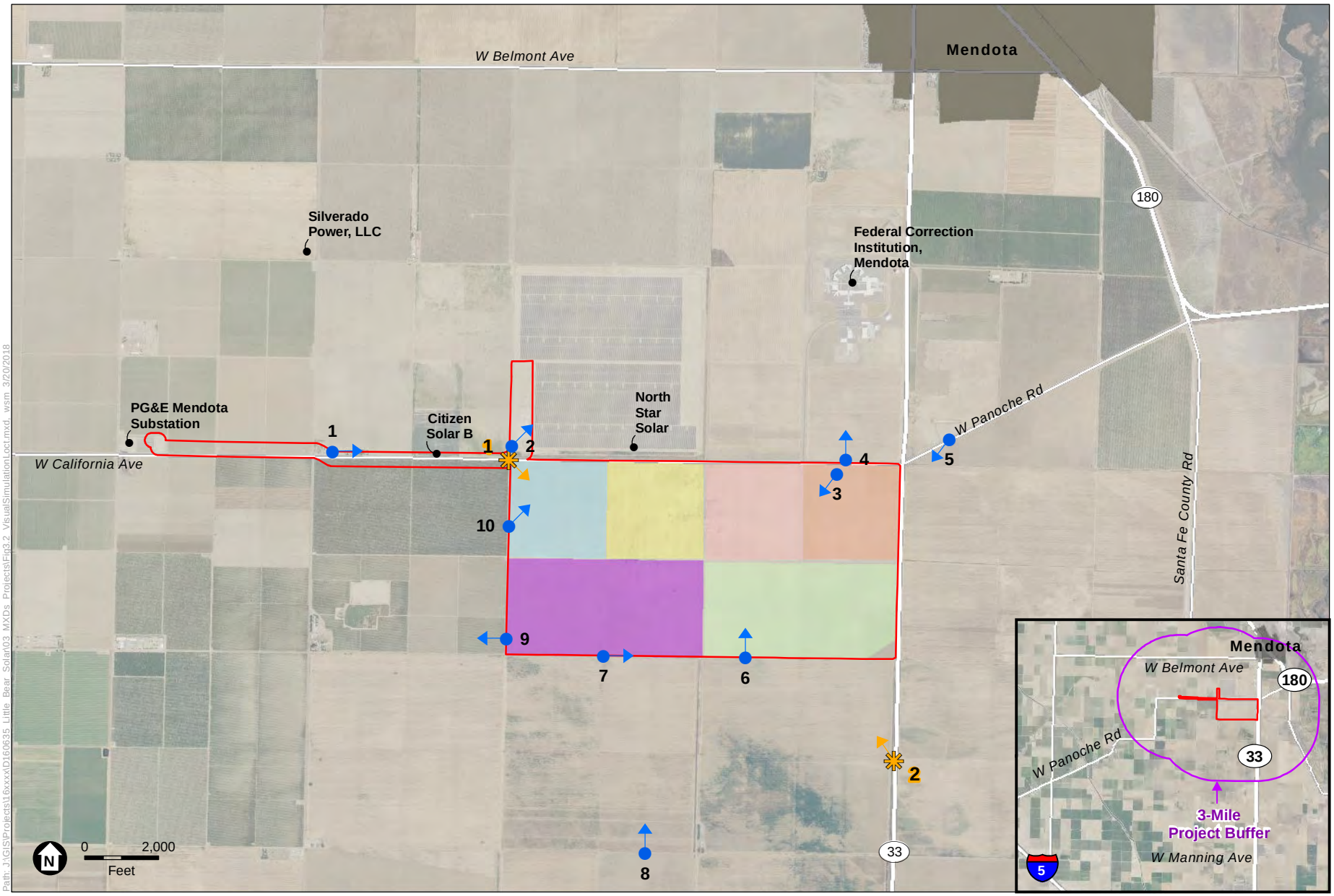
3.2.2 Setting

3.2.2.1 Environmental Setting

This section discusses the environmental conditions related to aesthetics in the region and in the study area for this analysis, which area includes the Project site and all land within 3 miles of the Project boundary as shown in **Figure 3.2-1**. Land within 3 miles of the Project boundary was chosen as the study area because, due to the flat nature of surrounding lands, from distances further than 3 miles, the curvature of the earth would reduce the visibility of the Project significantly. Environmental conditions discussed include the regional and local visual environment, sources of light and glare within the Project site; sensitive visual receptors; visual quality of the study area; KOPs selected to determine existing environmental conditions; and VSLs selected to assess impacts associated with the Project.

Regional Character

The Project site is located within Fresno County within the San Joaquin Valley, approximately 13 miles east of the base of the Diablo coastal mountain range. The region is defined as the San Joaquin Valley, which extends from the Sacramento-San Joaquin River Delta in the north to the Tehachapi Mountains in the south, and from the various California coastal ranges (such as Diablo) in the west to the Sierra Nevada mountain range in the east. The region is dominated by agricultural uses. Views of agricultural fields and orchards are interrupted by farm structures and rural residences. Smaller cities such as Mendota and Firebaugh are interspersed throughout the landscape. Larger cities such as Fresno and Madera are located further east in the valley. The topography is relatively flat, but elevations gradually rise towards the east, south, and west. The topographic characteristics of the Project site and surrounding region allow for open, expansive views of hills and mountains around the valley. The valley is a low-elevation flatland that has



SOURCE: ESA (2018); Aerial NAIP (2018)

Little Bear Solar Project

Figure 3.2-1
Key Observation Points and Visual Simulation Location Map

been altered to support the growth and harvest of agriculture. Rivers in the area, such as the San Joaquin River and the Kings River have been modified and diverted greatly over time and now exist as a part of the large regional water conveyance system created for agricultural use. The major north-south route in the region is I-5, a four-lane divided highway located approximately 11.2 miles west of the Project site. I-5 is recognized as a scenic highway by Fresno County (Fresno County 2000). There are no designated state scenic highways within the study area, nor are there any recognized scenic vistas (DOT 2017; County of Fresno 2000). The closest designated state scenic highway is State Route 180, approximately 50 miles east of the site.

Local Character

The Project site is surrounded by a mix of agricultural lands and rural residences. Generally, the landscape comprises a mix of cultivated fields, groves, and fallow fields that surround the Project site to the south, west, and east. Fields are divided by both paved and unimproved, narrow roads that create a grid pattern. A mix of active and retired agricultural buildings and equipment is present on surrounding lands. The active use of agricultural equipment generates airborne dust, which creates a generally hazy environment where long-distance views are limited.

Immediately north of Little Bear 1 is the North Star Solar Project and associated gen-tie line. The Citizen Solar B Project is located just northwest of the Project site. One-half-mile north of Little Bear 6 is Federal Correctional Institution (FCI) Mendota, which is separated from the Project site by a fallow field. Additionally, the City of Mendota is located approximately 2 miles northeast of the Project site. A California Department of Fish and Wildlife (CDFW) designated conservation area, the Mendota Wildlife Area, is located approximately 1.5 miles east of the Project site. This CDFW wildlife area includes flatlands and floodplains surrounding the distributaries of the San Joaquin River, and is connected hydrologically to Fresno Slough located approximately 1-mile northeast of the City of Mendota.

Local visual character is dominated by the presence of FCI Mendota, which creates a high visual contrast with the surrounding primarily rural landscape. Due to the presence of existing power lines and other industrial structures, the gen-tie line associated with the North Star Solar Project does not create a substantial visual contrast with other elements of the landscape as the color and form of the gen-tie line blends with that of the existing landscape (see, e.g., Figure 3.2-4, KOP 6). Additionally, due to the dark color and low-profile nature of the photovoltaic panels, existing solar projects in the vicinity do not create a high visual contrast with other parts of the landscape and character (see, e.g., Figure 3.2-4 and Figure 3.2-6, KOP 10). The undeveloped rural agricultural views in the Project vicinity can be described as representative of views in the region; with a generally rural landscape dominated by agricultural views interspersed with more industrial and developed land uses including FCI Mendota and existing solar facilities, as well as machinery, buildings and structures associated with residential and agricultural operations.

Off-Site Views

North. The North Star Solar Project and FCI Mendota dominate views directly north from the Project site. **Figure 3.2-3** and **Figure 3.2-4** demonstrate the character of views to the north of project. The North Star substation is visible across from the proposed site for Little Bear 1 as

reflected in **Figure 3.2-2**. As shown in Figure 3.2-6, KOP 10, the North Star Solar Facility creates a dark, low-profile line of contrast along the horizon north of the Project site. Across from Little Bear 3 are fallow or uncultivated fields bisected by unpaved roads. The City of Mendota and scattered residences are visible in the background. There are no mountains or hills present in views north; therefore, views generally end along the horizon with views of fields, residences, and the City of Mendota. Existing power lines that cross the landscape also sporadically interrupt views north. FCI Mendota is the dominant visual feature across from Little Bear 6. The white buildings and tower of this facility create a strong visual contrast with existing landscape colors and forms. Generally, views to the north from the Project site are dominated by expansive views of broad, brown fields on a flat topographical plane divided by straight horizontal lines. The light gray colors and vertical structures associated with the North Star substation and solar facility blend with light white, gray, and blue colors along the horizon and the form of existing power lines. With respect to general form and lines, the North Star substation creates a moderate visual interruption along the horizon. The rows of PV panels are visible as a small, straight, dark line that creates a level of low to moderate visual contrast with the existing landscape which also includes straight, horizontal lines. As mentioned above, the presence of FCI Mendota dominates views north and interrupts the general broad flat and expansive views north. Generally, views north may be characterized as industrial/indistinctive.

East. **Figure 3.2-5** depicts general views to the east of the Project site, including broad, flat, expansive views of both active and fallow agricultural fields. Clustered residences and infrastructure associated with agricultural operations, including buildings, silos, and equipment are visible along the horizon. Brown and green colors, expansive visual planes and straight horizontal lines dominate views to the east.

South. Figure 3.2-3 is representative of views to the south. Land uses south of the Project site are primarily agricultural. Views to the south include active and fallow agricultural fields that are primarily brown and green, depending on the season. The terrain in the foreground is flat with straight, horizontal lines. Along the horizon, clusters of trees, agricultural structures, and power lines are visible. The Diablo Range, the range of coastal mountains located 15 miles west of the Project site, is visible in the background looking south from the Project site. However, due to hazy conditions, the range appears as a hazy, gray form above the horizon. Views to the south of the Project site generally can be characterized as representative.

West. Figure 3.2-6 depicts views from the western border of the Project site. Views immediately west along the western boundary of the Project site are dominated by trees in the pomegranate groves on the adjacent property. In the northwest portion of this property, the trees are mature and approximately 10-12 feet high, obscuring background views beyond the foreground views of mature pomegranate trees, which are predominantly green, yellow, and red in color and planted in rows with regular spacing between them. Along the southern portion of the western border, the trees are younger and approximately 8-10 feet tall with thinner branches. Views immediately west along this portion of the property include rows of yellow, green, and red pomegranate trees in the foreground with background view of the Diablo Range, which is just visible between the rows of trees as a hazy grey form above the horizon. Existing views to the west can be characterized as representative.

KOP 1: View east from residences near W California Ave and N San Diego Ave showing existing North Star gen-tie line agricultural fields.

KOP 2: View northeast from Project's northwest corner on W California Ave and San Bernadino Ave showing North Star Substation and PV facility.

SOURCE: ESA, 2018

First Solar Little Bear

Figure 3.2-2
Key Observation Points 1 and 2

KOP 3: View southwest from W California Ave showing existing agricultural land uses and structures on Project site in the foreground and the Diablo Range in the background.

KOP 4: View northeast from W California Ave showing FCI Mendota in the foreground and the City of Mendota in the background.

SOURCE: ESA, 2018

First Solar Little Bear

Figure 3.2-3
Key Observation Points 3 and 4

KOP 5: View from W Panoche Rd. and S Derrick Ave. showing the Project site in the foreground and the Diablo Range in the background.

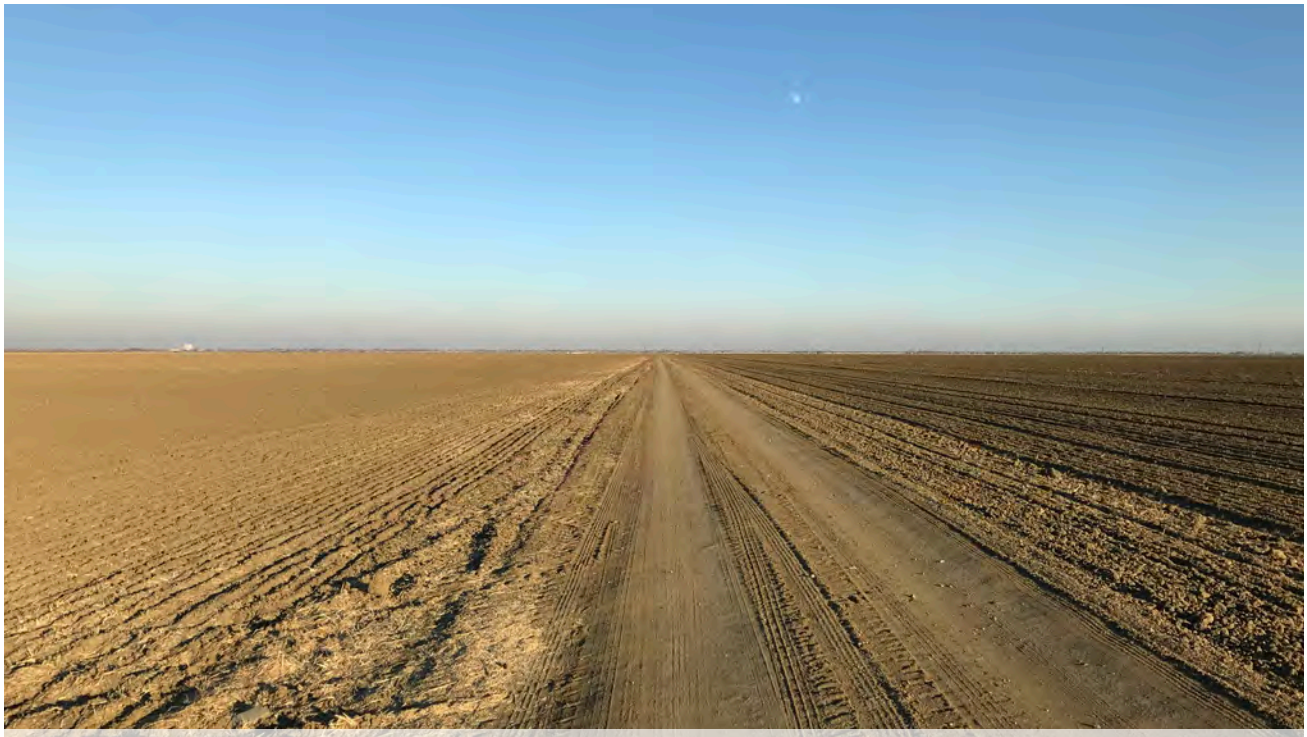
KOP 6: View north from W Jensen Ave near S Ohio Ave showing the Project site and existing structures in the foreground and the North Star Solar Facility and FCI Mendota in the background.

D160635.00 - First Solar Little Bear\05 Graphics-GIS-Modeling\Illustrator

SOURCE: ESA, 2018

First Solar Little Bear

Figure 3.2-4
Key Observation Points 5 and 6



KOP 7: View east from W Jensen Ave near S Ohio Ave showing a typical unimproved road between fallow agricultural fields near Project's southern boundary.

KOP 8: View northwest from W North Ave near an unnamed road showing the Project site in the middle ground and the North Star Solar gen-tie line along the horizon.

D160635.00 - First Solar Little Bear\05 Graphics-GIS-Modeling\Illustrator

SOURCE: ESA, 2018

First Solar Little Bear

Figure 3.2-5
Key Observation Points 7 and 8

KOP 9: Views west from the Project site's western border showing adjacent pomegranate fields in the foreground and the Diablo Range in the background.

KOP 10: Views northwest from the Project site's western border showing the Project site in the foreground and the North Star Solar Project, FCI Mendota, and the City of Mendota in the background.

D160635.00 - First Solar Little Bear\05 Graphics-GIS-Modeling\Illustrator

SOURCE: ESA, 2018

First Solar Little Bear

Figure 3.2-6
Key Observation Points 9 and 10

On-Site Views

Figure 3.2-3 depicts the character of the existing landscape on the Project site. The site has been dry-farmed intermittently for grain or forage crops or lain fallow in recent years. The site is generally flat with elevations ranging from 160-190 feet above mean sea level (amsl) with the highest elevation in the southwest corner and the lowest elevation in the northeast corner. Various dirt roads, agricultural structures, and clusters of trees are present on the Project site, which is bound by paved roads to the north and east where power lines run along the site border. Existing onsite views may be characterized as representative.

Lighting Environment

There is no existing lighting within the Project site. The most significant light sources in the Project vicinity include lights from FCI Mendota and the Mendota Jr. High School. Bright outdoor lights from these facilities dominate the nighttime light setting to the north. While there are other sources of outdoor lighting in the study area, including the City of Mendota and the North Star Substation, those lights are more muted and do not contribute significantly to the existing night time light environment. Street lighting and residential lighting from the City of Mendota is visible north of the Project site. Street lighting outside of the City of Mendota is minimal; however, traffic lights from I-5 are visible in the distance from the Project site.

Viewer Types and Exposures

Public viewer groups evaluated for this analysis include motorists along major or scenic roadways, visitors to parks and recreational areas, and visitors to scenic vistas. For each viewer group analyzed, viewer exposure conditions were evaluated based on information of traffic flows along local roadways in Section 3.18, *Transportation and Traffic* and a site visit conducted by ESA on November 29, 2017 described in more detail in Section 3.2.4.1, *Approach to Analysis*.

Variables considered include the angle of view, the extent to which views are open or screened, the duration of view, and viewing distance. Viewing angle and extent of visibility consider the relative location of the Project site to the viewer and whether visibility conditions would be open or panoramic, or limited by intervening vegetation, structures, or terrain. Duration of view pertains to the amount of time the Project typically would be seen from a sensitive viewpoint. In general, duration of view would be shorter in instances where the Project would be seen for short or intermittent periods (such as from major travel routes and recreation destination roads) and greater in instances where the Project would be seen regularly and repeatedly (such as from public use areas). Viewing distances are described according to whether the Project would be viewed within a foreground (within 0.5 mile or 2,640 feet), middle ground (0.5 mile to 2 miles), or background (beyond 2 miles) zone.

Motorists on Major or Scenic Travel Routes

There are no state-designated or eligible highways near the Project site. As mentioned above, I-5 is a County-designated scenic route approximately 11.2 miles west of the Project site. The Project site was determined not to be visible or identifiable from I-5 during the site visit due to intervening distance, developments and vegetation. Therefore, the travel routes used in this analysis include West California Avenue and State Route 33, as they are the closest major roadways to the Project site. These roadways provide views of the Diablo Range to the west as well as views of agricultural fields and can be considered to have representative views. As these roads are not considered scenic

travel routes, and surrounding land uses include the City of Mendota and agricultural operations, it is assumed that travelers along these routes generally use the roadways for commuting purposes.

Parks and Recreational Areas

Recreational users are generally determined to be the viewers most sensitive to visual impacts. As described in Section 3.17, *Recreation*, the closest recreational area to the Project site is the Mendota Wildlife Area, located approximately 1.5 miles to the east. There are a number of city parks located in the City of Mendota located approximately 2.5-4 miles north of the Project site. Mendota Wildlife Area is approximately 16 feet lower in elevation than the Project site.

Scenic Vistas

There are no designated scenic vistas in the Project vicinity. Additionally, due to the flat nature of the Project vicinity and region, there are no unique, elevated areas from which an individual could gain an exemplary high-quality view within the vicinity of the Project site.

Visual Sensitivity

Visual simulation locations (VSL) were established to provide a representative cross-section of affected landscapes in the visual study area. These locations were selected based on the Project's view shed, visual exposure, and important viewer groups and are shown on Figure 3.2-1. Comparisons of existing (pre-Project) views from these locations with post-development simulations are provided in **Figure 3.2-7** and **Figure 3.2-8**. These visual simulation locations provide the basis for showing the visual character and quality of views toward the Project site.

As defined above, visual sensitivity is determined by a composite measurement of the overall susceptibility of an area or viewer group to adverse visual or aesthetic impacts given the combination of existing landscape quality, viewer type, and exposure conditions. **Table 3.2-1** summarizes the overall visual sensitivity of the major viewer types that would be affected by the Project.

TABLE 3.2-1
SUMMARY OF VISUAL SENSITIVITY FINDINGS: VIEWER TYPES, VISUAL EXPOSURES, AND VISUAL QUALITY

Primary Viewer Type	Visual Quality	Use and Visual Exposure Description	Visual Sensitivity	Visible Project Elements
Local Motorists				
West California Avenue (VSL 1)	Representative	Brief views by local motorists in foreground, low view angle, unobstructed. Short view duration.	Low to Moderate	Project substation, distribution lines, and solar panels
State Route 33 (VSL 2)	Representative	Brief views by local motorists, low view angle, unobstructed. Short view duration.	Low to Moderate	Solar panels and distribution lines
Park/Recreation Areas				
Mendota Wildlife Area	Representative	Use of Mendota Wildlife Area by day users, short to long view durations, low to depressed angle of view, partially to completely obstructed view, moderate number of viewers.	Low	Solar panels and distribution lines
City of Mendota Parks (three city parks in Mendota, the closest of which is Rojas Pierce Park, 2.5 miles north of the Project site)	Representative	Use of Mendota city parks by day users, short to long view durations, low viewing angle, partially to completely obstructed view, moderate number of viewers.	Low	Solar Panels and distribution lines

Existing View

Visual Simulation of Proposed Project

D160635.00 - First Solar Little Bear\05 Graphics-GIS-Modeling\Illustrator

SOURCE: ESA, 2018; Dudek, 2017

First Solar Little Bear

Figure 3.2-7

W California Ave and San Bernardino Ave looking Southeast

ESA

Existing View

Visual Simulation of Proposed Project

D160635.00 - First Solar Little Bear\05 Graphics-GIS-Modeling\Illustrator

SOURCE: ESA, 2018; Dudek, 2017

First Solar Little Bear

Figure 3.2-8
Derrick Ave (SR-33) and W Annadale Ave Looking Northwest

ESA

3.2.2.2 Regulatory Setting

Federal

No federal regulations, plans, or standards govern the Project relating to aesthetics.

State

No state regulations, plans, or standards govern the Project relating to aesthetics.

Local

Fresno County General Plan

The Open Space and Conservation Element of the Fresno County General Plan evaluates the scenic resources of Fresno County and provides policies intended to protect the County's scenic resources and ensure that development enhances those resources through various measures including identification, development review, acquisition, and other methods. According to this element, the Project site has not been identified as a scenic resource.

The Fresno County General Plan also includes policies intended to protect scenic resources along roadways of the County by identifying, developing, and maintaining scenic amenities along County roads and highways and ensuring that development enhances those resources. According to Policy OS-L.1, Fresno County has designated a system of scenic roadways that includes landscaped drives, scenic drives, and scenic highways. According to this element, the only designated scenic roadway in the vicinity of the Project site is I-5, which is designated as a scenic highway. Figure 3.2-1 shows I-5 in relation to the Project site.

The policies in the Fresno County General Plan for scenic resources relevant to the Project are provided below.

- **K. Scenic Resources**

  Goal OS-K: To conserve, protect, and maintain the scenic quality of Fresno County and discourage development that degrades areas of scenic quality.

  > ***Policy OS-K.1:*** The County shall encourage the preservation of outstanding scenic views, panoramas, and vistas wherever possible. Methods to achieve this may include encouraging private property owners to enter into open space easements for designated scenic areas.
  >
  > ***Policy OS-K.4:*** The County should require development adjacent to scenic areas, vistas, and roadways to incorporate natural features of the site and be developed to minimize impacts to the scenic qualities of the site.

- **L. Scenic Roadways**

  Goal OS-L: To conserve, protect, and maintain the scenic quality of land and landscape adjacent to scenic roads in Fresno County.

  > ***Policy OS-L.1*:** The County designates a system of scenic roadways that includes landscaped drives, scenic drives, and scenic highways.

Policy OS-L.3: The County shall manage the use of land adjacent to scenic drives and scenic highways based on the following principles: … b. Proposed high voltage overhead transmission lines, transmission line towers, and cell towers shall be routed and placed to minimize detrimental effects on scenic amenities visible from the right-of-way.

3.2.3 Significance Criteria

A project would result in significant Aesthetic effects if it would:

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 public views of the site and its surroundings; or

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

3.2.4 Direct and Indirect Effects

3.2.4.1 Approach to Analysis

This visual impact assessment identifies and assesses any potential short- or long-term adverse visual impacts on Aesthetics and visual resources that could result from implementation of the Project. In the absence of a generally approved state or local system for evaluating the significance of potential impacts to Aesthetics, this assessment included the following steps:

- Identifying Project components that could affect representative views in the study area in terms of visual quality, character, and levels of light and glare, as informed by plans, descriptions, and simulations provided by the Applicant; Google Earth Pro aerial photographs and street-level photography; Fresno County Geographic Information System (GIS) topographic and land use data; and U.S. Geological Survey topographic data.
- Conducting visits to the Project site. The site was visited by ESA in August 2017 in connection with the formal project kick-off meeting, in September 2017 in advance of the Project scoping meeting, and on November 29, 2017 for the purposes of:
  - surveying the on-site and surrounding uses to identify sensitive viewers and viewpoints for assessment of potential aesthetic impacts;
  - analyzing the baseline visual quality and character of the identified views; and,
  - taking photographs to document observed conditions.
- Assessing the Project's impacts to identified views by evaluating potential Project-caused change in the affected area's baseline visual quality and character.
- Evaluating the Project's impacts to sensitive viewers by assessing Project-caused glare using ForgeSolar's Glare Analysis Tool (the licensed SGHAT technology from Sandia National Laboratory approved by the FAA for analyzing glare).

3.2.4.2 Definition and Use of Significance Criteria

An adverse visual impact may occur when: (1) an action perceptibly changes the existing physical features of the landscape that are characteristic of the region or locale; (2) an action introduces new features to the physical landscape that are perceptibly uncharacteristic of the region or locale, or become visually dominant in the viewshed; or (3) an action blocks or totally obscures valued aesthetic features of the landscape. The degree of visual impact depends on how noticeable the adverse change is in conjunction with the visual sensitivity of the site. The noticeability of a visual impact is a function of the Project features, context, and viewing conditions (angle of view, distance, and primary viewing directions). The key factors in determining the degree of visual change are visual contrast, project dominance, and view blockage.

Visual Contrast

Visual contrast is a measure of the degree of change in line, form, color, and texture that the Project would create, when compared to the existing landscape. Visual contrast ranges from none to strong, and may be defined as:

- None –The element contrast is not visible or perceived
- Weak –The element contrast can be seen but does not attract attention
- Moderate –The element contrast begins to attract attention and begins to dominate the characteristic landscape
- Strong – The element contrast demands the viewer's attention and cannot be overlooked

Project Dominance

Visual dominance is a measure of a project feature's apparent size relative to other visible landscape features in the viewshed, or seen area.

View Blockage or Impairment

View blockage or impairment is a measure of the degree to which Project features would obstruct or block views of aesthetic features due to the Project's position and/or scale.

Overall Adverse Visual Impact

Overall adverse visual impact reflects the composite visual changes to both the directly affected landscape and from sensitive viewing locations (**Table 3.2-2**).

Simulation Preparation

To represent views that would be experienced from sensitive viewpoints, two Visual Simulation Locations (VSLs) were selected for the simulation of post-Project conditions. VSL 1 depicts the view of the Project site from the northwest corner of the Project boundary looking southeast, representing the view that sensitive viewers traveling east along West California Avenue would have of the solar panels, substation, gen tie line, and associated infrastructure. VSL 2 depicts the view northwest from Derrick Avenue and West Annadale Avenue, demonstrating the view that sensitive receptors traveling north along State Route 33 would have of the Project. Each VSL is a

TABLE 3.2-2
GUIDELINES FOR DETERMINING ADVERSE VISUAL IMPACT SIGNIFICANCE

Overall Visual Sensitivity	Overall Visual Change				
	Low	**Low to Moderate**	**Moderate**	**Moderate-to-high**	**High**
Low	Not Significant	Not Significant	Adverse, but Not Significant	Adverse, but Not Significant	Adverse, but Not Significant
Low to Moderate	Not Significant	Adverse, but Not Significant	Adverse, but Not Significant	Adverse, but Not Significant	Adverse, but Not Significant
Moderate	Adverse, but Not Significant	Adverse, but Not Significant	Adverse, but Not Significant	Adverse and Potentially Significant	Adverse and Potentially Significant
Moderate-to-high	Adverse, but Not Significant	Adverse, but Not Significant	Adverse and Potentially Significant	Adverse and Potentially Significant	Significant
High	Adverse, but Not Significant	Adverse and Potentially Significant	Adverse and Potentially Significant	Significant	Significant

NOTES:

Not Significant impacts may or may not be perceptible but are considered minor in the context of existing landscape characteristics and view opportunity.

Adverse but Not Significant Impacts are perceived as negative but do not exceed environmental thresholds.

Adverse and Potentially Significant Impacts are perceived as negative and may exceed environmental thresholds depending on project- and site-specific circumstances.

Significant impacts with feasible mitigation may be reduced to less than significant levels or avoided all together. Without mitigation or avoidance measures, significant impacts would exceed environmental thresholds.

single viewpoint that reflects the impact that implementation of the Project would have on one or more sensitive receptors. Sensitive receptors near the Project site include motorists, residents, and recreationalists traveling along major roadways. The inventory of VSLs included three components: (1) identification and photo-documentation of the VSLs, (2) classification of the visual sensitivity of the VSLs, and (3) evaluation of the potential significance of Project-related changes. The location of and viewing direction from each of the evaluated VSLs are shown on Figure 3.2-1.

Simulation Preparation

Visual simulations of the Project from the identified VSLs were prepared to provide a comparison of pre- and post-Project conditions as well as context for qualitative description of the aesthetic changes that would result from the Project. The visual simulations provided are the results of an objective computer modeling process that involves three–dimensional (3-D) computer modeling developed using conceptual engineering design data combined with geographic information system (GIS) and engineering data and digital aerial photographs of the existing site to produce digital modeling for simulation of the Project. For the simulation viewpoints, photograph locations were incorporated based on GPS field data.

3.2.4.3 Direct and Indirect Effects of the Project

a) The Solar Facility would not have a substantial adverse effect on a scenic vista. (*No Impact*)

There are no designated scenic vistas within the viewshed of the Project site. There would be no impact under this criterion.

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b) The Solar Facility would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. *(No Impact)*

There are no designated state scenic highways near the Project site. State Route 180 is Fresno County's only officially designated state scenic highway. This portion of State Route 180 (from the eastern edge of Fresno to Cedar Grove in Kings Canyon National Park) is approximately 50 miles from the Project site. The California Scenic Highway Mapping System identifies four highway segments that are potentially eligible for future designation as scenic highways (DOT 2017). The Project site is not located within the viewshed of any of these eligible segments.

Though not designated as a state scenic highway, the Fresno General Plan designates I-5 as a scenic highway. However, as confirmed during ESA's November 29, 2017 site visit (ESA 2017), the Project would not be seen by motorists traveling on I-5 due to the intervening distance (approximately 11.2 miles) combined with the height of trees, other vegetation, and existing developments on intervening properties.

In addition, there are no significant trees, rock outcroppings, or historical buildings on the Project site that would be affected by the Project, and the Project would not alter long-distance scenic views of mountains, valleys, or other natural features. For these reasons, there would be no impacts on scenic resources viewed from a state scenic highway.

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c) Whether the Project would substantially degrade the existing visual character or quality of public views of the site and its surroundings.

Impact 3.2-1: The Project would degrade, but not substantially degrade, the existing visual character or quality of public views of the site and its surroundings. *(Less than Significant Impact)*

Initial Demolition and Construction

The initial demolition and construction phase of the Project would involve the removal of the existing metal shed and silos; earthwork and grading; and the construction, erection, and installation of facility equipment and infrastructure. These activities would require the presence of delivery trucks, vehicles, and construction equipment. Additionally, construction activities would require the use of storage, staging, and active work areas. More details regarding specific activities and equipment required are provided in Section 2.5.4, *Demolition and Construction*.

The construction period is anticipated to last 10-14 months and all activities associated with construction would be temporary. Additionally, the location and use of equipment in active work areas would change during the construction period depending on which portions of the Project site were under active construction.

Construction would introduce a level of activity and visual change to the Project site associated with construction activities and the presence of construction equipment. As described in Section 3.2.2.1, *Environmental Setting*, the existing visual character of the Project site is characterized as representative and industrial and the presence of agricultural equipment and airborne dust from agricultural activities is common. Therefore, although construction of the Project would result in a degree of adverse change to visual quality on the Project site, construction would not impair or block any sensitive or unique visual resources or landscapes. Therefore, impacts to visual resources from demolition and construction would be adverse but not significant.

Operation and Maintenance

Visual simulations were developed to depict the expected appearance of the solar facility and associated infrastructure. Figure 3.2-7 and Figure 3.2-8 show how Project components would appear to sensitive viewers at VSLs when compared to existing (pre-Project) views at these locations.

Figure 3.2-7 shows existing and simulated post-development views of the Project site looking southwest along West California Avenue at the northwestern corner of the Project site. This simulation depicts the views that motorists traveling east along West California Avenue would experience in comparison to existing views. Views of the Project site from West California Avenue would be of short-to-medium duration as the roadway borders the Project site. Due to the low-profile nature of the PV arrays, views of the Project by motorists would be almost exclusively in the foreground range and would quickly diminish from greater distances. The extent of views of the Project would range from open and panoramic. As mentioned in Section 3.18 *Transportation and Traffic,* traffic flows during peak hours may have a volume of 17-157 cars per hour. Given this information, it can be assumed that these roadways have a low-to-moderate number of viewers depending on the day and an overall low-to-moderate level of visual sensitivity, as identified in Table 3.2-1.

The existing view reflects a fallow agricultural field and transmission line in the foreground. Clusters of trees and buildings are scattered along the horizon. The foreground landscape is a mixture of brown and green and contains low-lying crops or is absent of vegetation, depending on the season. The simulation reveals that the Project substation and overhead distribution lines would appear in the foreground, and solar panels would be visible in the middle ground. This would create a moderate-to-high visual contrast with the existing landscape, introducing vertical industrial structures into a landscape that currently is in agricultural use. The substation would be visually obtrusive in the immediate foreground and would dominate the landscape from this viewing location. Project elements would contribute to existing industrial elements in the landscape resulting from the presence of the existing North Star substation and associated gen-tie line. Project components would partially obstruct representative views of agricultural land, but

would not block or obscure views of an attractive or unique landscape element. In the context of the existing local visual character and quality the Project would add industrial elements to a local visual character that already includes industrial elements and generally can be characterized as industrial and representative. Therefore, the Project would introduce a moderate-to-high degree of change in local visual quality. Given the low-to-moderate visual sensitivity of motorists traveling along West California Avenue, impacts would be adverse but not significant.

Figure 3.2-8 shows existing and post-development views of the Project site looking northwest from State Route 33. This VSL is representative of views encountered by motorists traveling north along State Route 33. Views of the Project site from State Route 33 would be of short-to-medium duration as the roadway borders the Project site. Due to the low-profile nature of the solar arrays, views of the Project would be visible in the background to foreground as drivers approach the site. As mentioned in Section 3.18 *Transportation and Traffic,* the average daily traffic flow along State Route 33 is approximately 2,000 vehicles, or about 10 percent of the roadway capacity. During peak hours on State Route 33, the volume of cars may range from 25-129 in a given hour. Therefore, it can be assumed that State Route 33 has a low-to-moderate level of viewers, depending on the time of day and a low-to-moderate level of visual sensitivity, as identified in Table 3.2-1.

The existing view shows a fallow agricultural field and transmission line in the foreground which creates a flat, broad, expansive plane of mostly brown and green. Scattered structures and FCI Mendota are visible along the horizon and the Diablo Range begins to come into view toward the west. The simulation reflects that the solar panels would be barely visible by northbound motorists. The facility would create a weak visual contrast along the horizon. The solar panels would follow the existing line along the horizon but would introduce a darker line which would resemble a flat shadow near the horizon. Substations for each facility and transmission lines would not be visible or discernible from this location. Overall, this VSL demonstrates that the Project elements would introduce weak-to-moderate visual contrast in the landscape but would not dominate the landscape or block important visual elements. Additionally, the Project components would not block or impair scenic features present in the viewshed. As a result, the visual change to the existing character and visual quality of the site would be low-to-moderate. In conjunction with the low-to-moderate visual sensitivity, impacts to visual quality resulting from the Project would be adverse but not significant.

Recreational users using the Mendota Wildlife area and city parks in Mendota generally would not have a clear view of the Project site. Due to the intervening distance between Mendota Wildlife Area and the Project (1.5 miles or greater, depending on the viewer's location within the wildlife area), and the lower elevation of the wildlife area relative to the Project site, users generally would not have a clear view of the Project site. Where an unobstructed view of the Project site is possible, the intervening distance would cause the Project to appear barely visible along the horizon. For recreational users of Mendota city parks, such as Rojas Pierce Park, FCI Mendota and the North Star Solar Project would obscure views of the Project site looking south from city parks in Mendota. Additionally, due to the distance between parks in Mendota and the Project site (2.5 miles or greater, depending on the park), even if a recreational user had an unobstructed view of the Project site, it would likely be barely visible along the horizon. Therefore,

users of recreational areas in and near the City of Mendota would not have a view of the Project site, as it would be almost entirely obscured by existing developments and infrastructure.

The above analysis of VSLs and views from recreational areas demonstrates that the Project elements would introduce a moderate-to-strong level of visual contrast to the existing landscape and would have the potential to dominate views from certain locations. However, Project elements would not block or impair any unique scenic features in the viewshed. Viewers from distances of 1.5 miles or greater would barely be able to see the Project components along the horizon. Overall, given the industrial and representative nature of views in the Project vicinity and the low-to-moderate sensitivity of viewers, the Project would introduce a level of visual change to local visual quality and character that would be adverse but not significant. Therefore, impacts to visual quality from Project operation and maintenance would be less than significant.

Decommissioning and Site Restoration

Decommissioning and site restoration activities would remove Project components and perform land restoration activities such as those identified in the Draft Closure, Decommissioning, and Reclamation Plan (Appendix B1). This would return the Project site to pre-development conditions. Construction equipment and vehicle-related visual impacts during decommissioning would be similar to impacts that would result from construction. Decommissioning and site restoration would result in a temporary adverse visual change due to decommissioning activities and the presence of decommissioning equipment. However, as discussed in Section 3.2.2.1, *Environmental Setting,* the existing visual quality of the landscape can be characterized as representative and industrial and decommissioning would not block or impair any unique visual resources. Additionally, although the decommissioning process would result in temporary adverse visual impacts, site restoration would restore the Project site to its original (pre-Project) visual quality. As a result, impacts to visual resources from decommissioning would be adverse but not significant.

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d) Whether the Project would create a new source of light and glare which would adversely affect day or nighttime views in the area.

Impact 3.2-2: The Project would create a new source of glare that could adversely affect daytime views in the area. *(Less than Significant Impact)*

For the purpose of the following analysis, “light” refers to artificial light emissions, or the degree of brightness generated by a given source and “glare” is the sensation produced by luminance in the visual field that is sufficiently greater than the luminance to which the eye has adapted to cause annoyance, discomfort, or loss of visual performance and visibility (BLM 2013).

Initial Demolition and Construction

Lighting: Demolition of existing structures on the Little Bear 3 site and construction of the Project would be expected to occur during daylight hours. Some nighttime activities would be performed such as electrical connection, inspection and testing activities. However, as described in Section 2.5.4.5, *Construction Schedule and Workforce*, such activities would be performed

with temporary lighting that would be directed downward to focus illumination on work areas and minimize impacts to neighboring properties and wildlife in the Project vicinity. Any lighting used during construction activities would be occasional, temporary, and would be shielded downward. Therefore, the potential for nighttime lighting during construction to impact nighttime views would be minimal and impacts would be less than significant.

Glare: Construction of the Project would occur primarily during daylight hours. Construction would involve increased vehicle traffic and the transport and use of construction equipment and materials. These activities temporarily would increase glare conditions near the Project site due to an increase in reflective materials on the Project site, such as construction equipment and vehicles. However, any increases in glare that would result from construction activities would be minimal and temporary. Only portions of the Project site would be actively under construction at any particular time. Any new temporary sources of glare would not be in any one fixed location and would be present at different locations according to the location of construction activities throughout the site. As a result, Project construction activities would not introduce new, substantial sources of glare that could affect daytime views in the vicinity and impacts would be less than significant.

Operation and Maintenance

Lighting: As described in Section 2.5.1.4, *Other Infrastructure,* lighting proposed for the operation and maintenance phase of the Project would include motion-activated security lighting associated with the on-site storage and operations structures, adjacent parking areas, and facility substations. Security lighting is not proposed for fence lines or interior roads. Additionally, consistent with local design requirements, all lighting would be shielded and downward facing. Compliance with design and development standards would ensure that potential impacts from lighting are minimized. Due to the minimal amount of shielded lighting that is proposed for the operation and maintenance phase of the Project, impacts to nighttime views from lighting would be less than significant.

Glare: The reflection of sunlight off of solar panel surfaces would be the primary source of potential glare from the Project. Solar panels are constituted of many solar cells which are designed to capture solar energy in order to convert it into usable energy. Therefore, solar panels are designed to be as absorptive as possible in order to maximize the efficiency of energy production. Additionally, PV panels typically are covered with a tempered glass layer that is treated with an anti-reflective coating that further reduces the reflectivity of the panels. When compared to common reflective surfaces, solar panels without an anti-reflective coating are found to produce around the same amount of reflectivity as water, which is about half the amount of reflectivity as standard glass that is commonly used in residential or commercial applications (Shields 2010). If an anti-reflective coating is applied to the solar panels, the reflectivity of the panels can be further reduced to be significantly less than the reflectivity of water.

As described in Section 2.5.1.1, *Solar PV Generating Components*, the Project most likely would use a single-axis horizontal tracking system. A single axis tracking system would orient panels perpendicular to incoming solar radiation. This system would maximize the solar cell efficiency as the panel follows the sun through its path across the sky. This tracking system would allow

incident solar rays to be perpendicular to the PV panel. Any light that it is reflected off the panel would be reflected at an angle that would reflect the light back toward the light source rather than toward motorists or sensitive receptors on the ground. The single-axis horizontal tracking system would be arranged in north-to-south oriented rows, and would track the sun in the east-west direction. Using this system, solar reflections would be directed upward, away from observers on the ground. Glare also could be created by metal components of the solar facility. The amount of glare created by such components would be dependent on the material type, surface area, and the orientation of the viewer.

The glare analysis conducted for this Project analyzed potential glare hazards for aircraft as well potential impacts to residents, motorists, and recreational users in the area. Modeling inputs and results are provided in Appendix D. Although a single axis tracking system most likely would be used, modeling for the glare analysis was conducted for both the single axis tracking system and the fixed-tilt array possibilities using a conservative approach to setting parameters for the analysis. The glare analysis conducted for this Project analyzed potential glare hazards for aircraft traveling in the area and concluded, based on two flight paths, that no glare impact would be experienced by aircraft. Other observation points analyzed include residences near North San Diego Avenue and West California Avenue; motorists along West California Avenue; FCI Mendota, motorists traveling along State Route 33; motorists traveling along West Panoche Road; and the Mendota Wildlife Area. The analysis demonstrated that if the single-axis horizontal tracking system is used, no glare would be experienced at any of the observation points mentioned above. If the single-axis tracking system is used for the entire site, no impact would result.

Although unlikely, fixed-tilt arrays could be used instead of or in combination with the single-axis tracking panels. If so, glare would be experienced by the residences near San Diego Avenue and West California, the Mendota Wildlife Area, and motorists driving along State Route 33. The intensity of glare that would be experienced would have the potential for temporary after-image. Residences along West California could experience approximately five minutes of glare around 6 am during a portion of the months of March and September. Receptors at the Mendota Wildlife Area could experience approximately two minutes of glare around 6 pm during the month of April. Motorists traveling north along State Route 33 could experience five to ten minutes of glare around 6 pm from May to August. (Appendix D). This amount of glare would not introduce a visual hazard, but would increase the visual contrast of the Project site. General public viewing areas that are considered to be the most sensitive locations are not anticipated to experience any glare. Due to the relatively low intensity and short duration of Project-caused glare, the potential impact would not be significant. Therefore, operation and maintenance of the Project would not introduce a source of light or glare that would significantly impact views in the area and impacts would be less than significant.

Decommissioning and Site Restoration

The impacts of both light and glare during decommissioning and site restoration are anticipated to be similar to those of construction. Decommissioning is not likely to include nighttime activities and would not create a source of lighting that would impact nighttime views. Although decommissioning activities would require the use of vehicles and equipment similar to that

required for construction, any sources of glare would minimal and temporary and equipment would be moved between active working locations on the Project site. As a result, the Project would not cause significant glare or lighting impacts and impacts would be less than significant.

3.2.4.4 Direct and Indirect Effects of Alternatives

Increased Habitat/Reduced Acreage Alternative

Under the Increased Habitat/Reduced Acreage Alternative, Little Bear 6 would not be constructed and the project acreage would be reduced by approximately 161 acres. The acreage of Little Bear 6 would be continued to be used as fallowed farm land and would be occasionally dry-farmed. Under this alternative, impacts to the visual character and quality of the Project vicinity would be similar but slightly reduced in comparison to the impacts of the Project although the impact conclusions regarding Aesthetics would be the same: less than significant impacts to the existing visual character or quality of public views of the site and its surroundings, and regarding the generation of glare that could adversely affect daytime views in the area.

No Project Alternative

If the No Project Alternative is implemented, the proposed demolition of structures would not occur; neither the solar facilities nor the Little Bear gen-tie line would be constructed, operated, or maintained; and the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would create no impact related to Aesthetics.

3.2.5 Cumulative Analysis

As discussed above, there would be no impact with respect to scenic resources within a state scenic highway or scenic vistas because there are none in the Project study area. Therefore, no significant cumulative impact to a state scenic highway would occur to which the Project could contribute. Additionally, due to the isolated angles at which glare is experienced, the Project's less-than-significant impact related to glare from a fixed tilt system could not combine with impacts from other facilities. Therefore, the Project's impact to visual resources resulting from glare would cause or contribute to a significant adverse cumulative impact.

Impact 3.2-3: The Project would contribute to a less-than-significant cumulative impact related to degradation of the existing visual character or quality of public views of the site and its surroundings. *(Less than Significant Impact)*

The geographic scope of potential cumulative impacts to the existing visual character or quality of public views includes the viewshed along State Route 33 and locations from which a viewer could see the Project along with other projects (where visual impacts could be additive). Generally, projects located 3 miles from the Project site would not be visible within the same viewshed. Cumulative aesthetic impacts could occur as long as the Project contributes to visual changes to the

landscape that are visible or perceived by the public, either within the same viewpoints, or as a noticeable element in a cumulative viewing experience (e.g., a driver on State Route 33 or a local road).

Ongoing aesthetic impacts of past projects are reflected in the environmental setting described in Section 3.2.2. However, one past/approved project (the North Star Solar Project) includes a double circuit gen-tie line where the second circuit could be strung at the same time that the Project is being constructed. In this context, impacts from the Project or an alternative could result in a cumulative effect on visual resources in combination with other past, present, or reasonably foreseeable future actions. Cumulative construction disturbances from reasonably foreseeable future projects could include traffic, temporary facilities and equipment, and dust from earth moving and exposed soil. Operation and maintenance-related cumulative visual impacts would include nighttime security lighting, increased vehicle and personnel activity, visual changes to landscapes due to solar facilities, and increases in the level of glare in the area relative to baseline conditions. Decommissioning and restoration activities would contribute similar visual impacts similar to impacts from construction.

Cumulative aesthetic impacts could occur as long as the Project contributes visual changes to the landscape that are noticeable by the public, either from the same viewpoint or as a noticeable element in a cumulative viewing experience. As shown on Figure 3.1-1, North Star Solar Project, Citizen Solar B, and the Cal Renew facilities are within 2 miles of the Project site and collectively consist of approximately 710 acres of PV facilities. The proposed Silverado Power, LLC Project site also is located within 2 miles of the Project site and, if constructed, would convert approximately 482 acres of additional land to solar facility use. Therefore, from public viewing locations within a 3-mile radius of the Project site, it is possible that a viewer would be able to see the four facilities listed above in combination with the Project. Together, these projects would add an industrial visual element to the landscape that would create a moderate-to-strong visual contrast with the surrounding landscape. However, due to the low-profile nature of the above-mentioned solar facilities, components of the facilities would be visually obtrusive only when a viewer is adjacent to one of the facilities. As demonstrated in Figure 3.2-8, from distances of 1.5 miles or greater, solar projects are barely noticeable and would not have a significant impact on visual resources. Even under full-build out of all potential solar facilities within a 3-mile radius of the Project site, the projects would not significantly block any unique visual resources and would not dominate the cumulative visual setting. Therefore, from public viewing locations, the impacts of the facilities considered in the cumulative setting of viewing locations within a 3-mile radius of the Project site would be considered adverse but not significant.

The RE Adams East Project is the next closest project to the Project site, located 6 miles south. Although this project and other projects located further south (e.g., Tranquillity Solar, Scarlet Solar, Three Rocks Solar, Giffen Solar Park, and Aspiration Solar) would not be located within the same viewshed as the Project, they would be part of a cumulative viewing experience for travelers on State Route 33. For travelers along State Route 33, approximately 1 mile separates the Tranquillity project and the adjacent Scarlet project from RE Adams East; and approximately 6 miles would separate RE Adams East and the proposed Project. Therefore, those traveling north would experience the cumulative visual impact of the Giffen Solar Project, Aspiration Solar

Project, and Tranquillity and Scarlet projects in approximately five minutes of driving time (assuming that motorists are traveling 55 mph). Approximately 6.5 minutes of driving time would separate the time when motorists would view RE Adams East before the proposed Project would come into view. A motorist would be able to view the Project, North Star, Citizen Solar B, and Silverado Power projects in approximately 2.5 minutes of driving time before reaching the City of Mendota. Motorists traveling along State Route 33 would only be able to see these solar facilities in the foreground for a short duration of time and these facilities would not block or impair any significant or unique viewsheds along the route. Due to the low-profile nature of solar facilities and the spacing between projects along State Route 33, even under full build out of projects considered in the cumulative geographic scope, cumulative impacts to visual resources would be considered adverse but not significant.

In the scenario that all facilities identified in the cumulative geographic scope are built, approximately 11,335 acres of mostly agricultural land within a 15-mile radius of the Project site would be converted from an agricultural appearance to an industrial appearance. This would result in a degradation of the existing visual character and/or quality of public views of the area. This would be a significant and unavoidable cumulative impact. Nonetheless, the Project's less-than-significant contribution to this impact would not be cumulatively considerable because the Project-specific change from an agricultural view to an industrial one would affect just 11 percent of the total area that would be converted within a 15-mile radius of the Project site. In addition, there are approximately five to six-and-a-half minutes of drive-time between views of the Project/ North Star Solar Project combination and the next closest combinations of solar projects. The Project's contribution to the cumulative impact on the existing visual character or quality of public views of the site's surroundings would not be cumulatively considerable and would be less than significant.

3.2.6 References

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3.3 Agriculture and Forestry Resources

The following section describes Agriculture and Forestry resources on the Project site and in the surrounding area as well as the associated regulatory framework. The impact analysis presents the criteria used to evaluate the significance of potential impacts on such resources as a consequence of implementing the Project or alternatives, the methods used in evaluating these impacts, and the results of the impact assessment. The County received scoping comments regarding agricultural resources, specifically regarding potential impacts of the proposed solar development on the adjacent pomegranate orchard (Appendix A).

This analysis is based in part on a site-specific California Land Evaluation and Site Assessment (LESA) prepared by Dudek on behalf of the Applicants in September 2017 (Appendix C). Further, in accordance with the Fresno County Solar Facility Guidelines (Fresno County 2017), the Applicant provided information regarding the current and historic agricultural use of the Project site, existing agricultural contracts or easements, proposed measures to establish buffers between the Project and adjacent agricultural operations, and other required information. The preparers of this Draft EIR independently reviewed these and other materials prepared by or on behalf of the Applicants and determined them to be suitable for reliance on (in combination with other materials included in the formal record) in the preparation of this Draft EIR.

3.3.1 Setting

3.3.1.1 Environmental Setting

As described in Section 2.3.1, *On-site Land Uses,* the Project site intermittently has been dry-farmed (non-irrigated) for grain or forage crops (such as sorghums, wheat, and barley) and has lain fallow since 2012 (Appendix C; Little Bear Solar Project 2017). Although abandoned irrigation piping and drainage features are present on the Project site, irrigation is not permitted on land within the Project site due to restrictive covenants recorded against the parcel by the Westlands Water District. As a result, crop productivity on the Project site depends entirely on rainfall.

The entire Project site has been classified as Farmland of Local Importance under the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) (CDOC 2014). Definitions of the Department of Conservation's farmland designations are provided in Section 3.3.1.2, *Regulatory Setting*. The Project site is zoned AE-20, Exclusive Agricultural with a minimum lot size of 20 acres (Fresno County 2011).

None of the parcels on which the Project is proposed is subject to a Williamson Act contract (Conservation Biology Institute 2015). The parcels adjacent to the western border of the Project are designated as Farmland of Statewide Importance and support the cultivation of pomegranate trees (CDOC 2014). These parcels west of the Project site are the closest contracted land to the Project site. Contracted land also is located northwest of the Project site north of West California Avenue and east of State Route 33.

The Project site does not contain any land defined as forest land (as defined by Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or land zoned Timberland Production (as defined by Government Code section 51104(g)) (Fresno County 2000).

3.3.1.2 Regulatory Setting

Federal

No federal statutes, regulations, plans, or policies govern agriculture or forestry resources on the Project site.

State

California Farmland Mapping and Monitoring Program

The California Department of Conservation's FMMP provides a classification system for farmland based on technical soil ratings and current land use (CDOC 2017a). The FMMP is an informational service only and does not have regulatory jurisdiction over local land use decisions. The minimum land use mapping unit is 10 acres unless specified; smaller units of land are incorporated into the surrounding map classifications.

For the purposes of this environmental analysis, the term "Farmland" refers to FMMP map categories *Prime Farmland*, *Unique Farmland*, and *Farmland of Statewide Importance* (hereafter collectively referred to as "Farmland"). Generally, any conversion of land from one of these categories to a lesser quality category or a non-agricultural use would be considered to be an adverse impact. These map categories are defined as follows (CDOC 2017a):

> ***Prime Farmland*:** Land which has the best combination of physical and chemical features able to sustain long term agricultural production. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
>
> ***Unique Farmland*:** Farmland of less quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
>
> ***Farmland of Statewide Importance*:** Land that is similar to *Prime Farmland* but with minor shortcomings, such as greater slopes or less ability to hold and store moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

A fourth category is Farmland of Local Importance, which in Fresno County includes all farmable lands that do not meet the definitions of Prime, Unique, or Statewide. This includes land that is or has been used for dryland farming, irrigated pasture, confined livestock and dairy, poultry facilities, aquaculture and grazing land (CDOC 2017b). Because the definition of "Farmland" does not include Farmland of Local Importance, this category of land is not discussed further in this section.

California Public Resources Code

The California Public Resources Code governs forestry, forests, and forest resources, as well as range and forage lands, within the state. "Forest land" is defined by Public Resources Code section 12220(g) as "land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits." "Timberland" is defined by Public Resources Code section 4526 as "land, other than land owned by the federal government..., which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees."

California Government Code

Chapter 6.7 of the Government Code (§§51100-51155) regulates timberlands within the state. "Timberland production zone" is defined in section 51104(g) as an area that has been zoned pursuant to Government Code section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses. In this context, "compatible uses" include any use that "does not significantly detract from the use of the property for, or inhibit, growing and harvesting timber" (Gov't Code §51104(h)). With respect to the general plans of cities and counties, "timberland preserve zone" means "timberland production zone."

California Land Conservation Act of 1965

The California Land Conservation Act of 1965 (Williamson Act, Gov't Code §51200 et seq.) preserves open spaces and agricultural land. The Act discourages urban sprawl and prevents landowners from developing their property for the greater land value of commercial and/or residential uses. The Williamson Act is a state program implemented at the county level that allows agricultural landowners to contractually agree to retain land included in an agricultural preserve[1] in agricultural or and open space uses for a period of at least 10 years and, in return, to pay reduced property taxes. The term of the contract automatically renews each year unless not renewed or cancelled, so that the contract always has a 10-year period left. The Project is not proposed to be located on lands subject to a Williamson Act contract.

Local

Fresno County General Plan

The Agriculture and Land Use Element of the General Plan describes land use designations and development standards for unincorporated land within the County, and sets out goals, policies, and programs related to agriculture and land use. The General Plan land use designation for the Project site is Agriculture, which provides for the production of crops and livestock, and for location of necessary agriculture commercial centers, agricultural processing facilities, and certain nonagricultural activities. No overlay designations apply to the Project site (Fresno County 2000). The following General Plan policies and programs are applicable to the Project:

[1] An agricultural preserve defines the boundary of an area within which a city or county would be willing to enter into Williamson Act contracts with landowners: The boundary is designated by resolution of the city council or board of supervisors with jurisdiction over the property. Agricultural preserves generally must be at least 100 acres in size.

Goal LU-A: To promote the long-term conservation of productive and potentially productive agricultural lands and to accommodate agricultural-support services and agriculturally-related activities that support the viability of agriculture and further the County's economic development goals.

Policy LU-A.1: The County shall maintain agriculturally-designated areas for agriculture use and shall direct urban growth away from valuable agricultural lands to cities, unincorporated communities, and other areas planned for such development where public facilities and infrastructure are available.

Policy LU-A.2: The County shall allow by right in areas designated Agriculture activities related to the production of food and fiber and support uses incidental and secondary to the on-site agricultural operation. Uses listed in Table LU-3 of the General Plan are illustrative of the range of uses allowed in areas designated Agriculture.

Policy LU-A.3: The County may allow by discretionary permit in areas designated Agriculture, special agricultural uses and agriculturally-related activities, including value-added processing facilities, and certain non-agricultural uses listed in Table LU-3. Approval of these and similar uses in areas designated Agriculture shall be subject to (a) through (d) of the following criteria:

a. The use shall provide a needed service to the surrounding agricultural area which cannot be provided more efficiently within urban areas or which requires location in a non-urban area because of unusual site requirements or operational characteristics;

b. The use should not be sited on productive agricultural lands if less productive land is available in the vicinity;

c. The operational or physical characteristics of the use shall not have a detrimental impact on water resources or the use or management of surrounding properties within at least one-quarter (0.25) mile radius;

d. A probable workforce should be located nearby or be readily available;

Criteria e through h relate to the approval of commercial centers, value-added agricultural processing facilities, churches, schools and existing commercial uses and are not applicable to the proposed Project.

Policy LU-A.13: The County shall protect agricultural operations from conflicts with nonagricultural uses by requiring buffers between proposed non-agricultural uses and adjacent agricultural operations.

Policy LU-A.14: The County shall ensure that the review of discretionary permits includes an assessment of the conversion of productive agricultural land and that mitigation be required where appropriate.

Program LU-A.E: The County shall continue to implement the County's Right-to-Farm Ordinance, and will provide information to the local real estate industry to help make the public aware of the right-to-farm provisions in their area.

(Fresno County 2000; Fresno County 2016)

Fresno County Zoning Ordinance

The Project site is zoned AE-20, Exclusive Agricultural with a minimum lot size of 20 acres (Fresno County 2011). As indicated in Section 816 of the Fresno County Zoning Code, permitted uses in AE districts include raising livestock, poultry, and plant crops; single-family residences and accessory and farm buildings; and other agricultural and home occupation uses. Electrical transmission and distribution substations are allowed in AE districts subject to approval of a Director Review and Approval application (Section 816.2(D)). Additionally, Fresno County processes PV solar facilities and telecommunications infrastructure such as the microwave/satellite communication tower proposed at the southeast corner of San Bernardino Avenue and West California Avenue within the Little Bear 1 site through the Unclassified Conditional Use Permit (CUP) process based on Section 853.B(14) of the Zoning Ordinance. Where, as here, a project is subject to two or more separate use permits, the County evaluates the entire project under the more-intensive process. Since the Unclassified CUP process is more intensive than the Director Review Approval process, the County is reviewing the proposed substations as part of the Unclassified CUP process for the larger facility. Thus, the substations proposed as part of the Project do not require a separate Director Review Approval.

Fresno County Solar Facility Guidelines

The Fresno County Solar Facility Guidelines (December 2017) include provisions applicable to the review process for solar facility applications that relate to agricultural resources. For analysis of the Project's consistency with the Solar Facility Guidelines as a whole, see Appendix K2. Guidelines specific to agricultural resources include:

- Submission of information regarding historical agricultural use;
- Submission of information regarding source of water;
- Identification of current status with respect to Williamson Act, conservation easements, or other similar designation;
- Identification of soil type and mapping units;
- Description of measures that will be implemented to create a minimum 50-foot buffer from the edges of the property boundaries to the closest structural improvements or equipment (excluding fencing);
- A Reclamation Plan detailing the time frame and approach to restoration of the site to agricultural use;
- Details of efforts to locate the project on non-agricultural land;
- Development of a Weed and Pest Management Plan; and
- Acknowledgement of the County's Right to Farm Ordinance.

Fresno County Right-to-Farm Ordinance

For certain activities within 300 feet of an AE Zone District, Section 17.72.075(A) of the Fresno County Code of Ordinances requires the recordation with the Fresno County Recorder of a notice in substantially the following form:

FRESNO COUNTY RIGHT-TO-FARM NOTICE

It is the declared policy of Fresno County to preserve, protect, and encourage development of its agricultural land and industries for the production of food and other agricultural products. Residents of property in or near agricultural districts should be prepared to accept the inconveniences and discomfort associated with normal farm activities. Consistent with this policy, California Civil Code §3482.5 (right-to-farm law) provides that an agricultural pursuit, as defined, maintained for commercial uses shall not become a nuisance due to a changed condition in a locality after such agricultural pursuit has been in operation for three years.

In conformance with the Fresno County Solar Facility Guidelines (2017), the Applicant would be required to record such a notice prior to County issuance of permits.

3.3.2 Significance Criteria

A project would result in significant impact to Agriculture and Forestry resources if it would:

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, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g));

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

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

3.3.3 Direct and Indirect Effects

3.3.3.1 Approach to Analysis

Examples of direct effects to Agriculture and Forestry resources include the conversion of agricultural lands to non-agricultural uses and conflicts with existing zoning or agricultural conservation contracts or easements. Indirect effects may include nuisances or other physical changes that may result in the conversion to non-agricultural use or degradation of offsite agricultural lands.

As described in Section 3.3.1.1, *Environmental Setting,* the Project site does not contain any land defined as forest land or timberland, or zoned Timberland Production. As a result, neither the Project nor the alternatives would cause any impact under significance criteria c) or d), or relating to forest land under criterion e). Because there would be no impact, these criteria are not discussed further.

3.3.3.2 Direct and Indirect Effects of the Project

a) Whether the Project would 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. *(No Impact)*

As described in Section 3.3.1.1, *Environmental Setting,* there is no Farmland as defined in Section 3.3.1.2 within the Project site boundary. Therefore, the Project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use and there would be no impact under this criterion.

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b) Whether the Project would conflict with existing zoning for agricultural use or a Williamson Act Contract. *(No Impact)*

The Project site is zoned as AE-20 under the Fresno County Zoning Ordinance, is not subject to a Williamson Act contract and, as a result, would not conflict with any existing contract. The Project would not conflict with any existing zoning for agricultural use or Williamson Act contracts; therefore, it would cause no impact under this criterion.

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e) Whether the Project would involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.

As described in a), there is no Farmland within the Project site; therefore, the Project would not lead to the direct conversion of Farmland within the Project site to a non-agricultural use. No conversion-related impact would result in this respect.

The Project also would not cause changes to the existing environment that could result in the conversion of Farmland outside the Project boundary to a non-agricultural use. The Project would not lead to changes to the environment that could cause the indirect conversion of off-site Farmland to a non-agricultural use. In accordance with General Plan Policy LU-A.13 and the Fresno County Solar Facility Guidelines, the solar panels would be set back a minimum of 50 feet from neighboring agricultural operations. This requirement would be a standard condition of approval of the UCUP applications submitted for the Project. As reflected in Figure 2-2, Proposed Site Plan, due to setbacks and buffers, at its closest point the Project would be located about 200 feet from agricultural operations to the west. Additionally, the Solar Facility Guidelines require that the Project Applicant record a Right-to-Farm Notice with the County Recorder, indicating that the adjacent agricultural operations shall not become a nuisance due to the changed condition of the Project site. The Pest and Weed Management Plan (Appendix B-1) would be implemented during construction and operation which would manage the introduction or establishment of rodents and/or weeds during the Project's initial demolition and construction, operation and maintenance, and decommissioning and site restoration. Stormwater and dust control measures such as the stormwater pollution prevention plan (SWPPP) and Best Management Practices (BMPs) discussed in Section 2.5.4.7, *Stormwater and Dust Control,*

would be employed during all phases of the Project to manage erosion, sedimentation, and dust created by Project-related soil disturbance. These measures would ensure that the Project would have no impact to soils on the Project site or parcels surrounding the Project site. Furthermore, the Project would make no other changes to in the existing environment that would affect the defining characteristics of offsite Farmland, such as land use, soil quality, or water availability. Therefore, the Project would cause no impact involving changes in the existing environment that could result in the conversion of Farmland to a non-agricultural use.

Because less than full conversion of an agricultural use nonetheless could cause an adverse impact on the existing use or management of the property neighboring Little Bear 1 or Little Bear 4, the County also has considered whether the Project would cause a detrimental impact on the use or management of property in active agricultural use within 0.25 mile (approximately 1,320 feet) of these sites, including the pomegranate orchard west of San Bernardino Avenue, as a result of a "photovoltaic heat island effect" or substantial glare.

Impact 3.3-1: The Project would not cause a detrimental impact on the use or management of property in active agricultural use within 0.25 mile (approximately 1,320 feet) of Little Bear 1 or Little Bear 4, including the pomegranate orchard west of San Bernardino Avenue, as a result of a "photovoltaic heat island effect." (*Less Than Significant Impact*)

Temperatures can be between approximately 2 degrees and 22 degrees Fahrenheit [°F] higher in cities than in rural areas because cities contain masses of darker-colored objects such as buildings and paved areas that emit more heat than lighter-colored objects and that cause heat to dissipate more slowly (USEPA 2018, Bornstein 1968, Donovan 2010). The higher density of vegetation in rural areas also contributes to cooling. The Project would require vegetation clearance and the introduction into the landscape of elements of a built environment which could result in the creation of a heat island effect that is similar to that which can occur in urban areas.

Research regarding the potential for photovoltaic heat island effects has been limited and few studies have analyzed the potential for any such effect to extend laterally. Fthenakis and Yu from Columbia University and Brookhaven National Laboratory combined models with field data to determine the extent to which PV facilities altered ambient air temperatures (Fthenakis and Yu 2013). Their research demonstrated some increase in temperatures above solar facilities relative to surrounding ambient temperatures (1.9 degrees Celsius (°C), approximately 3.4°F). However, the researchers determined that the PV facility did not result in long term changes to ambient temperatures that could lead to adverse micro-climate changes. Additionally, the researchers found that increases in temperatures completely dissipated approximately 16-59 feet (5-18 meters) above the facility and that thermal energy "promptly dissipated" with distance from the facility (Fthenakis and Yu 2013).

A 2016 paper authored by Barron-Gafford et al. determined that temperatures over a PV facility were consistently 7.2°F (4°C) higher at night than surrounding temperatures. The researchers determined that their results indicated that solar facilities can lead to a photovoltaic heat island effect. However, they acknowledged that their research did not have sufficient data to determine the extent to which the effect extends laterally from the facility. Since the 2016 study, Barron-Gafford et al. have conducted further research, and have found that at 98 feet (30 meters) from

the edge of the solar arrays, the difference between temperatures recorded and surrounding temperatures were greatly reduced. At 131 feet (40 meters) from the edge of the array no difference was found between temperatures recorded by probes and the surrounding ecosystem (Barron-Gafford 2018). As the closest proposed edge of the Little Bear 1 solar array is approximately 149 feet from the property line of the adjacent orchard and the closest proposed edge of the Little Bear 4 solar array is approximately 140 feet away from it, the Project would have a less-than-significant impact to the neighboring orchard as a result of a photovoltaic heat island effect.

Impact 3.3-2: The Project would not cause a detrimental impact on the use or management of property in active agricultural use within 0.25 mile (approximately 1,320 feet) of Little Bear 1 or Little Bear 4, including the pomegranate orchard west of San Bernardino Avenue, as a result of substantial glare. (*Less Than Significant Impact*)

Comments received during the scoping process raised concerns as to whether the Project could affect ambient light conditions as a result of an increase in light reflected from solar panels such that fruit in the adjacent orchard could be indirectly burned. However, as noted in the context of Impact 3.3-1, solar panels are designed to be highly absorptive. Although some incoming solar radiation is reflected, most incoming solar energy either is converted into energy or absorbed as heat. Solar panels are generally a much less reflective material compared to materials such as glass, plastic, water, and metallic paints used on cars (Protogeropoulos and Zachariou 2010; Shields 2010). The Project would most likely utilize a single-axis tracking PV system for all arrays in the Project site. A glare analysis conducted for the Project demonstrated that normal operation of the Project's tracking PV system would not result in glare and the orchards located west of the Project site would not experience any solar reflection that could affect the trees (Appendix D). No impact would result from the use of a tracking PV system. Although unlikely, it is possible that the Project would use fixed-tilt arrays instead of or in combination with the single-axis tracking system. If fixed tilt arrays were installed along the western border of the Project site, the trees located on the eastern border of the orchard could experience between 5 minutes and 20 minutes of glare around six in the morning from April through September (Appendix D). However, due to the limited duration of glare and the distance of approximately 150 feet between the easternmost trees and the closest panels, potential glare from the fixed-tilt panels would result in a less-than-significant impact.

3.3.3.3 Direct and Indirect Effects of Alternatives

Increased Habitat/Reduced Acreage Alternative

Under this Alternative, Little Bear 6 would not be constructed, reducing the total Project acreage by approximately 161 acres. Compared to the Project, this alternative would not change impacts related to Farmland, existing zoning, or Williamson Act status, or other changes to the environment that could result in the conversion of Farmland to non-agricultural use. Because the elimination of Little Bear 6 from the overall Project site would have no effect on whether the Project could cause a detrimental impact on the use or management of the pomegranate orchard

west of San Bernardino Avenue, impact conclusions for the Increased Habitat/Reduced Acreage Alternative would the same as those for the Project.

No Project Alternative

If the No Project Alternative is implemented, the proposed demolition of structures would not occur; neither the solar facilities nor the Little Bear gen-tie line would be constructed, operated, or maintained; and the Project site would continue to be used periodically for dry-farmed agriculture and/or disked and left fallow. Consequently, this alternative would result in no physical changes in the environment that could result in any impact to Agriculture or Forestry Resources.

3.3.4 Cumulative Analysis

The Project would cause a less-than-significant impact related to the potential to cause a detrimental impact on the use or management of neighboring agricultural property due to a photovoltaic heat island effect or glare. This impact could result in the Project contributing to a potential cumulative impact under this criterion. There are two other projects that have the potential to cause impacts that could combine with those of the Project to result in an adverse cumulative impact. These are the North Star Solar Project, located adjacent to and directly north of Little Bear 1 and the Citizen Solar B project, located adjacent to and northwest of Little Bear 1. However, as both of these projects are located further than 131 feet from the neighboring trees, there would not be a cumulative impact on the adjacent orchard to which the Project could contribute.

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3.4 Air Quality

This section identifies and evaluates issues related to Air Quality in the context of the Project and alternatives. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment.

The County received scoping comments from the San Joaquin Valley Air Pollution Control District (SJVAPCD) pertaining to the identification and quantification of Project-related emissions from construction and operation, potential health effects to sensitive receptors, and the necessity of mitigating impacts. SJVAPCD recommended conducting a screening analysis that includes all sources of emission to initially assess potential health risks and to determine whether a refined health risk assessment would be necessary to adequately assess health risk impacts. In addition, SJVAPCD also identified rules and regulations applicable to the Project, including: District Rule 9510 (Indirect Source Review), Regulation VIII (Fugitive PM_{10} Prohibitions), Rule 4102 (Nuisance), Rule 4601 (Architectural Coatings), and Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations). The Scoping Report, which includes these comments, is provided in Appendix A.

This analysis is based in part on an Air Quality and Greenhouse Gas Emissions Analysis Technical Report that Dudek prepared for the Project in February 2018 (Appendix E). The preparers of this Draft EIR independently reviewed this and other materials prepared by or on behalf of the Applicants and determined them to be suitable for reliance on (in combination with other materials included in the formal record) in the preparation of this Draft EIR.

3.4.1 Setting

3.4.1.1 Environmental Setting

Topography and Meteorological Conditions

The Project site is located in the San Joaquin Valley Air Basin (Air Basin), which occupies the southern half of the Central Valley and comprises eight counties: San Joaquin, Stanislaus, Fresno, Merced, Madera, Kings, Tulare, and portions of Kern County. The Air Basin is approximately 250 miles long and 35 miles in width (on average) and is bordered by the Coast Range Mountains on the west, the Sierra Nevada mountains on the east, and the Tehachapi Mountains to the south. On the valley floor, the Air Basin is open only to the north, which heavily influences prevailing winds (SJVAPCD 2015a).

Although marine air generally flows into the Air Basin from the San Francisco Bay Area through the Carquinez Strait (a gap in the Coast Range Mountains) and low mountain passes such as Altamont Pass and Pacheco Pass, the mountain ranges restrict air movement through the Air Basin. Additionally, most of the surrounding mountains are above the normal height of summer inversion layers (1,500 to 3,000 feet). These topographic features result in weak airflow, poor dispersion of pollutants and as a result, the Air Basin is highly susceptible to pollutant accumulation.

The average daily maximum and minimum summer temperatures (i.e., July) in unincorporated Fresno County are 96.4 degrees Fahrenheit (°F) and 63.6°F, respectively, and the average daily maximum and minimum winter (i.e., January) temperatures are 56.2°F and 39.1°F, respectively. Average annual precipitation is 8.4 inches (Western Regional Climate Center 2018).

Air Pollutants of Concern

The U.S. Environmental Protection Agency (USEPA) has identified criteria air pollutants that are a threat to public health and welfare. These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare standards. Criteria pollutants that are a concern in the Air Basin are described below:

Ozone

Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and that can cause substantial damage to vegetation and other materials. Ozone is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving precursor organic compounds and nitrogen oxides (NO_x). Precursor organic compounds and NO_x are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately three hours.

Ozone is a regional air pollutant because it is not emitted directly by sources, but is formed downwind of sources of precursor organic compounds and NO_x under the influence of wind and sunlight. Ozone concentrations tend to be higher in the late spring, summer, and fall, when the long sunny days combine with summertime temperature inversions[1] to create conditions conducive to the formation and accumulation of secondary photochemical compounds, like ozone. Exposure to elevated ozone concentrations can cause eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases, such as asthma, bronchitis, and emphysema.

Nitrogen Dioxide

Nitrogen dioxide (NO_2) is an air quality pollutant of concern because it acts as a respiratory irritant. NO_2 is a major component of the group of gaseous nitrogen compounds commonly referred to as NO_x. A precursor to ozone formation, NO_x is produced by fuel combustion in motor vehicles, industrial stationary sources (such as industrial activities), ships, aircraft, and rail transit. Typically, NO_x emitted from fuel combustion is in the form of nitric oxide (NO) and NO_2. NO is often converted to NO_2 when it reacts with ozone or undergoes photochemical reactions in the atmosphere. Aside from its contribution to ozone formation, NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component of the air on high pollution days, especially in conjunction with high ozone levels.

[1] "Inversion" means that cool air is trapped beneath warm air. There are two types of inversions. Elevated temperature inversions in summer and fall months acts to cap the mixing depth, limiting the depth of air available for dilution. The inversions typical of winter, called radiation inversions, are formed as heat quickly radiates from the earth's surface after sunset, causing the air in contact with it to rapidly cool. Radiation inversions are strongest on clear, low-wind, cold winter nights, allowing the build-up of such pollutants as carbon monoxide and particulate matter.

Carbon Monoxide

Carbon monoxide (CO) is a non-reactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicle traffic. High CO concentrations develop primarily during winter when periods of light winds combine with the formation of ground level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue; impair central nervous system function; and induce angina (chest pain) in persons with serious heart disease.

Particulate Matter

Particulates less than 10 microns in diameter (PM_{10}) and less than 2.5 microns in diameter ($PM_{2.5}$) can be inhaled into air passages and the lungs and can cause adverse health effects. Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition and construction activities, are local in nature, while others, such as vehicular traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain adsorbed gases (e.g., chlorides or ammonium) that may be injurious to health. According to a study by the California Air Resources Board (CARB), exposure to ambient $PM_{2.5}$ can be associated with approximately 7,300 to 11,000 annual premature deaths statewide (CARB 2010). Particulates also can damage materials and reduce visibility. Research has indicated that there are associations between increased levels of ambient particulate matter and increased adverse respiratory health. For PM_{10}, there are positive associations between particulate levels and decreased pulmonary function, increased number of asthma attacks, increased asthma medication usage, increased emergency room visits and hospital admissions for respiratory illness, and increased daily mortality (CARB 2004).

Other Criteria Pollutants

Sulfur dioxide (SO_2) is a combustion product of sulfur or sulfur-containing fuels such as coal. SO_2 is also a precursor to the formation of atmospheric sulfate and particulate matter (both PM_{10} and $PM_{2.5}$) and contributes to potential atmospheric sulfuric acid formation that could precipitate downwind as acid rain. Lead has a range of adverse neurotoxic health effects, and was formerly released into the atmosphere primarily via the combustion of leaded gasoline. The use of leaded gasoline ceased in the US after 1995, resulting in decreasing levels of atmospheric lead. Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of ozone are referred to and regulated as reactive organic gases (ROGs). Sources of ROGs include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint. The primary health effects of ROGs result from the formation of ozone and its related health effects.

Valley Fever

As a population with more than 20 cases per year of San Joaquin Valley Fever per 100,000 people, Fresno County is considered “highly endemic” (California Department of Industrial Relations 2017;

Fresno County 2018). Valley Fever is an infectious disease caused by the fungus *Coccidioides immitis*. San Joaquin Valley Fever is also known as Valley Fever, Desert Fever, Coccidioidomycosis or Cocci. In susceptible people and animals, infection occurs when a *Coccidioides immitis* spore is inhaled. Fungal spores become airborne when soil is disturbed by natural processes such as wind or earthquakes, or by human-induced ground disturbing activities such as construction and farming.

The Centers for Disease Control and Prevention and Fresno County report that farm workers, construction workers, others who engage in soil-disturbing activities, and anyone spending time outdoors in western Fresno County are at risk for Valley Fever (Centers for Disease Control and Prevention 2017; Fresno County 2018a, 2018b). High winds can carry dust containing the spores long distances. Most people infected with Valley Fever have no symptoms, but if symptoms develop, they usually occur in the lung and initially resemble the flu or pneumonia (e.g., fatigue, cough, shortness of breath, chest pain, fever, rash, headache and joint aches). Valley Fever is not contagious, and secondary infections are rare. A 2012 study found that average of fewer than 200 deaths per year in the U.S. were attributable to Valley Fever between 1990 to 2008, and that the number of Valley Fever-associated deaths each year has been fairly stable since 1997 (Huang et al. 2012). The number of cases of Valley Fever in Fresno County has varied over the past several years. Between 2011 and 2014, the total number of cases decreased from 724 to 156. In 2016, the number of total number of cases spiked to 601, from 267 cases reported the previous year in 2015. Those most at risk of developing severe symptoms include Hispanics, African Americans, Filipinos, pregnant women, adults of older age groups, and people with weakened immune systems (California Department of Public Health [CDPH] 2017, 2016).

Existing Air Quality

The SJVAPCD operates a regional monitoring network that measures the ambient concentrations of criteria pollutants. Existing and probable future general levels of air quality in the Air Basin generally can be inferred from ambient air quality measurements conducted by SJVAPCD at its monitoring stations. The major criteria pollutants of concern in the Central Valley (i.e., ozone, PM_{10}, and $PM_{2.5}$) are monitored at a number of locations. Background ambient concentrations of pollutants are determined by pollutant emissions in a given area, and wind patterns and meteorological conditions for that area. As a result, background concentrations can vary among different locations within Fresno County. However, areas located close together and exposed to similar wind conditions can be expected to have similar background pollutant concentrations. The closest SJVAPCD monitoring station to the Project site is the Tranquility station at 32650 West Adams Avenue, which is approximately 5.3 miles southeast of the Project site; it monitors ozone and $PM_{2.5}$. **Table 3.4-1** shows a 5-year summary of data collected at the Tranquillity station compared to National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS), which are presented in more detail in **Table 3.4-2**. As of 2016 at the Tranquility station, there had been no exceedances of the State 1-hour ozone standard since 2012. The State and National 8-hour ozone standards had been exceeded for multiple days from 2012-2016. The National $PM_{2.5}$ 24-hour standard was exceeded for multiple days from 2013-2016. The State annual average $PM_{2.5}$ standard was not exceeded during 2012-2016; however, annual average $PM_{2.5}$ values were not available for 2014.

TABLE 3.4-1
AIR QUALITY DATA SUMMARY (2012-2016) APPLICABLE TO THE PROJECT SITE

Pollutant	Standard	Monitoring Data by Year				
		2012	2013	2014	2015	2016
Ozone, O3						
Highest 1-Hour Average, ppm		**0.10**	0.09	0.09	0.09	0.09
Days over State Standard	0.09 ppm	2	0	0	0	0
Highest 8-Hour Average, ppm		**0.09**	**0.08**	**0.08**	**0.08**	**0.08**
Days over State/National Standards[a]	0.07 ppm/0.075 or 0.070 ppm	25/6	18/3	11/3	11/10	21/19
Fine Particulate Matter, PM2.5						
Highest 24-Hour Average, µg/m^3		34.4	**60.1**	**46.0**	**50.9**	**39.7**
Measured days over National Standard Exceedances/Samples[b]	35 µg/m^3	0	7	3	7	2
Annual Average, µg/m^3		7.1	8.3	--	10.0	7.8
Exceed State Standards?	12 µg/m^3	No	No	--	No	No

NOTES:
Generally, state standards are not to be exceeded and national standards are not to be exceeded more than once per year. Values in bold are in excess of applicable standard; ppm = parts per million; and µg/m^3 = micrograms per cubic meter.

[a] In October 2015, the U.S. EPA implemented a new 8-hour ozone standard of 70 ppb (or 0.070 ppm). Exceedances in 2015 and 2016 are based on this standard.

[b] Measurements of $PM_{2.5}$ are usually collected every 1 to 3 days. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

SOURCE: CARB 2018

TABLE 3.4-2
AMBIENT AIR QUALITY STANDARDS AND AIR BASIN ATTAINMENT STATUS

Pollutant	Averaging Time	State Standard		National Standard	
		Concentration	Attainment Status	Concentration	Attainment Status
Ozone	8-Hour 1-Hour	0.070 ppm 0.090 ppm	Nonattainment/ Severe Nonattainment	0.075 ppm --	Nonattainment/ Extreme
Carbon Monoxide	1-Hour 8-Hour	9.0 ppm 20 ppm	Attainment/ Unclassified	9.ppm 35 ppm	Attainment/ Unclassified
Nitrogen Dioxide	1-Hour Annual	0.180 ppm 0.030 ppm	Attainment	0.100 ppm 0.053 ppm	Attainment/ Unclassified
Sulfur Dioxide	1-Hour 3-Hour 24-Hour Annual	0.25 ppm -- 0.04 ppm --	Attainment	0.075 ppm 0.5 ppm 0.14 ppm 0.03 ppm	Attainment/ Unclassified
Respirable Particulate Matter (PM_{10})	24-Hour Annual	50 µg/m3 20 µg/m3	Nonattainment	150 µg/m3 --	Attainment
Fine Particulate Matter ($PM_{2.5}$)	24-Hour Annual	-- 12 µg/m3	Nonattainment	35 µg/m3 12 µg/m3	Nonattainment
Lead	30-Day Quarterly	1.5 µg/m3 --	Attainment	-- 1.5 µg/m3	No Designation/ Classification

NOTES:
ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter.
* Secondary National Standard.

SOURCE: SJVAPCD 2018.

Sensitive Receptors

Some receptors are considered more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with greater associated exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system. The SJVAPCD considers hospitals, schools, parks, playgrounds, daycare centers, nursing homes, convalescent facilities, and residential areas as sensitive receptor land uses (SJVAPCD 2015a).

The nearest sensitive receptors to the Project site are scattered rural residential land uses. Residential land uses have the highest potential to be affected by the Project, in particular single-family or multiple-family residences located in the surrounding community within 1 mile (5,280 feet) of the Project site. There are several agricultural properties adjacent to the Project site. The closest residential structure to the Project site is approximately 3,850 feet west of the Project site boundary along California Avenue. The next closest sensitive receptor is another residence approximately 4,800 feet west of the Project site at the corner of West Jensen Avenue and South San Diego Avenue.

A federal correctional facility, Federal Correctional Institution, Mendota (FCI Mendota), is located approximately 3,150 feet north of the site boundary. A correctional facility is not considered by SJVAPCD to be a sensitive land use. However, acknowledging that prisons in Valley Fever-endemic areas might place inmates at risk for exposure (Huang et al. 2012) and that individuals incarcerated elsewhere in Fresno County have contracted Valley Fever, this analysis considers the inmate population at FCI Mendota to be a sensitive receptor.

3.4.1.2 Regulatory Setting

Criteria Air Pollutants. Regulation of air pollution is achieved through both national and state ambient air quality standards and emission limits for individual sources of air pollutants. As required by the federal Clean Air Act, the USEPA has identified criteria pollutants and has established NAAQS to protect public health and welfare. NAAQS have been established for ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. To protect human health and the environment, the USEPA has set “primary” and “secondary” maximum ambient standards for each of the criteria pollutants. Primary standards were set to protect human health, particularly sensitive individuals such as children, the elderly, and individuals suffering from chronic lung conditions such as asthma and emphysema. Secondary standards were set to protect the natural environment and prevent further deterioration of animals, crops, vegetation, and buildings.

The NAAQS are defined as the maximum acceptable concentration that may be reached, but not exceeded more than once per year. California has adopted more stringent ambient air quality

standards for most of the criteria air pollutants. Table 3.4-2 presents both sets of ambient air quality standards (i.e., national and state) and the Air Basin's attainment status for each standard. California also has established state ambient air quality standards for sulfates, hydrogen sulfide, and vinyl chloride.

As shown in Table 3.4-2, the Air Basin currently is classified as non-attainment for the 1-hour state ozone standard as well as for the federal and state 8-hour ozone standards. The Air Basin also is designated as non-attainment for the state annual arithmetic mean and national 24-hour $PM_{2.5}$ standards. Additionally, the Air Basin is classified as non-attainment for the state 24-hour and annual arithmetic mean PM_{10} standards. The Air Basin is unclassified or classified as attainment for all other pollutants standards (SJVAPCD 2018a).

Toxic Air Contaminants. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources, but does not directly regulate air toxics emissions. A Toxic Air Contaminant (TAC) is a substance determined by CARB to have the potential to cause serious health effects. For example, diesel combustion exhaust particulate matter is a TAC (CARB 2015). Under the Act, TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment and, if specific thresholds are violated, are required to communicate the results to the public in the form of notices and public meetings. Depending on the risk levels, emitting facilities are required to implement varying levels of risk reduction measures. The SJVAPCD implements AB 2588 through its Integrated Air Toxic Program and is responsible for prioritizing facilities that emit air toxics, reviewing health risk assessments, and implementing risk reduction procedure. Pursuant to the requirements of AB 2588, the SJVAPCD publishes an air toxics emissions inventory that details the TAC emissions of facilities throughout the Air Basin (SJVAPCD 2017a).

Federal

USEPA is responsible for implementing the programs established under the federal Clean Air Act, such as developing and reviewing the NAAQS and judging the adequacy of State Implementation Plans (SIPs), but has delegated the authority to implement many of the federal programs to the states while retaining an oversight role to ensure that the programs continue to be implemented.

The 1970 Clean Air Act (last amended in 1990) requires that regional planning and air pollution control agencies prepare a regional air quality plan to outline the measures by which both stationary and mobile sources of pollutants are planned to be controlled in order to achieve all standards by the deadlines specified in the act. These ambient air quality standards are intended to protect the public health and welfare, and they specify the concentration of pollutants (with an ample margin of safety) to which the public can be exposed without adverse health effects. They are designed in consideration of those segments of the public most susceptible to respiratory distress, including asthmatics, the very young, the elderly, people weak from other illness or disease, or persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels that are somewhat above ambient air quality standards without observing adverse health effects. The current attainment status for the San Joaquin Valley Air Basin, with respect to Federal standards, is summarized above in Table 3.4-2.

State

The California Air Resources Board (CARB) is responsible for establishing and reviewing the state standards, compiling the California SIP and securing approval of that plan from USEPA, conducting research and planning, and identifying TACs. CARB also regulates mobile sources of emissions in California, such as construction equipment, trucks, and automobiles, and oversees the activities of California's air quality management districts, which are organized at the county or regional level. Air quality management districts are primarily responsible for regulating stationary sources at industrial and commercial facilities within their geographic areas and for preparing the air quality plans that are required under the federal Clean Air Act and California Clean Air Act.

Although the Federal Clean Air Act established national ambient air quality standards, individual states retained the option to adopt more stringent standards and to include other pollution sources. California already had established its own air quality standards when Federal standards were established, and because of the unique meteorological problems in California, there is considerable diversity between the State and national ambient air quality standards, as shown in Table 3.4-2. California ambient standards are at least as protective as national ambient standards and often are more stringent. In 1988, California passed the California Clean Air Act (Health and Safety Code §39600 et seq.), which, like its Federal counterpart, requires the designation of areas as attainment or non-attainment, but based these designations on State ambient air quality standards rather than the Federal standards.

Local

San Joaquin Valley Air Pollution Control District

The Project would be located within the jurisdiction of the SJVAPCD, which regulates air pollutant emissions for all sources throughout the Air Basin other than motor vehicles. The SJVAPCD enforces regulations and administers permits governing stationary sources. The following rules, regulations, and plans would apply to the Project:

Regulation VIII (Fugitive PM_{10} Prohibitions). Regulation VIII contains rules developed pursuant to USEPA guidance for serious PM_{10} nonattainment areas. Rules included under this regulation limit fugitive PM_{10} emissions from the following sources: construction, demolition, excavation, extraction and other earth moving activities, bulk materials handling, carryout and track-out, open areas, paved and unpaved roads, unpaved vehicle/equipment traffic areas, and agricultural sources. **Table 3.4-3** contains control measures that the Applicants would be required to implement during Project construction activities pursuant to **Rule 8021**, *Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities*.

Rule 4101 (Visibility). Rule 4101 limits the visible plume from any source to 20 percent opacity.

Rule 4102 (Nuisance). Rule 4102 prohibits the discharge of air contaminants or other materials in quantities that may cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such person or the public.

TABLE 3.4-3
SJVAPCD RULE 8021 MEASURES APPLICABLE TO THE PROJECT

No.	Measure
A1	Pre-water site sufficient to limit visible dust emissions to 20 percent opacity
A2	Phase work to reduce the amount of disturbed surface area at any one time
B1	Apply water or chemical/organic stabilizers/suppressants sufficient to limit visible dust emissions to 20 percent opacity; or
B2	Construct and maintain wind barriers sufficient to limit visible dust emissions to 20 percent opacity. If using wind barriers, control measure B1 above shall also be implemented.
B3	Apply water or chemical/organic stabilizers/suppressants to unpaved haul/access roads and unpaved vehicle/equipment traffic areas sufficient to limit visible dust emissions to 20 percent opacity and meet the conditions of a stabilized unpaved road surface.
C.1	Restrict vehicular access to the area.
C.2	Apply water or chemical/organic stabilizers/suppressants, sufficient to comply with the conditions of a stabilized surface. If an area having 0.5 acre or more of disturbed surface area remains unused for seven or more days, the area must comply with the conditions for a stabilized surface area as defined in section 3.58 of Rule 8011.
5.3.1	An owner/operator shall limit the speed of vehicles traveling on uncontrolled unpaved access/haul roads within construction sites to a maximum of 15 miles per hour.
5.3.2	An owner/operator shall post speed limit signs that meet state and federal Department of Transportation standards at each construction site's uncontrolled unpaved access/haul road entrance. At a minimum, speed limit signs shall also be posted at least every 500 feet and shall be readable in both directions of travel along uncontrolled unpaved access/haul roads.
5.4.1	Cease outdoor construction, excavation, extraction, and other earthmoving activities that disturb the soil whenever visible dust emissions exceeds 20 percent opacity. Indoor activities such as electrical, plumbing, dry wall installation, painting, and any other activity that does not cause any disturbances to the soil are not subject to this requirement.
5.4.2	Continue operation of water trucks/devices when outdoor construction excavation, extraction, and other earthmoving activities cease, unless unsafe to do so.
6.3.1	An owner/operator shall submit a Dust Control Plan to the Air Pollution Control Officer prior to the start of any construction activity on any site that will include 10 acres or more of disturbed surface area for residential developments, or 5 acres or more of disturbed surface area for non-residential development, or will include moving, depositing, or relocating more than 2,500 cubic yards per day of bulk materials on at least three days. Construction activities shall not commence until the Air Pollution Control Officer has approved or conditionally approved the Dust Control Plan. An owner/operator shall provide written notification to the Air Pollution Control Officer within 10 days prior to the commencement of earthmoving activities via fax or mail. The requirement to submit a dust control plan shall apply to all such activities conducted for residential and non-residential (e.g., commercial, industrial, or institutional) purposes or conducted by any governmental entity.
6.3.3	The Dust Control Plan shall describe all fugitive dust control measures to be implemented before, during, and after any dust generating activity.
6.3.4	A Dust Control Plan shall contain all the [administrative] information described in Section 6.3.6 of this rule. The Air Pollution Control Officer shall approve, disapprove, or conditionally approve the Dust Control Plan within 30 days of plan submittal. A Dust Control Plan is deemed automatically approved if, after 30 days following receipt by the District, the District does not provide any comments to the owner/operator regarding the Dust Control Plan.

SOURCE: SJVAPCD 2004

Rule 4601 (Architectural Coatings). The Rule 4601 is to limit VOC emissions from architectural coatings. This rule specifies architectural coatings storage, cleanup, and labeling requirements.

Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations) The purpose of Rule 4641 is to limit VOC emissions by restricting the application and manufacturing of certain types of asphalt for paving and maintenance operations, and applies to the manufacture and use of cutback asphalt, slow cure asphalt and emulsified asphalt for paving and maintenance operations.

Rule 9510 (Indirect Source Review). Rule 9510 requires certain development projects to mitigate exhaust emissions from construction equipment greater than 50 horsepower to 20 percent below statewide average NO_x emissions and 45 percent below statewide average PM_{10} exhaust emissions. This rule also requires applicants to reduce baseline emissions of NO_x and PM_{10} emissions associated with operations by 33.3 percent and 50 percent respectively over a period of 10 years (SJVAPCD 2017b).

In addition to reducing a portion of the development project's impact on air quality through compliance with District Rule 9510, a developer can further reduce the project's impact on air quality by entering into a "Voluntary Emission Reduction Agreement" (VERA) with the District to address the mitigation requirements under CEQA. Under a VERA, the developer may fully mitigate project emission impacts by providing funds to the District, which then are used by the District to administer emission reduction projects on behalf of the project proponent (SJVAPCD 2015b). Emission reduction projects funded by the VERA program include replacement of older equipment such as tractors for small-scale agriculture and other small business operations and buses for school districts where equipment replacement would be otherwise prohibitively expensive. To determine emissions reductions credited to the VERA, the SJVAPCD tracks each piece of equipment purchased with the VERA funds and the emissions reductions anticipated from the use of that equipment compared to the replaced older equipment. Those direct reductions are the credited to the VERA. No reductions are credited to the VERA until replacement equipment has been purchased with VERA funds. The Applicants have proposed to enter into a VERA to assure consistency with SJVAPCD Attainment Plan for ozone (see Section 2.5.7.1 and Appendix E for more information).

Air Quality Management Plans

As required by the federal and California Clean Air Acts, air basins or portions thereof have been classified as either "attainment" or "nonattainment" for each criteria air pollutant, based on whether or not the standards have been achieved. Jurisdictions of nonattainment areas also are required to prepare an air quality management plan that includes strategies for achieving attainment. The SJVAPCD has approved air quality management plans demonstrating how the Air Basin will reach attainment with the federal 1-hour and 8-hour ozone, PM_{10}, and $PM_{2.5}$ and California CO standards.

Ozone Attainment Plans

The *Extreme 1-Hour Ozone Attainment Demonstration Plan*, adopted by the SJVAPCD Governing Board October 8, 2004, set forth measures and emission-reduction strategies designed to attain the federal 1-hour ozone standard by November 15, 2010. The 1-hour ozone standard was subsequently revoked by EPA in June of 2005. The *2013 Plan for the Revoked 1-Hour Ozone Standard* was approved by the Governing Board on September 19, 2013 (SJVAPCD 2013a) to attain the 1-hour ozone standard by 2017, On July 18, 2016, the EPA published in the Federal Register the final action to determine that the San Joaquin Valley has attained the 1-hour ozone standard.

The *2007 Ozone Plan,* approved by CARB on June 14, 2007, demonstrates how the Air Basin would meet the federal 8-hour ozone standard. The *2007 Ozone Plan* includes a comprehensive list of regulatory and incentive based measures to reduce emissions of ozone and particulate matter precursors throughout the Air Basin. Additionally, this plan calls for major advancements in pollution control technologies for mobile and stationary sources of air pollution, and an increase in State and federal funding for incentive-based measures to create adequate reductions in emissions to bring the entire Air Basin into attainment with the federal 8-hour ozone standard (SJVAPCD 2007).

On April 16, 2009, the SJVAPCD Governing Board adopted the *Reasonably Available Control Technology Demonstration for Ozone State Implementation Plans* (SJVAPCD 2009). With respect to the 8-hour standard, the plan assesses the SJVAPCD's rules based on the adjusted major source definition of 10 tons per year (due to the SJVAB's designation as an extreme ozone nonattainment area), evaluates SJVAPCD rules against new Control Techniques Guidelines promulgated since August 2006, and reviews additional rules and amendments adopted by the Governing Board since August 17, 2006, for reasonably available control technology consistency.

On June 19, 2014, the Governing Board adopted the *2014 Reasonably Available Control Technology Demonstration for the 8-Hour Ozone State Implementation Plan* (SJVAPCD 2014). that includes a demonstration that the SJVAPCD rules implement RACT. The plan reviews each of the NO_x reduction rules and concludes that they satisfy requirements for stringency, applicability, and enforceability, and meet or exceed RACT.

SJVAPCD adopted the *2016 Plan for the 2008 8-Hour Ozone Standard* in June 2016. This plan satisfies Clean Air Act requirements and ensures expeditious attainment of the 75 parts per billion 8-hour ozone standard (SJVAPCD 2016a).

Particulate Matter Attainment Plans

Effective November 12, 2008, USEPA re-designated the SJVAB as an attainment area with respect to the PM_{10} NAAQS and approved the *2007 PM_{10} Maintenance Plan* (USEPA 2008).

In April 2008, The SJVAPCD Board adopted the *2008 $PM_{2.5}$ Plan* and subsequently approved amendments on June 17, 2010 (SJVAPCD 2008). This plan was designed to addresses EPA's annual $PM_{2.5}$ standard of 15 µg/m³, which was established by EPA in 1997.

In April 2015, the SJVAPCD Board adopted the *2015 Plan for the 1997 $PM_{2.5}$ Standard* that addresses the EPA's annual and 24-hour $PM_{2.5}$ standards established in 1997 after the SJVAB experienced higher $PM_{2.5}$ levels in winter 2013–2014 due to the extreme drought, stagnation, strong inversions, and historically dry conditions, and the SJVAPCD was unable to meet the initial attainment date of December 31, 2015 (SJVAPCD 2015c).

SJVAPCD adopted the *2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard* on September 15, 2016. This plan addresses the updated EPA federal annual $PM_{2.5}$ standard of 12 $\mu g/m^3$, established in 2012. This plan includes an attainment impracticability demonstration and request for reclassification of the Valley from Moderate nonattainment to Serious nonattainment (SJVAPCD 2016b).

Fresno County

The Fresno County General Plan contains the following air quality policies aimed at reducing air emissions from development projects, including the Project (Fresno County 2000):

> ***Policy OS-G.13:*** The County shall include fugitive dust control measures as a requirement for subdivision maps, site plans, and grading permits. This will assist in implementing the SJVUAPCD's particulate matter of less than ten (10) microns (PM_{10}) regulation (Regulation VIII). Enforcement actions can be coordinated with the Air District's Compliance Division.
>
> ***Policy OS-G.14:*** The County shall require all access roads, driveways, and parking areas serving new commercial and industrial development to be constructed with materials that minimize particulate emissions and are appropriate to the scale and intensity of use.

3.4.2 Significance Criteria

A project would result in significant impacts to Air Quality if it would:

a) Conflict with or obstruct implementation of the applicable air quality plan;

b) Violate any air quality standard or result in a cumulatively considerable net increase in an existing or projected air quality violation;

c) Expose sensitive receptors to substantial pollutant concentrations; or

d) Result in substantial emissions (such as odors or dust) adversely affecting a substantial number of people.

CEQA Guidelines Appendix G Section III, *Air Quality*, asks whether a project would "[c]reate objectionable odors affecting a substantial number of people." Because sensitivities to odors are subjective and may vary widely, this analysis instead considers the Project's potential odors as one example of a potential localized air quality impact that could cause an adverse impact to substantial numbers of people. This approach is consistent with how the Governor's Office of Planning and Research and courts have considered the question.

3.4.3 Direct and Indirect Effects

3.4.3.1 Approach to Analysis

Emission estimates for the Project were prepared in an Air Quality and Greenhouse Gas Emissions Analysis Technical Report (Appendix E, Section 2). To determine the significance of Project impacts on Air Quality, Project-related initial demolition and construction; operation and maintenance; and decommissioning and site restoration emissions were estimated and compared to significance thresholds recommended in the SJVAPCD's *Guide for Assessing and Mitigating Air Quality Impacts* (Impact Assessment Guide) (SJVAPCD 2015a). The details of data, calculations, and assumptions used to determine Project-related emissions and associated public health risks that would be caused by the Project are included in Appendix E. For a conservative estimate, emissions during Project decommissioning were considered to be equal to those during Project construction.

3.4.3.2 Direct and Indirect Effects of the Project

a) Whether the Project would conflict with or obstruct implementation of the applicable air quality plan.

Impact 3.4-1: Criteria pollutant emissions during Project construction and decommissioning could conflict with the SJVAPCD's air quality plan. (*Less than Significant Impact*)

Initial demolition and construction, operation and maintenance, and decommissioning and site restoration of the Project would result in emissions of criteria pollutants including ozone precursors such as ROG and NO_x as well as particulate matter. The SJVAPCD has prepared several air quality attainment plans to achieve ozone and particulate matter standards, the most recent of which include the *2014 Reasonably Available Control Technology Demonstration for the 8-Hour Ozone State Implementation Plan*, *2013 Plan for the Revoked 1-Hour Ozone Standard*, *2007 PM_{10} Maintenance Plan and Request for Redesignation, 2012 $PM_{2.5}$ Plan*, and *2015 Plan for the 1997 $PM_{2.5}$ Standard*. The Air Basin is in attainment for CO, SO_2, and lead, so there are no attainment plans for those pollutants.

The SJVAPCD has determined that projects with emissions below the thresholds of significance for criteria pollutants would not conflict or obstruct implementation of the SJVAPCD's air quality plan (SJVAPCD 2015a).

The Project would comply with applicable SJVAPCD rules and regulations, such as Regulation VIII (Fugitive PM_{10} Prohibitions) and Rule 9510 (Indirect Source Review) which are summarized in Section 3.4.1.2, *Regulatory Setting*. Unmitigated NO_x emissions during construction would exceed the SJVAPCD significance threshold; however, as discussed in Impact 3.4-2, compliance with SJVAPCD Rule 9510 and implementation of a VERA with SJVAPCD would offset emissions to a less than significant level. Additionally, haul truck, vendor truck, and worker vehicle trips would be generated during the Project construction and decommissioning activities but would cease after construction and decommissioning activities are completed.

During the longer-term operational phase, the Project would have routine inspection and maintenance activities that would result in a net increase in emissions although, as discussed in Impact 3.4-2, the increase in emissions would not exceed any significance threshold or violate any SJVAPCD rule or regulation due to the negligible amount of traffic that will be generated.

Because the Project would offset NO_x emissions during construction through a VERA (Appendix E), the Project would offset emissions to a less than significant level during construction and decommissioning. Therefore, the Project would not conflict with or obstruct implementation of the SJVAPCD's air quality plan, and impacts would be less than significant.

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b) Whether the Project would violate any air quality standard or result in a cumulatively considerable net increase in an existing or projected air quality violation.

Impact 3.4-2: The Project could exceed SJVAPCD thresholds for criteria air pollutants during Project decommissioning activities. (*Less than Significant with Mitigation Incorporated*)

Construction and Decommissioning Emissions

The Project's initial demolition and construction phase would generate air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, and architectural coatings. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions.

The majority of construction emissions generated on-site would result from demolition of an existing metal shed and storage silos on the Little Bear 3 site (APN 019-110-06ST), the use of heavy-duty off-road equipment (such as backhoes, bulldozers, graders, front loaders, dump trucks, and cranes) for site preparation, construction and paving of access roads, installation of the solar array, and construction of the substations, energy storage system, the operations and maintenance (O&M) building, and generation tie lines. ROG would also be generated by off-gassing of asphalt for paved driveway entrances. Off-site emissions would also be generated by construction worker daily commute trips and by heavy-duty diesel truck trips from haul and vendor trucks.

The Project would comply with SJVAPCD Rule 8021 to control dust emissions generated during grading activities. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the active sites, covering haul trucks, and developing a dust control plan to maintain acceptable levels of dust generation.

Table 3.4-4 shows the estimated maximum annual construction emissions generated during construction of the Project. Details of the emission calculations are provided in Appendix E. Construction emissions were calculated for the estimated worst-case day over the construction period associated with each phase and reported as the maximum daily emissions estimated during

each year of construction (2019 and 2020). The Project also would comply with SJVAPCD Rule 9510, Indirect Source Review, which requires large development projects to reduce exhaust emissions from construction equipment by 20 percent for NO_x and 45 percent for PM_{10} compared to the statewide average. These reductions are reflected in Table 3.4-4, and were calculated using the Sacramento Metropolitan Air Quality Management District's Construction Mitigation Tool, which is commonly used by the SJVAPCD for this purpose (SJVAPCD 2012). The construction equipment fleet would meet SJVAPCD Rule 9510 Indirect Source Review general mitigation requirements.

TABLE 3.4-4
PROJECT CONSTRUCTION EMISSIONS ESTIMATES

Estimated Emissions	Estimated Emissions (tons per year)					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
2019	1.05	8.92	6.39	0.09	1.08	0.49
2020	1.80	13.54	13.50	0.15	2.15	0.89
Total Annual Emissions[a]	2.85	**22.46**	19.89	0.24	3.23	1.38
SJVAPCD Thresholds (tons per year)	10	10	100	27	15	15
Exceedance of Threshold?	No	**Yes**	No	No	No	No
Total Annual Emissions with ISR Compliance[b]	2.85	**14.11**	19.89	0.24	2.93	1.38
Exceedance of Threshold?	No	**Yes**	No	No	No	No
VERA Emissions Offset	-	- 4.12	-	-	-	-
Total Annual Emissions after VERA	2.85	9.99	19.89	0.24	2.93	1.38
Exceedance of Threshold after VERA?	No	No	No	No	No	No

NOTES:
[a] Total emissions reflect a rolling 12-month total. While the construction period may last up to 14 months, a 12-month construction period provides a more conservative analysis.
[b] Reflects minimum required emissions reductions in NO_x and PM_{10} to comply with Rule 9510.
Bolded values indicate an exceedance of a threshold.

SOURCE: Appendix E, Table 7.

As shown in Table 3.4-4, annual construction emissions would not exceed the SJVAPCD annual significance thresholds for ROG, CO, SO_x, PM_{10}, or $PM_{2.5}$ during construction in all construction years. However, the Project's construction NO_x emissions would exceed the SJVAPCD's 10 tons per year threshold. For the Project's NO_x emissions to remain below the 10 tons per year threshold, an offset of approximately 4.12 tons of NO_x emissions would be required. The Applicants have offered, as part of the Project, to enter into a VERA to provide funds to the District for administration of emission reduction projects on behalf of the Applicants. Because the Applicants have offered, as part of the Project, to enter into a VERA to assure that annual construction emissions for NO_x would not exceed the SJVAPCD significance thresholds (see Appendix E), this potential construction-phase impact would be less than significant. Because an agreement would be reached with the SJVAPCD as to the terms of the VERA before construction-related emissions would occur, the Project's NO_x emissions during construction would cause a less-than-significant impact.

While the Applicants are proposing to enter into a VERA agreement for the purposes of offsetting construction-related NO_x, as discussed in Section 2.5.7.1 of the Project Description, there is currently no proposal to enter into such an agreement to offset decommissioning impacts which are conservatively assumed to be the same as Project construction impacts. As decommissioning would occur in an assumed 30-year time frame, the construction equipment fleet for decommissioning is expected to be substantially cleaner than that assumed for the proposed construction analysis (2019 and 2020). Consequently, **Mitigation Measure 3.4-2** is identified to address the potential for decommissioning emissions to result in a significant impact with respect to NO_x emissions conservatively estimated at approximately 4.12 tons.

Construction and Decommissioning Ambient Air Quality Impact Assessment

Although Project emissions would not exceed the 100 tons per year annual significance threshold established by the SJVAPCD for CO, the Project would emit more than 100 pounds of CO per day during construction. As recommended by the SJVAPCD, an ambient air quality impact assessment should be performed if any pollutants exceed 100 pounds per day during construction or operation. If the impacts resulting from a project's emissions would not exceed the CAAQS and NAAQS at the project's property boundaries, the project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation (SJVAPCD 2015a). Average annual emissions were used as the basis for determining the Project's potential impact on ambient air quality. Detailed calculations and a summary of the ambient air quality impact analysis undertaken to determine whether construction activities associated with the Project would cause or contribute to ambient air quality impacts are contained in Appendix E. The results of the ambient air quality impact analysis showed that Project construction activities would result in construction activities that would generate ambient concentrations of criteria pollutants below the applicable thresholds, and no State or Federal AAQS would be exceeded.

The SJVAB is a nonattainment area for ozone, PM_{10}, and $PM_{2.5}$ under the NAAQS and/or CAAQS. The air quality in the SJVAB is the result of cumulative emissions from motor vehicles, off-road equipment, commercial and industrial facilities, and other emission sources. Projects that emit these pollutants or their precursors (i.e., ROG and NO_x for ozone) potentially contribute to poor air quality. Due to the Applicants' participation in a VERA, the NO_x impact during Project construction would be reduced to a less-than-significant level, and no other SJVAPCD thresholds would be exceeded. Potentially significant NO_x emissions from decommissioning in year 2050 would be addressed by Mitigation Measure 3.4-2 which would require either entering into a VERA agreement to offset such emissions, similar to project construction, or submission to the County of an analysis demonstrating that the NO_x emissions associated with decommissioning would be less than 10 tons per year. Accordingly, the Project would result in a less than significant increase in emissions of nonattainment pollutants with identified mitigation measures. Therefore, the Project construction and decommissioning would not result in a cumulatively considerable increase in emissions of nonattainment pollutants.

Operation and Maintenance

On-site emissions of criteria pollutants associated with Project operation and maintenance would be generated as a result of routine maintenance and periodic PV panel washing activities. Off-site emissions would be generated due to the up to 20 employees who could be commuting to the

Project site each day.[2] Based on conservative estimates for vehicular travel, the Project is anticipated to have up to 4,261 trips per year during operation (an average of 16 trips per work day), accounting for the commutes and performance of regular inspection and maintenance activities. Details of the emission calculations are provided in Appendix E.

As summarized in **Table 3.4-5**, operation and maintenance of the Project would generate emissions that would be well-below the SJVAPCD significance thresholds. Therefore, operational emissions would be a less than significant impact with respect to the violation of an air quality standard.

TABLE 3.4-5
SOLAR FACILITY OPERATION AND MAINTENANCE EMISSIONS ESTIMATES

Estimated Emissions	Estimated Emissions (tons per year)					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Total	0.01	0.08	0.08	0.00	0.02	0.01
SJVAPCD Thresholds (tons per year)	10	10	100	27	15	15
Exceedance of Threshold?	No	No	No	No	No	No

SOURCE: Appendix E, Table 9.

As shown in Table 3.4-5, the Project would not generate a long-term increase in operational criteria pollutant emissions, and would include very minimal emissions of ozone precursors ROG and NO_x, PM_{10}, and $PM_{2.5}$. Furthermore, Project operation and maintenance would not conflict with the SJVAPCD Ozone Attainment Plans, or the PM_{10} or $PM_{2.5}$ Attainment Plan, which address cumulative emissions in the SJVAB. Therefore, Project operation and maintenance would not result in a cumulatively considerable increase in emissions of nonattainment pollutants.

Mitigation Measure 3.4-2: Voluntary Emission Reduction Agreement for NO_x During Decommissioning

Prior to issuance of county permits for decommissioning activities, the Project Applicant shall provide to the County either:

a. A fully-executed Voluntary Emission Reduction Agreement (VERA) with the San Joaquin Valley Air Pollution Control District (SJVAPCD) to fully mitigate Project decommissioning emissions from NO_x; or

b. An analysis prepared by an air quality specialist demonstrating that the emissions of NO_x associated with decommissioning would be less than the SJVAPCD threshold of 10 tons per year.

Significance after Mitigation: Less than Significant.

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[2] As described in Section 2.5.5, operation and maintenance of the Project would require on-site personnel. On a typical day, the number of staff on site may range from none (it is not necessary for staff to be present during plant operations) up to 20 during periodic, routine maintenance events. Non-routine (emergency) maintenance could require additional workers.

c) Whether the Project would expose sensitive receptors to substantial pollutant concentrations.

Impact 3.4-3: The Project could expose sensitive receptors to substantial pollutant concentrations during construction and decommissioning, including NO_2. (*Less than Significant Impact*)

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Air quality problems arise when the rate of pollutant emissions exceeds the rate of dispersion. Reduced visibility, eye irritation, and adverse health impacts upon those persons termed "sensitive receptors" are the most serious hazards of existing air quality conditions in the area. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution, as identified by CARB, include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases; however, for the purposes of this analysis, residents and inmates at FCI Mendota also are considered sensitive receptors. The closest sensitive receptors to the Project site are the home located approximately 3,850 feet west of the Project site boundary along California Avenue and FCI Mendota, which is located approximately 3,150 feet north of the site boundary.

Health Impacts of TACs

Health impacts associated with TACs are generally associated with long-term exposure. Minimal emissions are expected on-site from routine maintenance and periodic PV panel washing activities, and off-site from employees commuting to the Project site each day. There are no meaningful sources of TACs for the operating phase of the Project and therefore no reason to expect health impacts related to TACs. Therefore, the greatest potential for TAC emissions would be during construction and decommissioning as a result of diesel particulate emissions from heavy equipment operations and heavy-duty trucks. However, the construction activity is short-term and therefore unlikely to pose a risk of health impacts to the nearest sensitive receptors. A voluntary health risk assessment for Project construction was prepared, as provided in Appendix E.

The Project may result in a short-term increase of TAC emissions related to construction. The main contaminant of concern for the Project is diesel combustion exhaust particulate matter, which has been listed as a TAC by the CARB. As diesel combustion exhaust particulate matter is the TAC emitted in the largest quantity, it is used as a surrogate for other TACs within diesel exhaust.

The Project's potential cancer and non-cancer health impacts were estimated using exposure periods appropriate to evaluate short-term emission increases. Emissions dispersion of diesel combustion exhaust particulate matter was modeled using the atmospheric dispersion modeling system commonly known as "AERMOD," and cancer risk and non-cancer health impacts subsequently estimated using the CARB Hot Spots Analysis and Reporting Program Version 2 known as "HARP2." The chemical exposure results then were compared to SJVAPCD thresholds to assess Project significance.

Health effects from carcinogenic air toxics usually are described in terms of cancer risk. The SJVAPCD recommends a carcinogenic (cancer) risk threshold of 20-in-a-million. The Chronic Hazard Index (HIC) is the sum of the individual substance chronic hazard indices for all TACs affecting the same target organ system. The SJVAPCD recommends a HIC significance threshold of 1.0 (project increment) and an acute hazard index of 1.0. No short term, acute relative exposure values are established and regulated, and, therefore, were not addressed in the health risk assessment.

Construction of Project components would require use of heavy-duty construction equipment, which is subject to a CARB Airborne Toxics Control Measure for in-use diesel construction equipment to reduce diesel particulate emissions, and would involve use of diesel trucks, which are also subject to an Airborne Toxics Control Measure. Construction of Project components would occur in four phases lasting a total of 12-14 months and would be periodic and short term within each phase. Following completion of construction activities, Project-related TAC emissions would cease. The results of the health risk assessment during construction are provided in **Table 3.4-6**.

As shown in Table 3.4-6, the results of the construction health risk analysis demonstrate that construction mobile sources exhibit maximum individual cancer risks (MICR) below the SJVAPCD 20-in-a-million threshold, and chronic hazard indices (HIC) less than 1. Project decommissioning emissions conservatively are assumed to be equal to Project construction emissions. Therefore, Project construction and decommissioning TACs impact from diesel combustion exhaust particulate matter emissions would be less than significant.

TABLE 3.4-6
CONSTRUCTION ACTIVITY HEALTH RISK ASSESSMENT RESULTS

Impact Parameter	Units	Project Impact	SJVAPCD CEQA Threshold	Level of Significance
Maximum Individual Cancer Risk – Residential & Worker	Per Million	1.0	20.0	Less than Significant
Chronic Hazard Index	unitless ratio	0.001	1.0	Less than Significant

SOURCE: Appendix E, Table 11

Health Impacts of Carbon Monoxide

Exposure to high concentrations of CO can result in dizziness, fatigue, chest pain, headaches, and impairment of central nervous system functions. The SJVAB is currently an attainment area for CO; however, there is a potential for the formation of microscale CO "hotspots" to occur immediately around points of congested traffic. Hotspots can form if such traffic occurs during periods of poor atmospheric ventilation, is composed of a large number of vehicles cold-started and operating at pollution-inefficient speeds, and/or is operating on roadways crowded with non-Project traffic.

The SJVAPCD's Impact Assessment Guide states that a quantitative CO hotspots analysis be performed if either of the following two conditions exist: a traffic study for the project indicates

that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F; or a traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets or at more or more intersections in the project vicinity. Results from the Traffic Technical Report prepared for the Project showed that the LOS would be A during AM and PM peak hours with implementation of a traffic signal (Appendix M). Therefore, a quantitative CO hotspots analysis is not required.

Therefore, impacts to sensitive receptors with regard to potential CO hotspots resulting from the Project's contribution to cumulative traffic-related air quality impacts would be less than significant.

Health Impacts of Other Criteria Air Pollutants

As discussed under Impact 3.4-2, construction, operation, and decommissioning of the Project would not result in emissions that exceed the SJVAPCD's emission thresholds for any criteria air pollutants, including ROGs, CO, SO_x, PM_{10}, or $PM_{2.5}$.

While specific ROGs may be TACs; however, ROGs are not expected to present risk of health impacts from construction and decommissioning activities, which are largely conducted using equipment and trucks powered by diesel engines that have substantially fewer ROG emissions than gasoline powered motor vehicles. Potential health risks from diesel combustion exhaust particulate matter generated by diesel equipment and trucks, discussed above, far outweigh the risks associated with ROG. Some ROGs would be associated with motor vehicles and construction equipment, while others are associated with architectural coatings, the emissions of which would not result in the exceedances of the SJVAPCD's thresholds as shown in Tables 3.4-4 and 3.4-5. Additionally, SJVAPCD Rule 4601 restricts the ROG content of coatings for both construction and operational applications.

As discussed under Impact 3.4-2, construction, operation, and decommissioning of the Project would not exceed thresholds for PM_{10} or $PM_{2.5}$ and would not contribute to exceedances of the NAAQS and CAAQS for particulate matter. Because the Project would not exceed thresholds for PM_{10} or $PM_{2.5}$ during construction, operation, and decommissioning, health impacts related to particulate matter would be less than significant. The Project would also not result in substantial diesel combustion exhaust particulate matter emissions during construction and operation as discussed above. Therefore, the Project would not result in significant health effects related to diesel combustion exhaust particulate matter exposure.

ROG and NO_x emissions associated with Project construction and decommissioning could minimally contribute to regional ozone concentrations and the associated health impacts. Ozone health impacts are associated with respiratory irritation, which may be experienced by nearby receptors during the periods of heaviest use of off-road construction equipment. Without timely entrance into a VERA, the Project would exceed the SJVAPCD threshold for ozone precursor NO_x during construction, thus there would be a potentially significant impact during construction. However, even without timely entrance into a VERA, construction would be short-term in duration, lasting only 12-14 months, and the long-term operational emissions would not exceed any significance thresholds for ozone precursors.

Emissions from construction of the Project would exceed the SJVAPCD significance thresholds for NO_x some of which would be in the form of NO_2, which is a subset of NO_x but regulated separately. As described in Section 3.4.1.1, *Environmental Setting*, NO_2 and NO_x health impacts are associated with respiratory irritation, which may be experienced by nearby receptors during the periods of heaviest use of off-road construction equipment. However, as discussed in Table 3.4-2, the air basin is designated as in attainment with both the state and federal ambient NO_2 standards and consequently, SJVAPCD has not established a mass emission threshold of significance for NO_2 with respect to CEQA. Therefore, the construction and decommissioning related health impacts for NO_2 would be considered less than significant.

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d) Whether the Project would result in substantial emissions (such as odors or dust) adversely affecting a substantial number of people.

Impact 3.4-4: The Project could generate odor or dust emissions during Project construction and decommissioning. (*Less than Significant Impact*)

Odors

Odors would be potentially generated from vehicles and equipment exhaust emissions during construction and decommissioning of the Project. Odors produced during construction and decommissioning would be attributable to concentrations of unburned hydrocarbons from tailpipes of heavy-duty equipment. Odors generated during Project construction and decommissioning activities would be temporary, and would generally occur at low levels that would not result in nuisance to surrounding land uses. During Project operation, the Project would not introduce any potential sources of odors beyond the use of vehicles for routine inspection and maintenance. Operation and maintenance activities would be minimal, and would not result in any sources of substantial odors. Therefore, impacts associated with odors would be considered less than significant.

Dust

Major sources of dust include dust stirred up by vehicles traveling on roads, dust from construction, and windblown dust from open lands. Dust generated from construction can vary substantially from day to day depending on the prevailing weather conditions. Operation and maintenance of the Project would include very minimal dust generating activity from maintenance vehicles. Construction of the Project would generate air pollutant emissions from entrained dust, off-road equipment, and vehicle emissions. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. As discussed in Impact 3.4-2, annual construction emissions would not exceed the SJVAPCD annual significance thresholds PM_{10} or $PM_{2.5}$ during construction in all construction years.

The Project would be required to comply with SJVAPCD Rule 8021 to control dust emissions generated during grading activities. Standard construction practices that would be employed to reduce fugitive dust emissions include: watering of the active sites to maintain acceptable levels of dust generation, covering haul trucks, and minimizing grading and soil movement when winds

exceed 30 miles per hour. In addition, Regulation VIII would require a Dust Control Plan, and all applicable control measures would be fully implemented. Therefore, dust impacts during Project construction and decommissioning would be less than significant.

Impact 3.4-5: Project construction and decommissioning activities potentially could expose sensitive receptors to risk of Valley Fever. (*Less than Significant Impact*)

Project-related ground disturbance would result in dust that could cause the Coccidioides fungus spores to become airborne. In susceptible people, infection may occur when a spore is inhaled. Construction workers, including solar facility construction workers in endemic areas, have contracted Valley Fever even though protected by measures implemented pursuant to State workplace protection laws. The issue of fugitive dust carrying the spores that cause Valley Fever also could be a concern for residents of nearby communities, visitors travelling through the area, and prison inmates. Hispanic people have been identified as among the groups of people most at risk of developing severe Valley Fever symptoms (CDPH 2017, 2016); approximately 98.7 percent of the population of Mendota is Hispanic (U.S. Census Bureau 2016). Valley Fever contributed to the deaths of more than 30 inmates between 2005 and 2014 (Sacramento Bee 2014). Western Fresno County's Pleasant Valley State Prison has reported the most cases of valley fever of any California state prison (KQED 2018).

As discussed in Section 2.5.7.2 the proponent proposes to implement a Valley Fever Management Plan that would address exposure to the *Coccidioides immitis (C. immitis)* fungus. The Plan would be provided to the County and include a program to limit the potential for exposure to *C. immitis* from construction activities and to identify appropriate worker training, dust management and safety procedures that shall be implemented, as needed, to minimize personnel and public exposure to *C. immitis.* Accordingly, this analysis concludes that, with the implementation of SJVAPCD-approved Valley Fever Management Plan, a less than significant impact would result from the Project-related increase in risk of Valley Fever to human receptors.

3.4.3.3 Direct and Indirect Effects of Alternatives

Increased Habitat/Reduced Acreage Alternative

Under the Increased Habitat/Reduced Acreage Alternative, Little Bear 6 would not be constructed, reducing the Project impact acreage by approximately 161 acres. Compared to the Project, the Increased Habitat/Reduced Acreage Alternative would result in less surface disturbance. The Increased Habitat/Reduced Acreage Alternative would also entail reduced construction and decommissioning activities compared to the Project and would therefore have a similar but slightly reduced impact on Air Quality.

Construction emissions from the Increased Habitat/Reduced Acreage Alternative were calculated by scaling the emissions calculations based on Megawatt (MW) capacity. This alternative would eliminate 20 of the 180 MWac capacity included in the Project. It therefore is estimated that

emissions would be approximately 11 percent less than those calculated for the Project. The Project would exceed the SJVAPCD threshold of 10 tons per year for NO_x absent the Applicant-proposed VERA, and dust generated by this alternative still could cause a potentially significant impact related to the exposure of sensitive receptors to risk of Valley Fever. Therefore, the same mitigation measures recommended for the Project also are recommended for the Increased Habitat/Reduced Acreage Alternative.

No Project Alternative

If the No Project Alternative is implemented, the proposed demolition of structures would not occur; neither the solar facilities nor the Little Bear gen-tie line would be constructed, operated, or maintained; and the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change from baseline conditions, the No Project Alternative would have no impact on Air Quality.

3.4.4 Cumulative Analysis

The geographic scope considered for potential cumulative impacts to air quality is the Air Basin, which is governed by the SJVAPCD. The Air Basin currently is classified as non-attainment for the 1-hour State ozone standard as well as for the federal and State 8-hour ozone standards. Additionally, the Air Basin is classified as non-attainment for the State 24-hour and annual arithmetic mean PM_{10} standards and the State annual arithmetic mean and national 24-hour $PM_{2.5}$ standards (SJVAPCD 2018a). Therefore, there is an existing adverse cumulative effect in the Air Basin relative to these pollutants.

The contribution of a project's individual air emissions to regional air quality impacts is, by its nature, a cumulative effect. Emissions from past, present, and future projects in the region also have or will contribute to adverse regional air quality impacts on a cumulative basis. No single project by itself would be sufficient in size to result in non-attainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative air quality conditions. The project-level thresholds for criteria air pollutants are based on levels by which new sources are not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants. While the Project would contribute to an increase in NO_x, with implementation of Mitigation Measure 3.4-1, the Project's incremental contribution to the cumulative effect would not be considered cumulatively considerable because the Applicants would enter into a VERA to fund off-site emission reduction projects. Additionally, as discussed above, the Project would not conflict with or obstruct implementation of the SJVAPCD's air quality plan. Therefore, the Project construction and decommissioning would not result in a cumulatively considerable increase in emissions of nonattainment pollutants. Project operation would include very minimal emissions of ozone precursors ROG and NO_x, PM_{10}, and $PM_{2.5}$; therefore, operation and maintenance would not result in a cumulatively considerable increase in emissions of nonattainment pollutants.

As described in Section 2.3.2, *Surrounding Uses*, the second circuit along the North Star Solar Project gen-tie line has not yet been strung. The stringing of this second circuit could overlap with construction of the Project. Construction impacts would be temporary and localized to the Project site, which includes the area containing the North Star Solar Project gen-tie line. Since this area was considered during the analysis of Project disturbance, the combined impact would not be cumulatively considerable.

With respect to pollutants that the Air Basin is in attainment for (CO, NO_2, SO_2, and lead) state and federal air quality standards, Project-related emissions of pollutants would not be cumulatively considerable because they would not contribute to an existing cumulative impact.

The SJVAPCD considers TAC emissions to be localized impacts. The District has established thresholds of significance for TACs that are extremely conservative and protective of health impacts on sensitive receptors. Because impacts from TACs are localized and the thresholds of significance for TACs have been established at such a conservative level, risks over the individual thresholds of significance are also considered cumulatively significant (SJVAPCD 2015a). As discussed under Impact 3.4-3, the results of the health risk assessment demonstrated that construction and decommissioning mobile sources would exhibit MICR below the SJVAPCD 20 in a million threshold, and HIC less than 1. Therefore, the Project would not result in a cumulatively significant impact related to TACs.

SJVAPCD also considers cumulative carbon monoxide impacts to be accounted for in a CO hotspot analysis (SJVAPCD 2015a). As discussed under Impact 3.4-3, construction and decommissioning-related traffic is not anticipated to create a CO hotspot, as emissions would not be concentrated and would be dispersed rapidly. Therefore, impacts to sensitive receptors with regard to potential CO hotspots resulting from the Project's contribution to cumulative traffic-related air quality impacts would be less than significant.

In addition, the Project could contribute to a cumulative impact in relation to dust impacts. However, the Project and other projects under construction in the SJVAPCD would be required to comply with SJVAPCD Rule 8021 to control dust emissions generated during grading activities. In addition, the Project would comply with Regulation VIII that would require a Dust Control Plan, and all applicable control measures would be fully implemented. Therefore, the Project's incremental contribution to cumulative dust impacts would be less than significant.

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3.5 Biological Resources

This section identifies and evaluates the Biological Resources on and within approximately 5 miles of the Project site,[1] and the associated regulatory framework. It includes the physical and regulatory setting for the Project and alternatives, the criteria used to evaluate the significance of potential impacts on Biological Resources, the methods used in evaluating these potential impacts, and the results of the impact assessment.

Input was received during the scoping process from an adjacent property owner who asked about the Project's potential impact on their pomegranate trees and the bees required to pollinate them, whether solar project construction could disrupt newly planted trees, whether the power lines or solar panels could affect the trees and fruit, and about weeds or invasive plants that might migrate onto their farm. The California Department of Fish and Wildlife (CDFW) also submitted a scoping letter. CDFW's letter relates to: special-status wildlife species and their foraging and denning opportunities; Swainson's hawk nest sites and foraging habitat; San Joaquin kit fox (*Vulpes macrotis mutica*) foraging and denning habitat and movement through the Project site; blunt-nosed leopard lizard (*Gambelia sila*); burrowing owl; bats, birds, and bird nests; potential impacts to wildlife from rodenticides; and listed and other special-status plants. See Appendix A for additional details. The U.S. Fish and Wildlife Service (USFWS) also provided input regarding San Joaquin kit fox and blunt-nosed leopard lizard (USFWS 2017).

The analysis presented in this section is based in part on the Project-specific reports provided in Appendix F, *Biological Resources*, including: a Biological Technical Report prepared by Dudek (2017) (Appendix F1), which documents existing conditions and the findings of various biological surveys on the Project site and in the biological study area; the Habitat Assessment and Protocol Surveys for Burrowing Owl prepared by LSA Associates, Inc. (2017a) (Appendix F2); and the Results of Protocol-Level Nesting Swainson's Hawk Surveys prepared by LSA (2017b) (Appendix F3). The Applicants' proposed Draft Pest Management Plan (Appendix B2) was also reviewed. All documents prepared by, or on behalf of, the Applicants were reviewed and determined to be suitable for reliance (in combination with other materials included in the formal record) in the preparation of this Draft EIR.

This analysis also relies on a literature review, which included information available in peer-reviewed journals, standard reference materials, and relevant databases on sensitive resource occurrences including the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CDFW 2018), the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation (USFWS 2018), and the California Native Plant Society (CNPS) *Inventory of Rare and Endangered Plants* Rare Plant Rankings (CNPS 2018). The CDFW Special Animals List (CDFW 2017a) also was reviewed to account for other special-status species with potential to occur in the biological study area. Other sources of information reviewed include aerial photographs, topographic maps, soil survey maps, geologic maps, climatic data and Project plans.

[1] As used in this section, the term "biological study area" describes the area where biological resources were characterized and evaluated for potential Project-related impacts, and includes the Project site and a 5-mile radius.

3.5.1 Setting

3.5.1.1 Environmental Setting

The Project site is located in the San Joaquin Valley, approximately 13 miles east of Interstate 5, 2.5 miles southwest of the City of Mendota, and immediately west of State Route 33 (SR-33), in the western portion of the San Joaquin Valley, in unincorporated Fresno County. The Project site is approximately 1,288 acres and is bounded by West California Avenue to the north, West Jensen Avenue to the south, San Bernardino Avenue to the west, and SR-33 to the east. The site has been intermittently dry-farmed for winter wheat and barley and/or laid fallow in recent years. Surrounding land uses include agriculture, a federal correctional institution, and an adjacent 60 megawatt (MW) solar plant (North Star Solar).

Topography of the Project site is generally flat. The site slopes slightly from 215 feet above mean sea level (amsl) in the southwest to 180 feet amsl in the northeast. The Project site has periodically been disced during fallow periods to reduce invasive weed encroachment, and/or limit rodent use. There is an approximately 5,000 square-foot metal storage shed with neighboring metal storage silos (approximately 2,500 square feet), within the boundary of Little Bear 3 that would be removed as part of the Project.

The Project site is located within the Westlands Water District, which provides water allocations to the regional agricultural operations within the service area. In general, surface water within the Project site and surrounding area flows from southwest to northeast based on the local topography. The San Luis Drain is the first major hydrologic conveyance feature east of the Project site, approximately 1.5 miles away. Approximately 2.5 miles east of the Project site, Fresno Slough supports substantial wildlife habitat, specifically the CDFW-managed Mendota Wildlife Area. Other natural waterways in the region include the San Joaquin River to the north, Big Panoche Creek to the west, and the Kings River to the south.

Plant Communities

Three vegetation communities/habitat types were identified on the site: disced agricultural (1,257 acres), disturbed (27 acres), and developed (4 acres) (Mayer and Laudenslayer 1988). No sensitive vegetation communities or wetlands were identified onsite (Appendix F1).

Disced agricultural lands covered the entire site with the exception of roadways and the area surrounding the silo structure and storage shed. Disced lands support agricultural crop plants. At the time of the 2017 biological survey, the site was under production with winter wheat and barley crops.

Disturbed lands are areas, including dirt roads, that have been physically disturbed and no longer are recognizable as native or naturalized vegetation. If vegetation is present, it is almost entirely non-native species, including ornamentals or ruderal exotic plants. Disturbed lands are present at the margins of the site (27 acres total).

Developed land refers to areas that have been constructed upon so that native vegetation no longer is supported. It includes landscaped areas, and areas containing structures or materials. Developed lands are present at the margins of the site (4 acres total).

Wildlife Species

Dudek conducted biological surveys of the Project site in 2017 (Appendix F1). During these surveys, 13 birds and two mammals or their sign (e.g., scat, burrows/dens, prey remains, whitewash, etc.) were detected. Bird species observed were Brewer's blackbird (*Euphagus cyanocephalus*), common raven (*Corvus corax*), mourning dove (*Zenaida macroura*), Bell's sparrow (*Atremisiospiza belli*), house finch (*Haemorhous mexicanus*), house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), red-winged blackbird (*Agelaius phoeniceus*), western meadowlark (*Sturnella neglecta*), and red-tailed hawk (*Buteo jamaicensis*). Power line towers adjacent to the site provide suitable nesting habitat for raptors, and the site provides suitable foraging habitat. Mammal species observed were coyote (*Canis latrans*) (tracks), and gopher (*Thomomys bottae*) (Appendix F1).

No amphibian species or reptiles were observed during the field survey. The agricultural practices on the site provide no suitable habitat for reptile species. The only hydrologic feature onsite, an irrigation ditch located in the northwest corner of the Project site, did not contain water at the time of the survey and is presumed to only contain water during the winter rainy season.

Special-Status Species

Special-status species are plants and wildlife that require special consideration or protection and have been, listed as rare, threatened or endangered by Federal, State or other agencies due to rarity, vulnerability to habitat loss or population decline. Species listed as threatened or endangered are protected under federal or state endangered species legislation. Other species have been designated as special-status by state resource agencies, or by policy of local governmental agencies to meet conservation objectives. Special-status species include:

- Species listed or proposed for listing as threatened or endangered, or are candidates for possible future listing as threatened or endangered, under the federal or California Endangered Species Acts (16 U.S.C. §1531 et seq.; Fish and Game Code §2050 et seq.);
- Species protected under the federal Bald and Golden Eagle Protection Act (16 U.S.C. §§668-668c);
- Species that meet the definitions of rare or endangered under CEQA Guidelines §15380;
- Plants listed as rare under the California Native Plant Protection Act (Fish and Game Code §1900 et seq.);
- Plants considered by the California Native Plant Society to be rare, threatened, or endangered (List 1B and List 2 plants) in California;
- Species covered under an adopted Natural Community Conservation Plan (NCCP)/ Habitat Conservation Plan (HCP);

- Wildlife species of special concern to CDFW, as listed on the Special Animals List (CDFW 2018);
- Wildlife fully protected in California (Fish and Game Code §§3511, 4700, and 5050); and/or
- Avian species protected by the federal Migratory Bird Treaty Act (MBTA) (16 U.S.C. §703 et seq.).

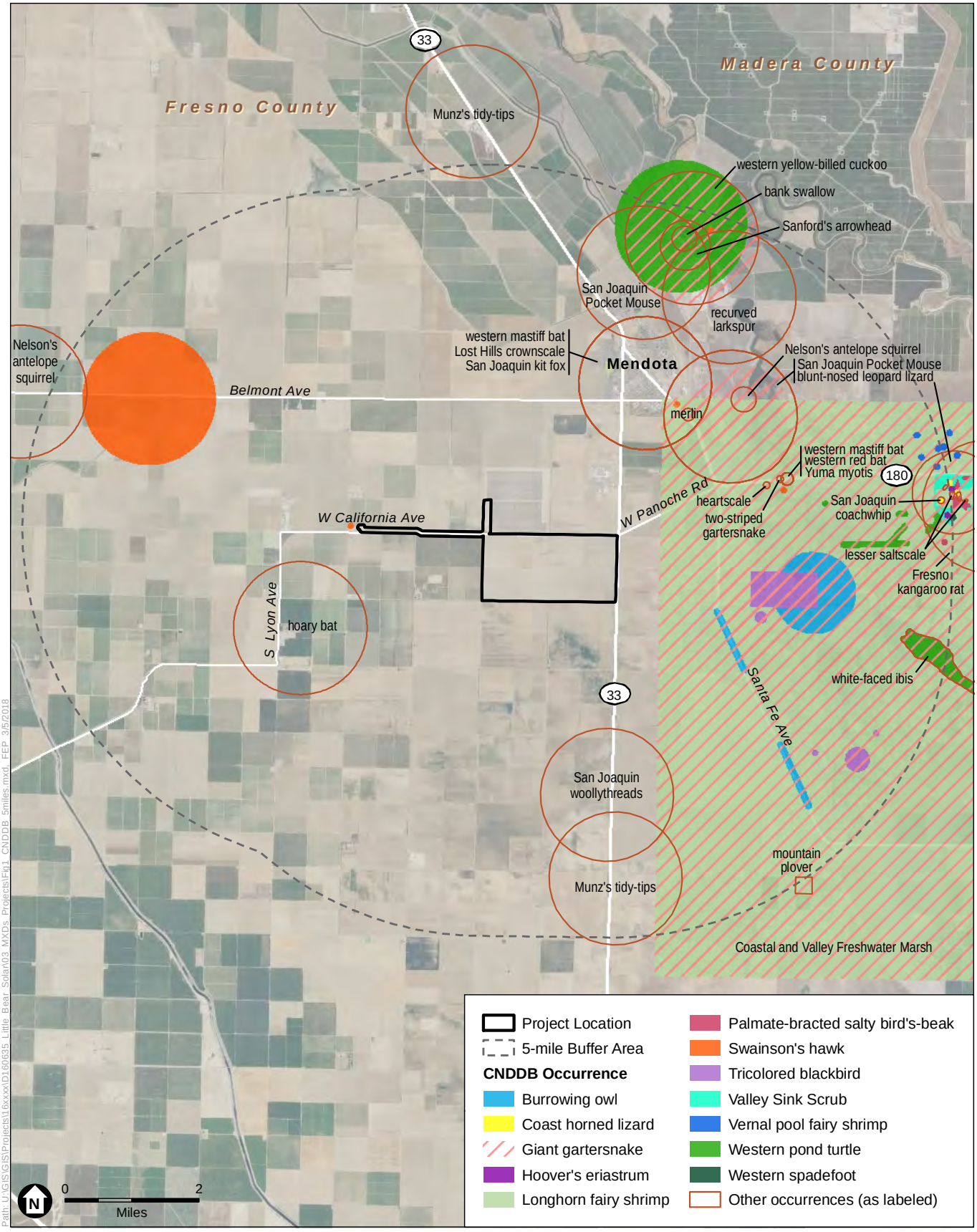
Sensitive natural communities are designated as such by various resource agencies, such as the CDFW, or in local policies and regulations, and are generally considered to have important functions or values for wildlife and/or are recognized as declining in extent or distribution, and are threatened enough to warrant protection. For example, the Northern Basalt Flow Vernal Pools found in Fresno County's North Table Mountain Ecological Reserve are a sensitive community. CDFW tracks communities of conservation concern through its *List of California Terrestrial Communities* (CDFW 2010) and the CNDDB (CDFW 2018). This analysis considers these communities to be "special-status."

Special-status plant and wildlife species identified during the literature and database search were analyzed with the following "potential to occur" definitions:

- **Not Present:** The Project site and/or immediate vicinity do not support suitable habitat for a particular species, and therefore the Project is unlikely to impact this species.
- **Unlikely:** The Project site and/or immediate vicinity only provide limited habitat for a particular species. In addition, the known range for a particular species may be outside of the Project site and immediate vicinity.
- **Moderate Potential:** The Project site and/or immediate vicinity provide suitable habitat for a particular species, and proposed development may impact this species.
- **High Potential:** The Project site and/or immediate vicinity provide ideal habitat conditions for a particular species and/or known populations occur in the immediate vicinity.
- **Present:** Species observed on the Project site and/or immediate vicinity during focused surveys or other site visits.

Special-Status Plant Species and Natural Communities

No special-status plants were observed on the Project site during the biological survey, although the survey was not conducted within the blooming or phenological period for most special-status plant species. Due to the high level of disturbance from discing and crop rotations and the lack of native species, it was concluded that the Project site does not contain suitable habitat for special-status plant species. All special-status plant species found in the CNPS (CNPS 2018) and CNDDB (CDFW 2018) occurrence records for the Coit Ranch, which is located due west of Little Bear 1 and Little Bear 4 along South Lyon Avenue, and surrounding eight 7.5-minute USGS quadrangles, were evaluated for their potential to occur onsite based on the presence of suitable habitat, elevation, and soils. These plants are listed in **Table 3.5-1** and shown in **Figure 3.5-1**. No special-status plant species were identified as having potential to occur within the Project site. Additionally, there is no USFWS critical habitat for special-status plants mapped within or adjacent to the Project site (USFWS 2018).



SOURCE: USDA, 2016; CDFW, 2018; ESA, 2018

Little Bear Solar Project

Figure 3.5-1
Special-status Species Occurrences within 5 miles of the Little Bear Solar Site

TABLE 3.5-1
SPECIAL-STATUS SPECIES POTENTIAL TO OCCUR WITHIN THE PROJECT SITE

Species	Status Fed/State/CNPS*	Habitat	Potential to Occur
Plants			
Atriplex cordulata var. *cordulata* heartscale	--/--/1B.2	Chenopod scrub, meadows and seeps, valley and foothill grassland (sandy); saline or alkaline. Annual herb. Blooms Apr–Oct. Elevation 0–1837 m.	**Not Present.** Suitable scrub, meadow or sandy habitat is absent from the Project site; the nearest CNDDB occurrence is approximately 2.3 miles east of the Project site in alkali playas (CDFW 2018).
Atriplex coronata var. *vallicola* Lost Hills crownscale	--/--/1B.2	Chenopod scrub, valley and foothill grassland, vernal pools; alkaline. Annual herb. Blooms Apr–Aug. Elevation 164–2083 m.	**Not Present.** Suitable scrub, grassland or vernal pool habitat is absent from the Project site; the nearest CNDDB occurrence, approximately 2.2 miles northeast of the Project site, was collected in 1937 and 1938. An additional CNDDB occurrence is approximately 5 miles northeast in alkali sink habitat (CDFW 2018).
Atriplex depressa Brittlescale	--/--/1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, vernal pools; alkaline, clay. Annual herb. Blooms Apr–Oct. Elevation 3–1050 m.	**Not Present.** Suitable scrub, playa or vernal pool habitat is absent from the Project site; the nearest CNDDB occurrence is approximately 5.4 miles east of the Project site within alkaline scalds in a cattle pasture (CDFW 2018).
Atriplex minuscula lesser saltscale	--/--/1B.1	Chenopod scrub, playas, valley and foothill grassland; alkaline, sandy. Annual herb. May–Oct. Elevation 49–656 m.	**Not Present.** Suitable scrub, playa or grassland habitat is absent from the Project site; the nearest CNDDB occurrence is approximately 5.1 miles east of the Project site in the Alkali Sink Ecological Reserve (CDFW 2018).
Atriplex subtilis subtle orache	--/--/1B.2	Valley and foothill grassland; Alkaline. Annual herb. Blooms June–Sep.(Oct). Elevation 131–328 m.	**Not Present.** Suitable scrub, playa or grassland habitat is absent from the Project site; there are no CNDDB occurrences within 10 miles of the Project site (CDFW 2018).
Chloropyron palmatum palmate-bracted bird's-beak	FE/CE/1B.1	Chenopod scrub, valley and foothill grassland; alkaline. Annual herb (hemiparasitic). Blooms May–Oct. Elevation 16–509 m.	**Not Present.** Suitable scrub or grassland habitat is not present onsite; the nearest CNDDB occurrence is approximately 4.8 miles east of the Project site in saline-alkali soil (CDFW 2018).
Delphinium recurvatum recurved larkspur	--/--/1B.2	Chenopod scrub, cismontane woodland, valley and foothill grassland; alkaline. Perennial herb. Blooms Mar–June. Elevation 10–2592 m.	**Not Present.** Suitable scrub, woodland, or grassland habitat is not present onsite; the nearest CNDDB occurrence is approximately 3.9 miles northeast of the Project site in alkali plains (CDFW 2018).
Layia munzii Munz's tidy-tips	--/--/1B.2	Chenopod scrub, valley and foothill grassland (alkaline clay). Annual herb. Blooms Mar–Apr. Elevation 492–2297 m.	**Not Present.** Suitable scrub or grassland habitat is not present onsite. The site is outside of the species' known elevation range and the nearest CNDDB occurrence is approximately 4.1 miles northeast of the Project site from 1938 and 1940 (CDFW 2018).

TABLE 3.5-1 (CONTINUED)
SPECIAL-STATUS SPECIES POTENTIAL TO OCCUR WITHIN THE PROJECT SITE

Species	Status Fed/State/CNPS*	Habitat	Potential to Occur
Plants (cont.)			
Lepidium jaredii ssp. *album* Panoche peppergrass	--/--/1B.2	Valley and foothill grassland (steep slopes, clay). Annual herb. Blooms Feb– June. Elevation 607–902 m.	**Not Present.** Suitable grassland habitat is not present onsite. Also, the site is outside of the species' known elevation range and the nearest CNDDB occurrence is approximately 8miles southwest of the Project site (CDFW 2018).
Madia radiata showy golden madia	--/--/1B.1	Cismontane woodland, valley and foothill grassland. Annual herb. Blooms Mar-May. Elevation 25-1215 m.	**Not Present.** Site is outside of species' currently known range.
Monolopia congdonii San Joaquin woollythreads	FE/--/1B.2	Chenopod scrub, valley and foothill grassland (sandy). Annual herb. Blooms Feb–May. Elevation 197–2625 m.	**Not Present.** Project site lacks suitable scrub or sandy grassland habitat. The nearest CNDDB occurrence is approximately 2.8 miles south of the Project site from 1935 (CDFW 2018).
Sagittaria sanfordii Sanford's arrowhead	--/--/1B.2	Marshes and swamps (assorted shallow freshwater). Perennial rhizomatous herb. Blooms May–Oct (Nov). Elevation 0–2133 m.	**Not Present.** Project site lacks marsh and swamp habitat, though species could occur in ditches. The nearest CNDDB occurrence is approximately 4.4 miles northeast of the Project site in aquatic habitat (CDFW 2018).
Senecio aphanactis chaparral ragwort	--/--/2B.2	Chaparral, cismontane woodland, and coastal scrub. Annual herb. Blooms Jan-Apr/May. Elevation 15-800 m.	**Not Present.** Site is outside of species' currently known range
Invertebrates			
Branchinecta longiantenna longhorn fairy shrimp	FE/--	Sandstone outcrop pools, alkaline grassland vernal pools, and pools within alkali sink and alkali scrub communities.	**Not Present.** Species limited to four known sites. Project site lacks vernal pools. The nearest CNDDB occurrence is 4.3 miles southeast of the Project site from 2009 (CDFW 2018).
Branchinecta lynchi vernal pool fairy shrimp	FT/--	Vernal pools, seasonally ponded areas within vernal swales, and ephemeral freshwater habitats.	**Not Present.** Suitable vernal pool habitat is not present on the Project site. The nearest CNDDB occurrence is approximately 4.9 miles northeast of the Project site from 2009 (CDFW 2018).
Reptiles and Amphibians			
Anniella pulchra Northern California legless lizard	--/SSC	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and sandy or loose, loamy soils.	**Unlikely.** The Project site lacks shrubs for cover, and sandy/loose soils. The nearest CNDDB occurrence is approximately 6.7 miles northeast of the Project site from 2000 (CDFW 2018).
Gambelia sila blunt-nosed leopard lizard	FE/SE, FP	Sparsely vegetated alkali and desert scrubs, including semi-arid grasslands, alkali flats, and washes.	**Unlikely.** The Project site is regularly tilled for crop production, which makes the habitat unsuitable for this species. The nearest CNDDB occurrence is approximately 2.4 miles northeast of the Project site from 1990 (CDFW 2018).

TABLE 3.5-1 (CONTINUED)
SPECIAL-STATUS SPECIES POTENTIAL TO OCCUR WITHIN THE PROJECT SITE

Species	Status Fed/State/CNPS*	Habitat	Potential to Occur
Reptiles and Amphibians (cont.)			
Masticophis flagellum ruddocki San Joaquin whipsnake	--/SSC	Open, dry, treeless areas including grassland and saltbush scrub. This species needs mammal burrows for refuge.	**Unlikely.** The Project site is regularly tilled. The nearest CNDDB occurrence is approximately 4.8 miles east of the Project site from 2004 (CDFW 2018).
Phrynosoma blainvillii Blainville's horned lizard	--/SSC	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats.	**Unlikely.** The Project site lacks suitable loose, sandy soils and shrub cover required for this species. The nearest CNDDB occurrence is approximately 5.1 miles northeast of the Project site from 2004 (CDFW 2018).
Rana draytonii California red-legged frog	FT/ST	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands.	**Not Present.** The Project site lacks suitable aquatic habitat required for this species. Suitable habitat is located approximately 2 miles east of the Project site. No CNDDB occurrences are located within 10 miles of the Project site (CDFW 2018).
Spea hammondii western spadefoot	--/SSC	Primarily grassland and vernal pools, but also ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture.	**Unlikely.** The Project site lacks suitable aquatic habitat for this species. The nearest CNDDB occurrence is approximately 4.9 miles east of the Project site in the Fresno Slough from 2004 (CDFW 2018).
Thamnophis gigas giant garter snake	FT/ST	Highly aquatic: found in freshwater marsh habitat and low-gradient streams; also uses canals and irrigation ditches.	**Not Present.** The Project site lacks aquatic habitat required by this species. The nearest CNDDB occurrence is approximately 3.4 miles east of the Project site from 2008 (CDFW 2018).
Thamnophis hammondii two-striped gartersnake	--/SSC	Highly aquatic: found in streams, creeks, pools, streams with rocky beds, ponds, lakes, and vernal pools.	**Not Present.** The Project site lacks aquatic habitat required by this species. The nearest CNDDB occurrence is approximately 2.6 miles northeast of the Project site from 1990 (CDFW 2018).
Birds			
Agelaius tricolor tricolored blackbird	--/Candidate Endangered	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture.	**Unlikely.** The Project site lacks suitable marsh nesting habitat, but provides foraging areas within cultivated agricultural lands for wintering habitat. The nearest CNDDB occurrence is approximately 2.2 miles east of the Project site in the vicinity of the Mendota Wildlife Area from 1992 (CDFW 2018).
Asio flammeus short-eared owl	--/SSC	Grassland, prairies, dunes, meadows, irrigated lands, and saline and freshwater emergent wetlands. Nests on ground in salt or freshwater marshes, irrigated grain or alfalfa fields, ungrazed grasslands, and old pastures.	**Unlikely.** The Project site lacks suitable ground vegetation, herbaceous cover, or rolling hills used by this species for ground nesting. This species may forage in agricultural fields within the Project site. The nearest CNDDB occurrence is 9.8 miles southwest of the Project site from 1993 (CDFW 2018).

TABLE 3.5-1 (CONTINUED)
SPECIAL-STATUS SPECIES POTENTIAL TO OCCUR WITHIN THE PROJECT SITE

Species	Status Fed/State/CNPS*	Habitat	Potential to Occur
Birds (cont.)			
Athene cunicularia Western burrowing owl	--/SSC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows. This species requires short vegetation with sparse shrubs and burrows for roosting and nesting.	**Present.** The Project site contains suitable habitat features (including ground squirrel burrows) to support this species. One burrowing owl was observed approximately 10 feet south of the Project area. Suitable burrows and owl sign were observed along the exterior roadway around the site (Appendix F1).
Buteo swainsoni Swainson's hawk	--/ST	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture.	**High potential.** Suitable agricultural foraging habitat occurs on the Project site. Although the Project site lacks trees, this species has been known to nest on the power poles or transmission towers directly north of the Project facilities and along the gen-tie line. The nearest CNDDB occurrence is located 0.1 mile west of the gen-tie line from 2000 (CDFW 2018) and nesting hawks were observed 1 to 5 miles from the site during 2017 surveys (Appendix F1).
Charadrius montanus mountain plover	--/SSC	Winters in shortgrass prairies, plowed fields, open sagebrush, and sandy deserts. Does not breed in California.	**Moderate potential.** Although this species prefers prairie habitats, grazed grasslands, or burned fields, they may forage on tilled fields. The nearest CNDDB occurrence is approximately 5 miles southeast of the Project site from 2002 (CDFW 2018).
Coccyzus americanus occidentalis western yellow-billed cuckoo	FT/SE	Nests in dense, wide riparian woodlands and forests with well-developed understories.	**Not Present.** The Project site lacks riparian woodland habitat required by this species. The nearest CNDDB occurrence is approximately 4.5 miles northeast of the Project site from 1977 (CDFW 2018).
Falco peregrinus anatum American peregrine falcon	FDL/SDL, FP	Nests on cliffs, buildings, and bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present.	**Unlikely.** The Project site contains marginal foraging agricultural habitat for this species, for rodent or bird prey. Although this species typically nests along cliffs, lattice towers north of the Project facilities and along the gen-tie line may serve as suitable nesting structures. CNDDB includes no occurrences within 10 miles of the Project site (CDFW 2018).
Lanius ludovicianus loggerhead shrike	--/SSC	Nests and forages in open habitats with scattered shrubs, trees, or other perches.	**Present.** Suitable nesting trees may occur in the agricultural lands/orchards along the gen-tie line. This species may utilize idle agricultural lands for foraging. Fences and orchards adjacent to the Project site may serve as perches. One loggerhead shrike was observed foraging in the orchards adjacent to the Project site to the west in 2017 (Appendix F1).

TABLE 3.5-1 (CONTINUED)
SPECIAL-STATUS SPECIES POTENTIAL TO OCCUR WITHIN THE PROJECT SITE

Species	Status Fed/State/CNPS*	Habitat	Potential to Occur
Birds (cont.)			
Plegadis chihi (nesting colony) white-faced ibis	--/WL	Nests in shallow marshes with areas of emergent vegetation; winter foraging in shallow lacustrine waters, flooded agricultural fields, muddy ground of wet meadows, marshes, ponds, lakes, rivers, flooded fields, and estuaries.	**Unlikely.** The Project site lacks suitable aquatic habitat or vegetation required for nesting. This species has the potential to utilize the Fresno Slough (east of the Project site) and the Project site during floods in winter. The nearest CNDDB occurrence is approximately 5.1 miles southeast of the Project site from 1983 (CDFW 2018).
Riparia riparia bank swallow	--/ST	Nests in riparian, lacustrian, and coastal areas with vertical banks, bluffs, and cliffs with sandy soils; open country and water during migration.	**Unlikely**. The Project site lacks vertical rocky substrates or vertical banks along rivers, streams, lakes and ocean coasts for nesting. Riparian areas east of the Project site may serve nesting colonies and the species may forage in open agricultural areas on the Project site. The nearest CNDDB occurrence is approximately 4.5 miles northeast of the Project site from 1980 (CDFW 2018)
Mammals			
Ammospermophilus nelsoni Nelson's antelope squirrel	--/ST	Arid annual grassland or shrubland with rolling hills or sandy washes, with or without shrubs including saltbush *(Atriplex spp*.), California jointfir (*Ephedra californica*), bladderpod (*Physaria* spp.*),* goldenbush (*Astereae*), snakeweed (*Gutierrezia* spp.*)* Prefers fine-textured soils.	**Unlikely.** Range includes San Joaquin Valley and adjacent valleys of South California. However, the regular tilling of soils at the Project site makes the site unsuitable for habitat. The nearest record in CNDDB is 2.7 miles northeast of the Project site from 1920 (CDFW 2018).
Dipodomys ingens giant kangaroo rat	FE/SE	Fine sandy loam soils with sparse forb vegetation and low-density alkali desert scrub.	**Unlikely.** The Project site lacks the required open desert with scattered shrubs and grasses on sandy loam soils. CNDDB includes no occurrences within 10 miles of the Project site (CDFW 2018).
Dipodomys nitratoides exilis Fresno kangaroo rat	FE/SE	Alkali sink/open grassland habitats; sands and saline sandy soils in chenopod scrub.	**Unlikely.** Clay loam soils as well as the regular tilling of soils at the Project site makes it unsuitable for habitat. The nearest record in CNDDB is 5.5 miles east of the Project site from 2003 (CDFW 2018).
Eumops perotis californicus western mastiff bat	--/SSC	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; Suitable habitat consists of extensive open areas with abundant roost locations provided by crevices in rock outcrops, trees, tunnels, and buildings.	**Moderate potential.** Although the Project site lacks suitable tall substrates for this crevice-roosting species, there are structures onsite that may support roosting (e.g., large barn/shed, grain silos). The Project site provides suitable foraging habitat over agricultural fields. The nearest CNDDB occurrence is approximately 2.3 miles northeast of the Project site from 1999 (CDFW 2018).

TABLE 3.5-1 (CONTINUED)
SPECIAL-STATUS SPECIES POTENTIAL TO OCCUR WITHIN THE PROJECT SITE

Species	Status Fed/State/CNPS*	Habitat	Potential to Occur
Mammals (cont.)			
Lasiurus blossevillii western red bat	--/SSC	Roosts in tree canopy in forests, woodlands, riparian, mesquite bosque, and orchards, including fig, apricot, peach, pear, almond, walnut, and orange.	**Moderate potential.** This species prefers riparian habitats, which are located east of the Project site. The Project site along the gen-tie line contains orchard trees, which may be used for day roosting and foraging. The nearest CNDDB occurrence is approximately 2.6 miles northeast of the Project site from 1999 (CDFW 2018).
Onychomys torridus tularensis Tulare grasshopper mouse	--/SSC	Low, open scrub, and semi-scrub habitats in arid semi-desert associations.	**Unlikely.** The Project site lacks shrubland communities typically associated with this species. The nearest record in CNDDB is 9.1 miles southwest of the Project site near the Panoche Hills from 1918 (CDFW 2018).
Taxidea taxus American badger	--/SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils.	**Unlikely.** Badgers burrow in open areas, including ranchlands and agricultural fields; however, the majority of the Project site is regularly tilled which makes the habitat unsuitable. The species may occasionally transit through the project site. The nearest CNDDB occurrence is approximately 5.9 miles east of the Project site from 1985 (CDFW 2018).
Vulpes macrotis mutica San Joaquin kit fox	FE/ST	Grasslands and scrublands, including disturbed areas; oak woodland, alkali sink scrubland, vernal pools, and alkali meadows.	**High potential.** The Project site contains agricultural habitats where the species may forage, and burrow in adjacent areas. Suitable denning habitat may occur along the gen-tie line and foraging habitat is present in the tilled agricultural fields and adjacent orchards. This species also may pass through the Project site. The nearest CNDDB occurrence is approximately 2.3 miles northeast of the Project site from 1947 (CDFW 2018).

***STATUS LEGEND:**
FE = Federally Endangered.
FT = Federally Threatened.
FP = CDFW Fully Protected Species.
FDL=Federally Delisted.
SE = State Endangered.
ST = State Threatened.
SSC = California Species of Concern.
SDL=State Delisted.
BCC=Bird of Conservation Concern

CRPR:
1B: Plants rare, threatened, or endangered in California and elsewhere
2B: Plants rare, threatened, or endangered in California, but more common elsewhere
4: Plants of limited distribution – a watch list

THREAT RANK:
1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat).
2 – Fairly threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)

Special-Status Wildlife Species

Based on the literature review and field surveys conducted for the Project (Appendix F1, Appendix F2, and Appendix F3), seven special-status wildlife species were either observed or identified as having moderate to high potential to occur within the Project site during the biological survey (see Table 3.5-1), including San Joaquin kit fox and Swainson's hawk. The Project site provides low-quality burrowing or nesting habitat for most species due to frequent discing, but provides suitable foraging habitat for predators of gophers and other rodents that inhabit agricultural fields.

Two special-status birds were observed on or near the site during biological surveys: loggerhead shrike and western burrowing owl. In addition, the mountain plover, western red bat, and western mastiff bat have the potential to forage on the site. Each of these species is described below in greater detail.

Western Burrowing Owl (*Athene cunicularia*)

Burrowing owl is a California Species of Special Concern (SSC) and a USFWS bird of conservation concern. In California, burrowing owls are yearlong residents of open, dry grassland and desert habitats, and in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats (Zeiner et al. 1990). Their preferred habitat is generally short, sparse vegetation with few shrubs, level to gentle topography, and well-drained soils (Haug et al. 1993).

Burrowing owls require burrows for nesting, roosting, cover, and caching prey. In California, western burrowing owls most commonly live in burrows created by California ground squirrels (*Spermophilus beecheyi*). Burrowing owls may occur in disturbed landscapes such as agricultural areas, ruderal grassy fields, vacant lots, and pastures with suitable open, sparse vegetation; where useable burrows are present; and with foraging habitat in close proximity (Gervais et al. 2008). Debris piles, rip-rap, culverts, and pipes may be used as burrows.

Biologists detected a single burrowing owl in the disced field immediately south of the southern east/west access road (Jensen Avenue) during field surveys (Appendix F1). Protocol-level surveys for the burrowing owl were conducted in 2017 (Appendix F2). Previous habitat assessments had revealed suitable burrow habitat and detected an owl on the Project site. The protocol surveys detected numerous suitable burrows and structures used as burrows, some with owl sign (pellets or whitewash). These sites were located along the exterior roadway of the Project site in the vicinity of manmade structures. There was no other suitable burrowing owl habitat on the Project site and limited suitable foraging habitat due to agricultural discing, which removes grassland used for cover, and breaks up burrows providing habitat and housing prey animals, such as ground squirrels. Though the site is actively used by owls, no nesting was observed and the presence of human disturbance and predators likely precludes nesting in this area (Appendix F2). Burrowing owl is considered present onsite.

Loggerhead Shrike (*Lanius ludovicianus*)

The loggerhead shrike is a California Species of Special Concern and a USFWS Bird of Conservation Concern. The species is a yearlong resident in most of the United States and in Mexico. In California, while shrikes are widespread at the lower elevations in the state, the largest

breeding populations are located in portions of the Central Valley, the Coast Ranges, and the southeastern deserts (Humple 2008). Preferred habitats for loggerhead shrikes are open areas that include scattered shrubs, trees, posts, fences, utility lines, or other structures that provide hunting perches with views of open ground, as well as nearby spiny vegetation or man-made structures (such as the top of chain-link fences or barbed wire) to impale prey items (Humple 2008). Loggerhead shrikes occur most frequently in riparian areas along the woodland edge, grasslands with sufficient perch and butcher sites, scrublands, and open canopied woodlands, although they can be common in agricultural and grazing areas, and can sometimes occur in mowed roadsides, cemeteries, and golf courses. The Project site provides suitable foraging habitat for loggerhead shrikes. One loggerhead shrike was observed during the field survey (Appendix F1). Loggerhead shrike is considered present onsite.

Mountain Plover (*Charadrius montanus*)

The mountain plover is a California Species of Concern during its wintering period in California from September through March, when it can be found on short grasslands and plowed fields of the Central Valley. Mountain plovers also are found in foothill valleys west of San Joaquin Valley, the Imperial Valley, plowed fields of Los Angeles and western San Bernardino counties, and along the central Colorado River valley. They prefer areas with little or no vegetation, including short grasslands, freshly plowed fields, newly sprouting grain fields, and sod farms. Conditions vary from winter to winter in the agricultural lands and pastures where this species is often found. Therefore, occurrence may be sporadic, and mountain plovers are moderately likely to occur on the site during winter or in migration, depending on crop rotation and other factors influencing habitat conditions.

Swainson's Hawk (*Buteo swainsoni*)

The Swainson's hawk is a State Threatened species. In California, it nests in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert. It breeds in stands with few trees in riparian areas, agricultural environments, oak savannah, and juniper-sage flats. Swainson's hawks forage in adjacent grasslands or livestock pastures. In the Central Valley, they nest in riparian areas and in isolated tree clusters, often near rural residences or agricultural fields. According to CNDDB, one Swainson's hawk nest has been documented in 2000 approximately 0.1-mile west of the existing gen-tie line on California Avenue (CDFW 2018). This nest since has appeared to be removed during utility line maintenance (LSA 2017b). Protocol-level Swainson's hawk surveys were conducted for the Project site in 2017 (Appendix F3). These surveys found no active Swainson's hawk nests within 1 mile of the Project site and eight active Swainson's hawk nest sites between 1 and 5 miles of the Project site, of which two were close to fledging in July 2017. The report concludes that trees surrounding the Project site provide suitable nest sites for this species and the Project site itself provides suitable foraging habitat (Appendix F3).

San Joaquin Kit Fox (*Vulpes macrotis mutica*)

San Joaquin kit fox is a Federally Endangered and State Threatened species that once was common in the San Joaquin Valley. It lives in annual grasslands or grassy open stages with scattered shrubby vegetation. It requires loose-textured sandy soils for burrowing, and a suitable prey base of rodents. The closest occurrence of the San Joaquin kit fox was recorded in 1947,

approximately 2.7 miles northeast of the Project site within the City of Mendota. Although this species is known to occur in western Fresno County, the CNDDB query resulted in only five occurrences for the San Joaquin kit fox within 10 miles of the Project site (CDFW 2018).

Western Mastiff Bat (*Eumops perotis californicus*)

Western mastiff bat is a California Species of Special Concern. It is widespread in the southwestern United States and Mexico. Western mastiff bat uses a wide variety of vegetation communities, including chaparral, coastal and desert scrub, and coniferous and deciduous forest. Day roosts are established in crevices in rocky canyons and cliffs as well as in trees and tunnels (Zeiner et al. 1990). Western mastiff bat has also adapted to roosting in man-made structures. The closest recorded occurrence of western mastiff bat was approximately 2.3 miles northeast of the Project site in 1999 (CDFW 2018).

Western Red Bat (*Lasiurus blossevillii*)

Western red bat is a California Species of Special Concern. It occurs in the western United States, Mexico, and Central America. In California, most records are from the Central Valley. Approximately 83 percent of the breeding records for western red bat in California are from the Sacramento and San Joaquin rivers, with other breeding records from the San Diego, Santa Ana, and Los Angeles rivers (Pierson et al. 2004). They may be found in California throughout the year, although the Central Valley is the center of activity during the reproductive season (May through August). In the Central Valley, foraging western red bats are closely associated with riparian zones that provide suitable roosting sites (Pierson et al. 2004). However, western red bats also have been observed in orchard trees and other non-native trees, typically as roosting individuals. The closest recorded occurrence of red bat in the CNDDB was approximately 2.6 miles northeast of the Project in 1999 (CDFW 2018). The orchards located along the gen-tie line may provide roosting habitat for this species, though the orchard trees are regularly maintained. The species may be found foraging over the Project site.

Critical Habitat

The Project site does not support designated critical habitat for any species of plant or wildlife (USFWS 2018).

Wildlife Movement Corridors

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration and dispersal of animals. Wildlife corridors contribute to population viability by assuring continual exchange of genes between populations, providing access to adjacent habitat areas for foraging and mating, and providing routes for recolonization of habitat after local extirpation or catastrophes (e.g., from fires).

The Project site does not lie within a recognized terrestrial wildlife connectivity area identified in the *California Essential Habitat Connectivity Project* (Spencer et al. 2010). However, the western San Joaquin valley and foothills include important movement corridors for the San Joaquin kit fox (USFWS 1998). In addition, the Project site is located within the Pacific Flyway, a significant avian migration route along the western coast of North America. The Mendota Wildlife Area,

located 2.5 miles east of the Project site along the Fresno Slough, is an important migratory bird stopover area.

Although formal wildlife movement studies were not conducted in the Project area, based on the agricultural use of the site, and that surrounding areas adjacent to the site are also intensively farmed, with limited cover for wildlife movement, it is not likely that any portion of the site serves as an important linkage between habitats.

Jurisdictional Waters

No potential jurisdictional wetland sites were identified during Project site surveys (Appendix F1). No jurisdictional wetlands or non-wetland waters were identified during previous surveys within the Project site in 2015. During the 2017 survey, one irrigation ditch and culvert was identified in the northeastern portion of the Project site. This ditch discharges into a water conveyance ditch east of SR-33, which appears to ultimately discharge into the Fresno Slough located approximately 3 miles east of the Project site.

The Fresno Slough is hydrologically connected to the Kings River to the south and the San Joaquin River to the north. If water flows from the Project reached the Fresno Slough, they would discharge into waters of the State. As such, water flows from the Project site entering the Fresno Slough may be regulated under the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB). See Section 3.11, *Hydrology and Water Quality*, for additional details about the Central Valley RWQCB's oversight for aquatic resources that could be affected by the Project.

3.5.1.2 Regulatory Setting

Federal

Endangered Species Act of 1973 (FESA), as amended (16 U.S.C. §§1531-1543)

The FESA and subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. In addition, the FESA defines species as threatened or endangered and provides regulatory protection for listed species. The FESA also provides a program for the conservation and recovery of threatened and endangered species as well as the conservation of designated critical habitat that USFWS determines is required for the survival and recovery of these listed species.

Section 9 lists those actions that are prohibited under the FESA. Although take of a listed species is prohibited, it is allowed when it is incidental to an otherwise legal activity. Section 9 prohibits take of listed species of fish, wildlife, and plants without special exemption. The definition of "harm" includes significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns related to breeding, feeding, or shelter. "Harass" is defined as actions that create the likelihood of injury to listed species by disrupting normal behavioral patterns related to breeding, feeding, and shelter significantly.

Section 10 provides a means whereby a nonfederal action with the potential to result in take of a listed species can be allowed under an incidental take permit.

Migratory Bird Treaty Act (MBTA) (16 U.S.C. §§703-711)

The MBTA is the domestic law that affirms and implements a commitment by the U.S. to four international conventions (with Canada, Mexico, Japan, and Russia) for the protection of a shared migratory bird resource. Unless and except as permitted by regulations, the MBTA makes it unlawful at any time, by any means, or in any manner to intentionally pursue, hunt, take, capture, or kill migratory birds anywhere in the United States. The law also applies to the intentional disturbance and removal of nests occupied by migratory birds or their eggs during the breeding season. In December 2017, the U.S. Department of the Interior issued memorandum M-37050, which redefined "incidental take" under the MBTA such that, "the MBTA's prohibition on pursuing, hunting, taking, capturing, killing, or attempting to do the same applies only to direct and affirmative purposeful actions that reduce migratory birds, their eggs, or their nests, by killing or capturing, to human control." The current interpretation of the MBTA's definition of "take" does not prohibit or penalize take of migratory birds that results from actions that are performed without such motivation. This interpretation differs from the prior federal interpretation of "take," which prohibited all incidental take of migratory birds, whether intentional or incidental.

Bald and Golden Eagle Protection Act of 1940 (16 U.S.C. §668)

The federal Bald and Golden Eagle Protection Act of 1940 protects bald and golden eagles by prohibiting the taking, possession, and commerce of such birds and establishes civil penalties for violation of this act. Take of bald and golden eagles includes to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." 16 U.S.C. §668c. Disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior (72 Fed. Reg. 31132; 50 CFR §22.3).

State

California Endangered Species Act (CESA) (Fish and Game Code §2050 et seq.)

The CESA establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats. The CESA mandates that state agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. For projects that would affect a listed species under both the CESA and the FESA, compliance with the FESA would satisfy the CESA if CDFW determines that the federal incidental take authorization is "consistent" with the CESA under Fish and Game Code Section 2080.1. Before a project results in take of a species listed under the CESA, a take permit must be issued under Section 2081(b).

Fish and Game Code §§2080, 2081

Section 2080 of the Fish and Game Code states, "No person shall import into this state [California], export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the [State Fish and Game] Commission determines to

be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter, or the Native Plant Protection Act, or the California Desert Native Plants Act." Pursuant to Section 2081, CDFW may authorize individuals or public agencies to import, export, take, or possess state-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or Memoranda of Understanding, if the take is incidental to an otherwise lawful activity, impacts of the authorized take are minimized and fully mitigated, the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and the project operator ensures adequate funding to implement the measures required by CDFW. CDFW makes this determination based on available scientific information and considers the ability of the species to survive and reproduce.

Fish and Game Code §§ 3503, 3503.5, and 3513

Under these sections of the Fish and Game Code, a project operator is not allowed to conduct activities that would result in the taking, possessing, or destroying of any birds of prey; the taking or possessing of any migratory nongame bird; the taking, possessing, or needlessly destroying of the nest or eggs of any raptors or nongame birds; or the taking of any nongame bird pursuant to Fish and Game Code section 3800. Fish and Game Code section 3513 adopts the federal Department of the Interior take provisions under the MBTA.

California Environmental Quality Act Guidelines §15380

In addition to the protections provided by specific federal and state statutes, CEQA Guidelines section 15380(b) provides that a species not listed on the federal or state list of protected species nonetheless may be considered rare or endangered for purposes of CEQA if the species can be shown to meet certain specified criteria:

(A) Although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or

(B) The species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered "threatened" as that term is used in the Federal Endangered Species Act.

Native Plant Protection Act (NPPA) (Fish and Game Code §§1900-1913)

California's NPPA requires all state agencies to use their authority to carry out programs to conserve endangered and rare native plants. Provisions of the NPPA prohibit the taking of listed plants from the wild and require notification of CDFW at least 10 days in advance of any change in land use in areas that support listed plants.

Local

Fresno County General Plan

The Fresno County General Plan (Fresno County 2000) outlines several policies intended for the protection of biological resources County-wide, including the following, which apply to the Project:

Policy OS-E.1: The County shall support efforts to avoid the "net" loss of important wildlife habitat where practicable. In cases where habitat loss cannot be avoided, the County shall impose adequate mitigation for the loss of wildlife habitat that is critical to supporting special-status species and/or other valuable or unique wildlife resources. Mitigation shall be at sufficient ratios to replace the function, and value of the habitat that was removed or degraded. Mitigation may be achieved through any combination of creation, restoration, conservation easements, and/or mitigation banking. Conservation easements should include provisions for maintenance and management in perpetuity. The County shall recommend coordination with the U.S. Fish and Wildlife Service and the California Department of Fish and Game to ensure that appropriate mitigation measures and the concerns of these agencies are adequately addressed. Important habitat and habitat components include nesting, breeding, and foraging areas, important spawning grounds, migratory routes, migratory stopover areas, oak woodlands, vernal pools, wildlife movement corridors, and other unique wildlife habitats (e.g., alkali scrub) critical to protecting and sustaining wildlife populations.

Policy OS-E.2: The County shall require adequate buffer zones between construction activities and significant wildlife resources, including both on-site habitats that are purposely avoided and significant habitats that are adjacent to the project site, in order to avoid the degradation and disruption of critical life cycle activities such as breeding and feeding. The width of the buffer zone should vary depending on the location, species, etc. A final determination shall be made based on informal consultation with the U.S. Fish and Wildlife Service and/or the California Department of Fish and Game.

Policy OS-E.3: The County shall require development in areas known to have particular value for wildlife to be carefully planned and, where possible, located so that the value of the habitat for wildlife is maintained.

Policy OS-E.4: The County shall encourage private landowners to adopt sound wildlife habitat management practices, as recommended by the California Department of Fish and Game officials and the U.S. Fish and Wildlife Service.

Policy OS-E.9: Prior to approval of discretionary development permits, the County shall require, as part of any required environmental review process, a biological resources evaluation of the project site by a qualified biologist. The evaluation shall be based upon field reconnaissance performed at the appropriate time of year to determine the presence or absence of significant resources and/or special-status plants or animals. Such evaluation will consider the potential for significant impact on these resources and will either identify feasible mitigation measures or indicate why mitigation is not feasible.

Policy OS-F.5: The County shall establish procedures for identifying and preserving rare, threatened, and endangered plant species that may be adversely affected by public or private development projects. The County shall require, as part of the environmental review process, a biological resources evaluation of the project site by a qualified biologist. The evaluation shall be based on field reconnaissance performed at the appropriate time of year to determine the presence or absence of significant plant resources and/or special-status plant species. Such evaluation shall consider the potential for significant impact on these resources and shall either identify feasible mitigation measures or indicate why mitigation is not feasible.

Policy OS-F.7: The County should encourage landowners to maintain natural vegetation or plant suitable vegetation along fence lines, drainage and irrigation ditches and on unused or marginal land for the benefit of wildlife.

3.5.2 Significance Criteria

A project would result in significant impacts to Biological Resources if it would:

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

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

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

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

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

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.

3.5.3 Direct and Indirect Effects

3.5.3.1 Approach to Analysis

The following impact analysis is based on existing and potential biological resources that occur or could occur on the Project site and immediate vicinity as identified through a review of relevant literature and occurrences databases, and focused biological surveys. Such resources include: sensitive habitats, including potentially jurisdictional features; special-status plant and wildlife species; and potential for wildlife movement corridors. The Applicants propose to implement a Pest and Weed Management Plan (Appendix B2), which is required under Fresno County Solar Facility Guidelines (Fresno County 2017), as well as a Worker Environmental Awareness Program (WEAP) to train construction personnel and others about special status and otherwise sensitive biological resources that could exist in the Project area and measures to be implemented for avoidance of them (Section 2.5.7.6, Worker Environmental Awareness Program (WEAP)). Accordingly, this analysis also considers those commitments.

3.5.3.2 Direct and Indirect Effects of the Project

a) Whether the Project would have a substantial adverse impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

Impact 3.5-1: The Project could have a substantial adverse direct or indirect impact on special-status species. ***(Less than Significant with Mitigation Incorporated)***

Special-status plants

There is no potential for direct or indirect impacts to special-status plant species within the Project site. The site is frequently disced for agricultural cultivation, and as previously noted, in the future the Project site may still be occasionally disced during fallow periods to limit invasive weed encroachment, though regular agricultural discing will no longer occur. No special-status plant species have potential to occur on site.

Special-status invertebrates

No special-status invertebrates, including native bees, were identified in the biological resources study area during site-specific surveys. Therefore, the Project would have no impact on such species.

San Joaquin kit fox

San Joaquin kit fox was not detected in surveys of the Project site, and the 1,257 acres of disced and actively cultivated agricultural lands on the site are considered to provide minimal habitat value for this species. However, suitable prey species are present on the disced and disturbed habitat (27 acres) and on the site fringes, and the Project site is within this species' range. The Project site is surrounded by other agricultural lands and the North Star Solar Project site; and such managed lands could potentially support San Joaquin kit fox movement. Thus, San Joaquin kit fox could be expected to occur occasionally in limited portions of the Project site during construction. The likelihood of encountering foxes in the 1,257-acre disced agricultural area during construction is considered low, though there is a greater potential for species' occurrence in the 27-acre disturbed areas. If present during construction, activities would have the potential to cause a significant adverse impact to San Joaquin kit fox either directly (e.g., through mortality or injury) or indirectly (e.g., by altering prey abundance). However, prey abundance is likely to be absent or low on much of the site due to agricultural use. Kit fox (and other mammals) also may be susceptible to Valley Fever, an infectious fungal disease endemic to the Central Valley. The disease is spread via spores that become airborne in dust as a result of ground disturbance from natural causes (such as dust storms) as well as human ones (such as farming, construction work, and driving on unpaved roads). Because the Project area is regularly farmed, airborne dust is common in the vicinity. While construction dust may add to the ambient levels of dust (see Section 3.4*, Air Quality*), these levels would not significantly increase the likelihood of wildlife contracting Valley Fever.

During operation of the Project, San Joaquin kit fox would be able to transit the Project site and forage during nighttime hours. Additionally, the site would not be subject to regular tilling during

operations; hence, prey species are expected to become more abundant following construction. Thus, operation of the Project would have a less than significant impact on this species.

Preconstruction clearance surveys, wildlife-friendly fencing and other minimization measures described in **Mitigation Measures 3.5-1 and 3.5-2** would ensure that no San Joaquin kit foxes are impacted during construction. Following the implementation of these mitigation measures, together with implementation of the Worker Environmental Awareness Program (WEAP) described in Section 2.5.7.6, potential significant direct impacts to the San Joaquin kit fox would be reduced to a less than significant level.

Burrowing Owl

Protocol-level surveys detected burrowing owls, owl burrows, and suitable foraging habitat in a small portion of the Project site. Suitable burrows that could support this species were not observed within the 1,257 acres of disced and actively cultivated agricultural lands, but were observed in the southwestern corner of the site near San Bernardino Avenue (LSA 2017a). The presence of burrows and burrow substitutes on the site indicates the site may remain continuously occupied. Thus, construction could result in impacts to the species through nest destruction or the loss of owls within burrows. Any adverse impacts, either direct or indirect, to burrowing owls from construction would be considered significant. As a result, preconstruction clearance surveys and other minimization measures as described in **Mitigation Measures 3.5-1 through 3.5-3** together with implementation of the Worker Environmental Awareness Program (WEAP) described in Section 2.5.7.6, are required to reduce impacts to less than significant.

Swainson's hawk and other birds

An inactive Swainson's hawk nest is located 0.1-mile from the Project site, and eight active nests were observed between 1 and 5 miles from the site (Appendix F3). Trees and artificial structures such as transmission poles that occur in the immediate vicinity provide nest sites or perch sites for Swainson's hark or other raptors. Construction activities initiated within the vicinity of an active Swainson's hawk or other raptor nest could disturb such birds that are nesting in the vicinity, thereby resulting in nest disturbance or abandonment.

Raptors, including Swainson's hawk, also may forage on the Project site. Despite the active agricultural operations, portions of the site provide habitat for gophers and other rodents that are prey species. Conversion of these lands to solar farms is reducing the amount of available foraging habitat and causing hawks to range farther from their nests for prey. However, because of the large amount of suitable foraging habitat in the vicinity of the site, the loss of Swainson's hawk foraging habitat is considered less than significant.

If raptors were present on or near the site during construction activities, they could experience mortality or injury from disturbance or collision with project facilities and equipment including transmission wires, fencing, array structures, and heavy equipment. Risk factors that are typically associated with avian collisions with man-made structures include size of facility, height of structures, and specific attributes of structures (guy wires and lighting/light attraction), as well as siting in high risk areas, frequency of inclement weather, type of development and species or taxa at potential risk. The role of these risk factors has been outlined in the U.S. Fish and Wildlife

Service new draft guidelines for wind turbines (USFWS 2012) and communication towers (USFWS 2013), as well as by various publications in the peer reviewed literature (Gehring et al. 2009; 2011; Kerlinger et al. 2010). Such collisions can result in injury or mortality, including in the case of power lines, from electrocution. Any adverse impacts, either direct or indirect, to Swainson's hawk or other raptors as a result of Project construction would be considered significant. As a result, implementation of the Worker Environmental Awareness Program (WEAP) described in Section 2.5.7.6 and the preconstruction clearance surveys described in **Mitigation Measure 3.5-2** would ensure that no Swainson's hawks or other raptors are impacted during construction. Implementation of the APM and this measure would reduce potential direct and indirect impacts to Swainson's hawk and other raptors to less than significant.

Depending on the timing of construction-related activities, the Project could result in the direct loss of an active nest of special-status or migratory bird species, including raptors; the abandonment of a nest by adult birds during that year's nesting season; or the direct loss of individual nests, either of ground nesters or birds nesting on structures or in adjacent orchard trees. The potential loss of an active nest would be significant. Implementation of the Worker Environmental Awareness Program (WEAP) described in Section 2.5.7.6 and **Mitigation Measure 3.5-3** would reduce potential impacts to nesting and migratory birds to a less than significant level.

In addition to the potential direct impacts described above, Swainson's hawks and other raptors, burrowing owls, and other avian species are susceptible to collisions with power lines (APLIC 2012). Raptors generally are understood to have the ability to avoid obstacles; however, their collision risk increases when they are engaged in activities such as territorial defense and pursuing prey (APLIC 2012). Although Fresno County contains many high-voltage transmission lines, the Project would introduce additional collision hazards to the site with the gen-tie lines. As proposed in the Project Description, the Applicants' commitment to adhere to current Avian Powerline Interaction Committee design standards for overhead powerlines and associated structures (APLIC 2006, 2012) (including use of avian-safe line designs, and installation of devices to make powerlines visible to birds) would minimize the potential for avian injury and mortality from collisions and electrocution with such facilities. Therefore, this impact would be less than significant, with no mitigation required.

The numbers or species of birds that may be affected by collisions with solar panels or other infrastructure during operation and maintenance cannot be known with certainty, though ongoing monitoring data from solar projects within the state suggest that a variety of birds may be susceptible to collisions with panels. Solar panels are both reflective and have a strong polarization signature – elements thought to mimic water or suitable related habitat. As a result, some have theorized that solar panels can attract species that mistake the panels for bodies of water, potentially leading to increased collision-related and other risks. For this reason, the phenomenon is sometimes colloquially referred to as the "fake lake effect." Some postulate that this phenomenon could be attracting birds to solar project sites thereby exposing the birds to greater risk of impacts such as potential collision with project infrastructure, the possibility of being stranded within site fencing once they land, or other forms of distress. It may be that, when viewed from a distance or an elevated position, solar panel arrays appear to be a water body to

migrating water birds during daylight hours or on nights when the moon is full. A report commissioned by the U.S. Department of Energy analyzed available avian mortality data from utility-scale solar energy facilities (Argonne National Laboratory and National Renewable Energy Laboratory 2015) and concluded that, though it is apparent that solar energy facilities present a risk of fatality for birds, additional standardized and systematic fatality data would be needed to better understand and quantify the risks. It noted that, based on available data, there was no consistent pattern to support or refute the hypothesis that water-dependent species were more susceptible to mortality at solar facilities.

Additional causes of avian injuries and fatalities at commercial-scale solar projects resulting from the operations of solar facilities currently are being evaluated by the USFWS, CDFW, and USGS. The Mendota Wildlife Area, located approximately 2.5 miles east of the Project site, is a recognized stopover location for migratory birds travelling along the Pacific Flyway (CDFW 2017b). Available studies suggest that the Project's PV panels could attract both common and special-status migratory bird species to the Project site where they might mistake the reflective panels for a water body, the "lake effect" phenomenon noted above (Roth 2016). However, as yet, no empirical studies at commercial-scale solar projects have established a clear causal link between panels and the types of avian mortality and injury documented at solar sites. Limited monitoring data are available for avian collision with solar panels. Walston et al. (2014) examined a 250 MW PV project (the California Valley Solar Ranch), where the mortality rate attributable to the project was approximately 0.5 birds per MW per year. Western EcoSystems Technology, Inc. (WEST) (2014a, 2014b) examined three California PV facilities (the California Valley Solar Ranch, Desert Sunlight, and Topaz) and found most deaths were passerines (songbirds), followed by game birds (doves and pigeons). Water birds (mainly grebes and coots) were found at one of the facilities (Desert Sunlight), but not at the other two. Two Ridgway's rail carcasses were also discovered (WEST 2014a, 2014b). Desert Sunlight was in the Mojave Desert, isolated from water, while the other two were located in the Central Valley close to the California aqueduct. WEST's 2018 summary of avian collision monitoring results from 2014, 2015, 2016 and 2017 for PV solar projects in Riverside County reports all bird fatality rates (as adjusted for searcher and carcass persistence bias) in the solar arrays was between 0.2 and 2.0 per MW per year (less than 0.1 to 0.4 per acre per year) (WEST 2018). These findings could be viewed as lending support to the "lake effect" hypothesis; however, studies from other countries (Germany and South Africa) did not observe "lake effect" avoidance behavior nor a link with collision-related mortality in limited studies at PV facilities (Herden 2009, Visser 2016).

A USFWS summary of avian solar facility mortalities by Dietsch (2016) cited 3,545 bird deaths at seven Southern California solar farms from 2012 to April 2016. Dietsch (2016) reported that mortality from 2012 to 2016 included three federal listed species (Ridgway's rail, willow flycatcher, and yellow-billed cuckoo) and two State-listed species (peregrine falcon and bank swallow). All studies noted that monitoring data were preliminary, few facilities had data available, and additional data could cast new light on causes of avian mortality or means of reducing risk. While data collection at certain PV solar array-type facilities has documented instances of avian mortality resulting from collisions, the best available scientific information to date does not indicate a significant risk of significant avian mortality occurring at facilities such

as the Project. Thus, according to available data, incidental loss of special-status bird species due to collision-related injury or mortality would be a less than significant impact.

Further, as of December 2017, the federal interpretation of the MBTA (under memorandum M-37050) does not prohibit incidental take of migratory birds.

Mitigation Measure 3.5-1: Preconstruction surveys

***San Joaquin kit fox*:**

Preconstruction surveys shall be conducted by a qualified biologist for the presence of San Joaquin kit fox dens within 14 days prior to commencement of construction activities. The surveys shall be conducted in areas of suitable habitat for San Joaquin kit fox (areas that have been plowed within 12 months prior to the start of ground-disturbing activities are not considered suitable). Surveys need not be conducted for all areas of suitable habitat at one time; they may be phased so that surveys occur within 14 days prior to that portion of the site is disturbed. If no potential San Joaquin kit fox dens are present, no further mitigation is required under this measure. If potential dens are observed and avoidance is determined to be feasible (as defined in CEQA Guidelines §15364 consistent with the USFWS [1999] *Standardized Recommendations for Protection of the San Joaquin Kit Fox*) by a qualified biologist in consultation with the Project Owner and the County, buffer distances shall be established prior to construction activities.

If avoidance of the potential dens is not feasible, the following measures are required to avoid potential adverse effects to the San Joaquin kit fox:

- If the qualified biologist determines that potential dens are inactive, the biologist shall excavate these dens by hand with a shovel to prevent badgers or foxes from re-using them during construction.

- If the qualified biologist determines that a potential non-natal den may be active, an on-site passive relocation program shall be implemented with prior concurrence from the USFWS. This program shall consist of excluding San Joaquin kit foxes from occupied burrows by installation of one-way doors at burrow entrances, monitoring of the burrow for one week to confirm usage has been discontinued, and excavation and collapse of the burrow to prevent reoccupation. After the qualified biologist determines that the San Joaquin kit foxes have stopped using active dens within the Project boundary, the dens shall be hand-excavated as stated above for inactive dens.

***Burrowing owl*:**

Prior to the initiation of equipment staging or ground-disturbing activities, biological surveys shall be performed within 14 days. Given the large size of the construction site, multiple or ongoing burrowing owl surveys may be required. To protect burrowing owls, the following conditions shall be met prior to construction within each successive work area:

- A qualified wildlife biologist (i.e., a wildlife biologist with previous burrowing owl survey experience) shall conduct pre-construction surveys on the site and immediate vicinity only in areas of the site with suitable burrowing habitat to locate any active breeding or wintering burrowing owl burrows no fewer than 14 days prior to ground-

disturbing activities (e.g., vegetation clearance, grading, tilling). Areas that have been plowed within 12 months prior to the start of ground-disturbing activities are not considered suitable habitat. The survey methodology shall be consistent with the methods outlined in the CDFW (2012) *Staff Report on Burrowing Owl Mitigation* and shall consist of walking parallel transects 23 to 66 feet (7 to 20 meters) apart, noting any potential burrows with fresh burrowing owl sign or presence of burrowing owls. Copies of the survey results shall be submitted to CDFW and the Fresno County Public Works and Planning Department. The surveys may be conducted concurrently with San Joaquin kit fox surveys.

- If active burrowing owl burrows are detected on-site, no ground-disturbing activities, such as vegetation clearance or grading, shall be permitted within a buffer of 330 feet from an active burrow during the breeding season (February 1 to August 31), unless otherwise authorized by a qualified biologist as described below. During the non-breeding (winter) season (September 1 to January 31), no ground-disturbing work shall be permitted within a buffer of 165 feet from the burrow. Depending on the level of disturbance, a smaller buffer may be established by a qualified biologist based on the visibility and sensitivity responses of each individual burrowing owls or pairs.

- If burrow avoidance is infeasible during the non-breeding season or during the breeding season where resident owls have not yet begun egg laying or incubation or where the juveniles are foraging independently and capable of independent survival, a qualified biologist shall implement a passive relocation program in accordance with the CDFW (2012) *Staff Report on Burrowing Owl Mitigation*.

- If passive relocation is anticipated due to on-site burrowing owl populations, a qualified biologist shall prepare a Burrowing Owl Exclusion Plan in accordance with CDFW (2012) *Staff Report on Burrowing Owl Mitigation* and for review by CDFW prior to passive relocation activities.

Mitigation Measure 3.5-2: General Measures for the Avoidance and Protection of Biological Resources

During construction, operation and maintenance, and decommissioning of the facility, the operator and/or contractor shall implement the following general avoidance and protective measures to protect San Joaquin kit fox and other special-status wildlife species:

- The operator shall limit the areas of disturbance. Parking areas, new roads, staging, storage, excavation, and disposal site locations shall be confined to the smallest areas possible. All proposed impact areas, including solar fields, staging areas, access routes, and disposal or temporary placement of spoils, shall be delineated with stakes and/or flagging prior to construction to avoid special-status species where possible. Construction-related activities, vehicles and equipment outside of the impact zone shall be avoided.

- These areas shall be flagged and disturbance activities, vehicles, and equipment shall be confined to these flagged areas.

- Spoils shall be stockpiled in disturbed areas that lack native vegetation. Best Management Practices (BMPs) shall be employed to prevent erosion in accordance with the Project's approved Stormwater Pollution Prevention Plan (SWPPP). All detected erosion shall be remedied within two (2) days of discovery or as described in the SWPPP.

- To prevent inadvertent entrapment of wildlife during construction, all excavated, steep-walled holes or trenches with a 2-foot or greater depth shall be covered with plywood or similar materials at the close of each working day, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected by the approved biological monitor for trapped animals. If trapped animals are observed, escape ramps or structures shall be installed immediately to allow escape. If a listed species is trapped, the USFWS and/or CDFW shall be contacted immediately.

- All construction pipes, culverts, or similar structures with a 4-inch or greater diameter that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for special-status wildlife or nesting birds before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If an animal is discovered inside a pipe, that section of pipe shall not be moved until the Lead Biologist has been consulted and the animal has either moved from the structure on its own accord or until the animal has been captured and relocated by the Lead Biologist.

- Vehicles and equipment parked on the sites shall have the ground beneath the vehicle or equipment inspected for the presence of wildlife prior to moving.

- Vehicular traffic shall use existing routes of travel. Cross country vehicle and equipment use outside of the Project properties shall be prohibited.

- A speed limit of 20 miles per hour shall be enforced within all construction areas.

- A long-term trash abatement program shall be established for construction, operations, and decommissioning and submitted to the County. Trash and food items shall be contained in closed containers and removed daily to reduce the attractiveness to wildlife such as common raven (*Corvus corax*), coyote (*Canis latrans*), and feral dogs.

- Workers shall be prohibited from bringing pets and firearms to the Project site and from feeding wildlife in the vicinity.

- Intentional killing or collection of any wildlife species shall be prohibited.

Mitigation Measure 3.5-3: Nesting Birds and Bats

If construction is scheduled to commence during the non-nesting season (September 1 to January 31), no preconstruction surveys or additional measures are required for nesting birds, including raptors. To avoid impacts to nesting birds in the Project site and immediate vicinity, a qualified wildlife biologist shall conduct preconstruction surveys of all potential nesting habitat within the Project sites for ground-disturbing activities that are initiated during the breeding season (February 1 to August 31). The survey for special-status raptors shall focus on potential nest sites (e.g., mature trees) within a 0.5-mile buffer around the site in areas where access to neighboring properties is

available or visible using a spotting scope. Surveys shall be conducted no more than 14 days prior to construction activities. Surveys need not be conducted for the entire Project site at one time; they may be phased so that surveys occur shortly before a portion of the Project site is disturbed. The surveying biologist must be qualified to determine the status and stage of nesting by migratory birds and all locally breeding raptor species without causing intrusive disturbance. If active nests are found, a suitable buffer (e.g., 300 feet for common raptors; 0.5-mile for Swainson's hawk; 100 feet for passerines) shall be established around active nests and no construction within the buffer allowed until a qualified biologist has determined that the nest is no longer active (e.g., the nestlings have fledged and are no longer reliant on the nest). Encroachment into the buffer may occur at the discretion of a qualified biologist except that encroachment into the buffer for Swainson's hawk must be authorized by the CDFW.

The Project site may provide suitable roosting habitat for bats within buildings, and provides nighttime foraging habitat. If bats are found on the Project site, roosts shall be protected during the breeding season (March 1 through September 30) with at least a 200-foot no-disturbance buffer. Outside the breeding season, once a qualified biologist has determined the bats have left to forage, reentry into the structures shall be blocked and alternative bat roosting habitat shall be provided onsite or in the vicinity, prior to the structures being removed.

Significance after Mitigation: Less than Significant.

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b) Whether the Project would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS. (No Impact)

The Project site does not contain any riparian habitat or other sensitive natural communities identified in local or regional plans, policies, or regulations, or by CDFW or USFWS. Therefore, the Project would have no impact on these resources.

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c) Whether the Project would have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

Impact 3.5-2: The Project could have a substantial adverse effect on state or federally protected wetlands. ***(Less than Significant Impact)***

As discussed in Section 3.5.1.1, hydrologic features within the Project site currently are limited to one irrigation ditch and one culvert, which conveys water in an easterly direction away from the site. Receiving waters of stormwater flows generated from the Project site are not currently known, though the Fresno Slough is the main hydrologic features east of the Project site within the natural flow path.

As currently designed, the Project is not anticipated to directly impact the existing irrigation ditch or the culverts. Indirect impacts to hydrologic features may occur as a result of changes to water

quality related to construction and operational stormwater discharges. To minimize the potential for indirect impacts, BMPs would be followed, including sizing the detention basins to permanently retain the 100-year 48-hour duration storm. The SWPPP to be developed for the Project would include the final detention basin sizing parameters as well as additional BMPs and design features to minimize impacts to water quality, as necessary. A less-than-significant indirect impact would result.

Based on the current Project design, no direct impacts to state and federally protected wetlands and waters are anticipated. Because the existing irrigation ditch and culverts would not be impacted by the Project, a formal wetland delineation/ jurisdictional determination is not required.

Indirect impacts to these resources and downstream receiving waters may occur as a result of construction-related activities in the short-term as well as operation activities in the long-term. Following implementation of standard BMPs in accordance with the NPDES permit program implemented by the RWQCB, no significant indirect impacts to state and federally protected wetlands and waters are expected to result from Project-related activities.

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d) Whether the Project would 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.

Impact 3.5-3: Construction could interfere substantially with established native resident or migratory wildlife corridors. ***(Less than Significant Impact)***

The Project is located at the southernmost extent of the area identified as a terrestrial movement corridor for San Joaquin kit fox (USFWS 1998). The Project Description states that perimeter fencing "would be 'wildlife-friendly,' in that it would use one of several potential designs that would allow San Joaquin kit fox to pass through the fence while still providing for solar facility security and exclusion of other unwanted species (i.e., large domestic dogs and coyotes)." In order to facilitate kit fox movement, this analysis assumes that any such design would be substantially consistent with the following specifications: the fence material would be raised 4 to 6 inches above the ground for the entire length of the fencing and the bottom of the fencing material would be knuckled back to allow for unimpeded movement; any chain link fencing used inside the perimeter fencing would be installed in a similar fashion.

The Project is located within a significant avian migration route known as the Pacific Flyway. Although individual birds may be affected, the Project is not anticipated to physically affect the Pacific Flyway itself.

There are no perennial water features on the Project site, and no corridors for aquatic species. In addition, no wildlife nursery sites have been identified on the Project site. Accordingly, the Project could not interfere substantially with the movement of any native resident or migratory fish or impede the use of native wildlife nursery sites and would cause no impact regarding these considerations.

Thus, impacts on wildlife corridors or movement would be less than significant.

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e) Whether the Project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Impact 3.5-4: Construction could conflict with local policies or ordinances protecting biological resources. ***(Less than Significant Impact)***

The County has policies and ordinances protecting biological resources, including wetland and riparian areas (Fresno County General Plan Goal OS-D); vegetation (Fresno County General Plan Goal OS-F), including oak woodlands (Fresno County General Plan Policy OS-F.10); apples (County Code Chapter 8.06); vegetables (County Code Chapter 8.08); trees and shrubs (County Code Chapter 13.12); and flowers, foliage or fruit, trees, shrubs, plants, and grass in public parks and recreation areas. However, the Project would not conflict with any of these local policies or ordinances protecting biological resources, because none of the protected resources are present within the site boundary.

The County also has policies protecting fish and wildlife habitat (Fresno County General Plan Goal OS-E). The Project site does not contain any fish habitat. The Project site and immediate vicinity contains potentially suitable breeding, denning, or nesting habitat for wildlife species, including San Joaquin kit fox; burrowing owls and other raptors, including Swainson's hawk, red-tailed hawk, and American kestrel; and migratory birds, including loggerhead shrike. Implementation of the Worker Environmental Awareness Program (WEAP) described in Section 2.5.7.6 together with preconstruction wildlife surveys, environmental training, and wildlife avoidance and protection measures described in **Mitigation Measures 3.5-1** through **3.5-3**, would avoid or minimize potential impacts to these species and ensure compliance with General Plan Goal OS-E. Therefore, the Project would not conflict with General Plan Goal OS-E. The Project would have a less than significant impact on conflicts with local policies and ordinances protecting biological resources.

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f) Whether the Project could conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan*. (No Impact)*

The Project would not be constructed within the boundaries of any adopted HCP or NCCP. The closest HCP is the Eastern Fresno Habitat Plan (which governs an area located approximately 40 miles east of the Project site). There are no adopted NCCPs in Fresno County or in any of the adjacent counties, and no other approved local, regional, or state habitat conservation plans that would apply to the Project or the Project site. Given the distance between the Project site and the closest adopted HCP and the absence of any other adopted conservation plans, the Project would cause no impact under this criterion.

3.5.3.3 Direct and Indirect Effects of Alternatives

Reduced Acreage Alternative

Under this Alternative, the area of the Project site would be reduced by approximately 161 acres by not constructing Little Bear 6 on APN 019-110-13ST located on the south side of West California Avenue between South Ohio Avenue and State Route 33. The on-site 115 kV gen-tie line proposed to interconnect Little Bear 6 would not be constructed; no solar panels, substation, energy storage system, detention pond, or meteorological stations would be constructed in that area; and perimeter chain link fencing would not enclose that quarter section. Land within this portion of the site would continue to be used as fallowed farm land, and occasionally dry-farmed. Existing (limited) foraging, denning, and other habitat value would be maintained on the approximately 161 acres. The Increased Habitat/Reduced Acreage Alternative would entail less surface disturbance, less loss of foraging habitat, less potential impact to special-status species, but the nature of the impacts would remain the same, and the mitigation measures would be recommended to reduce potential impacts below established thresholds.

No Project Alternative

If the No Project Alternative is implemented, the proposed demolition of structures would not occur; fences would not be erected; neither the solar facilities nor the Little Bear gen-tie line would be constructed, operated, or maintained; and the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would cause no impacts to Biological Resources.

3.5.4 Cumulative Analysis

Cumulative effects of multiple projects are caused by the incremental impact of a proposed project in combination with the impacts of other closely related past, present, and reasonably foreseeable probable future projects. The ongoing impacts of past projects are reflected in the existing environmental setting. Cumulative effects of the Project and alternatives in combination with present, and reasonably foreseeable probable future projects in this context are analyzed below.

For Biological Resources, the geographic scope of the cumulative analysis varies in accordance with the greatest extent of the Project's direct or indirect effect and with the range of the resource affected. The list of projects considered for cumulative analysis is in Table 3.1-1.

Construction-related impacts on San Joaquin kit fox of the Project and the Reduced Acreage Alternative after the implementation of recommended Mitigation Measures would be less than significant. This cumulative analysis analyzes the potential for these incremental impacts to combine with other past, present, and reasonably foreseeable projects to cause or contribute to significant cumulative effects within the range of the San Joaquin kit fox for the duration of the Project. Historically, the distribution of the San Joaquin kit fox extended throughout the San

Joaquin Valley and surrounding coastal range foothills (USFWS 2010). The range of the species has been significantly reduced, and the largest extant populations occur within western portion of the San Joaquin Valley to the south of Fresno County.

Identified cumulative projects resulting in the removal of suitable breeding or foraging habitat have the potential to result in impacts to San Joaquin kit fox. Some of the identified cumulative projects have the potential to impact suitable breeding or foraging habitat for the species, particularly those near the Coast Range within the Ciervo-Panoche core area for San Joaquin kit fox (USFWS 2010). The Project is not located in San Joaquin kit fox "core," "link," or "satellite" recovery areas (USFWS 1998). The Project would maintain potential for kit fox movement across the site through use of wildlife-friendly fencing. The Project would not contribute to the cumulative impact to identified kit fox population centers or important linkage or satellite habitat areas. Therefore, the contribution of the Project to this impact is not cumulatively considerable.

Project impacts to burrowing owl after the implementation of recommended Mitigation Measures would be less than significant during construction and decommissioning (associated with nesting and foraging habitat removal and collisions) as well as during operation and maintenance (from collisions). Although burrowing owl has experienced population reduction over the extent of its range, its range remains wide and the Central Valley population has remained sizable, largely due to the ability of the species to occupy agricultural lands and other disturbed habitats (Shuford and Gardali 2008). Several of the identified cumulative projects may result in impacts to the species, primarily associated with the loss of nesting and foraging habitat. The Central Valley offers substantial amounts of suitable nesting and foraging habitat, and the area affected by the identified cumulative projects does not represent a significant portion of remaining suitable nesting and foraging habitat for the species within the Central Valley. Therefore, the Project, in combination with all identified cumulative projects, would not result in a cumulatively considerable impact to burrowing owl.

Swainson's hawk historically occupied much of the state, but their range is now largely restricted to the Central Valley, and the species has seen breeding population declines in this area associated with the loss of suitable foraging and nesting habitat. All identified cumulative projects have the potential to impact suitable nesting and foraging habitat for Swainson's hawk and other raptors. However, in the vicinity of the Project area (100 square miles), approximately 96 square miles are suitable foraging habitat for Swainson's hawk. The combined impact of the identified cumulative projects would cover approximately 16 percent of these lands. Thus, approximately 80 square miles of the 100 square mile vicinity would remain as suitable foraging habitat for Swainson's hawk and other raptors in the Central Valley. Therefore, the Project, in combination with all identified cumulative projects, would not result in a cumulatively considerable impact to Swainson's hawk or other raptors.

This cumulative analysis evaluates the potential for the incremental impacts of the Project and alternatives to combine with the impacts of other past, present, and reasonably foreseeable probable future projects to cause or contribute to significant cumulative effects to common or special-status migratory birds within the Central Valley for the duration of the solar facility. Identified cumulative projects that involve the installation of PV panels (see Table 3.1-1) have the

potential to cause impacts to special-status birds, including injury and mortality associated with panel collisions, as described in Section 3.5.2. Cumulative projects that include new buildings or power lines also have the potential to cause injury or mortality from collision.

Available data suggest that injury to and mortality of both common and special-status birds may occur from collision with PV panels at solar farms. Several of the identified cumulative projects are also PV projects and so also increase the area of collision hazards that could injure or kill birds. Other renewable energy facilities and the transmission lines associated with these facilities, also pose direct and indirect effects to birds, and these effects are likely cumulative. Ultimately, cross-facility and cross-taxon meta-analyses will be necessary to fully understand the cumulative impacts of energy infrastructure on birds (Smith and Dwyer 2016).

However, because most of the projects considered in this analysis are distant from the Mendota Wildlife Area stopover site, they are expected to attract little flyover traffic from migratory birds, and the level of avian fatalities that would occur at these sites is unknown. In addition, this Project includes the Applicants' commitment to adhere to current APLIC design standards for overhead powerlines and associated structures (including use of avian-safe line designs, and installation of devices to make powerlines visible to birds) which would minimize the potential for avian injury and mortality from collisions and electrocution with such facilities. Because of these factors, the incremental effects of the Little Bear facility on overall avian fatality from collision risk in the Central Valley would not be cumulatively considerable.

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3.6 Cultural Resources

This section identifies and evaluates issues related to Cultural Resources in the context of the Project and alternatives. It describes the environmental and regulatory setting, the criteria used to determine the significance of impacts on Cultural Resources, the methods used in evaluating these impacts, and the results of the impact assessment. Considerations specific to Tribal Cultural Resources are addressed separately in Section 3.19.

The County received scoping comments from the Table Mountain Rancheria Tribal Government Office, which expressed interest in consulting with the County regarding the Project since the Project is proposed in the Tribe's cultural area of interest. These scoping comments are provided in the Scoping Report (Appendix A) and addressed below in Section 3.6.3.2. Input received from the Dumna Wo Wah Tribal Government (Dumna Wo Wah 2017) and the Picayune Rancheria of the Chukchansi Indians (Picayune Rancheria 2017) also was considered in this analysis.

This section also relies in part on the Cultural Resources Inventory Reports completed for the Project by Dudek in August 2017 and LSA in April 2015. Respecting the culturally sensitive nature of the information included, neither is included as an appendix to this analysis. Nonetheless, the preparers of this Draft EIR independently reviewed these and other materials prepared by or on behalf of the Applicants and determined them to be suitable for reliance on (in combination with other materials included in the formal record) in the preparation of this Draft EIR. The cultural evaluations conducted by Dudek and LSA were conducted in compliance with CEQA to identify cultural resources, including (but not limited to) archaeological, historic built architectural, and Native American resources within the Project boundary.

3.6.1 Setting

3.6.1.1 Environmental Setting

The Project site is located in California's Central Valley, which extends from the Siskiyou Mountains in the north to the Tehachapi Mountains in the south and covers an area approximately 650 miles long and 250 miles wide. The Central Valley is bound by the Cascade Range and Sierra Nevada in the east and the Coast Ranges in the west. The Central Valley is divided into two smaller valleys by the Sacramento-San Joaquin Delta: the Sacramento Valley and the San Joaquin Valley. The Sacramento Valley is located north of the Sacramento-San Joaquin Delta, while the San Joaquin Valley lies to the south (Rosenthal et al. 2007).

The Project site is located within the central part of the San Joaquin Valley. The valley is composed of active alluvial fans, alkali basins, and river floodplains. Historically, the valley supported a treeless plain with patches of alkali-tolerant annual forbs and grasses (Rosenthal et al. 2007). Wildlife included antelope, deer, and elk, which wintered on the plains, as well as jackrabbits, ground squirrels, and quail (Wallace 1978a).

Prehistoric Setting

The Central Valley prehistoric record is divided into three periods: Paleo-Indian (11,550 to 8,550 cal B.C.[1]), Archaic (8,550 cal B.C. to cal A.D. 1100), and Emergent (cal A.D. 1100 to Historic). The Archaic period is further divided into three sub-periods: Lower Archaic (8,550 to 5,550 cal B.C.), Middle Archaic (5,550 to 550 cal B.C.), and Upper Archaic (550 cal B.C. to cal A.D. 1100) (Rosenthal et al. 2007).

Paleo-Indian (11,550 to 8,550 cal B.C.)

Evidence of human occupation of the Central Valley during the Paleo-Indian period comes primarily from the San Joaquin Valley. Basally thinned and fluted concave base projectile points, similar to Clovis points, have been found in three San Joaquin Valley areas: Tracy Lake, the Woolfsen mound, and the Tulare Lake basin. Little other evidence of human occupation during the Paleo-Indian period is available for the Central Valley.

Lower Archaic (8,550 to 5,550 cal B.C.)

Lower Archaic occupation of the Central Valley is known mainly from isolated finds located along the ancient shorelines of lakes. Very little archaeological evidence exists for occupation of the valley floor during the Lower Archaic.

Middle Archaic (5,550 to 550 cal B.C.)

The Middle Archaic is characterized by a climatic shift to warmer, drier conditions, similar to present-day conditions. By the Middle Archaic, foothill and valley floor groups were distinct and separate adaptations. Early sites from the Middle Archaic period are more abundant in the foothill areas and are characterized by a large quantity of stone implements designed to exploit acorns and pine nuts (Rosenthal et al. 2007).

Upper Archaic (550 cal B.C. to cal A.D. 1100)

Climatic changes at the start of the Upper Archaic resulted in a cooler, wetter, and more stable environment. During the Upper Archaic period, regional variations were more common and focused on resources that could be processed in bulk, such as acorns, salmon, shellfish, rabbits, and deer. Use of mortars and pestles for food processing was prevalent, except for the valley margins where handstones and millingslabs remained dominant (Rosenthal et al. 2007).

Emergent (cal A.D. 1000 to Historic)

During the Emergent Period, many Archaic Period technologies and cultural traditions disappeared throughout the Central Valley. Practices very similar to those observed by later European explorers appeared at this time. Research on Emergent Period sites in the San Joaquin Valley has been limited and only one cultural pattern, the Panoche Complex (circa A.D. 1500 to 1850), has been fully identified (Moratto 1984).

[1] The "cal" prefix indicates that the date reported is the result of radiocarbon calibration using tree ring data.

Ethnographic Setting

At the time of European contact, the Central Valley was occupied by speakers of the California Penutian language family, specifically the Yokuts. The Yokuts entered the San Joaquin Valley sometime prior to A.D. 1400, perhaps by force, as indicated by skeletal remains with fatal wounds inflicted by projectile points. Historically, Yokuts have been divided into three cultural-geographical groupings: Northern Valley, Southern Valley, and Foothills (Arkush 1993). The Project site appears to be at the juncture of Northern Valley Yokuts and Southern Valley Yokuts territory.

The territory of the Northern Valley Yokuts is defined roughly by the crest of the Diablo Range on the west and the foothills of the Sierra Nevada on the east. The southern boundary is located approximately where the San Joaquin River bends northward and the northern boundary is roughly half way between the Calaveras and Mokelumne Rivers. Populations were concentrated along waterways and on the more hospitable east side of the San Joaquin River (Wallace 1978a). The Southern Valley Yokuts territory included Tulare, Buena Vista, and Kern lakes and the lower portions of the Kings, Kaweah, Tule, and Kern rivers (Wallace 1978b).

A large Southern Valley Yokuts village, *Poso de Chane*, was located about 6 miles east of present-day Coalinga (approximately 30 miles south of the Project site). The village was centered on a large watering pool (poso). Later, the area became home to a small Spanish/Mexican agricultural community (Hoover et al. 1990).

Historic Setting

The following setting discussion is excerpted from Dudek's 2017 Cultural Resources Inventory Report completed for the Project:

> **Early Settlement: San Joaquin Valley – Westside.** The first Spaniards arrived in the San Joaquin Valley in 1772, led by don Pedro Fages (Dudek 2017). Over the next few decades several other Spanish expeditions would make it to the Mendota area of the Valley, known as the Westside. During the first decade of the 19th Century, a trail was established from the Los Angeles Basin to San Francisco, a branch of which passes through what is Mendota Center now. The Valley fell under the control of the United States at the conclusion of the Mexican-American War of 1848. By the mid-19th Century, Anglo Americans miners, failed in the lodes to the east, began to move into the area to try their luck at cattle ranching. The area proved excellent for grazing, and in 1891 the Southern Pacific Railroad established a stop at the site of Mendota to facilitate the transport of cattle.
>
> **Establishment of Mendota.** While the first purpose of Southern Pacific Railroad's Mendota stop was to transport cattle, the company built a storage and switching facility at the site, a much larger and fully equipped complex than would be expected in the area. By the establishment of the town, the cattle industry had already begun a steady decline and ranchers in the area had increasingly been switching to sheep ranching with Mendota as the local sheep-shearing center. This boom turned the town from a railroad stop into a full-fledged town with a post office, two saloons, a hotel, a Chinese restaurant, and half a dozen other businesses by 1900. However, by 1910, the railroad had dismantled its operations at the switching facility and several ranchers moved to Fresno, slowing Mendota's growth.
>
> The next boom to Mendota's economic growth came with the Central Valley Project (CVP), an ambitious effort to irrigate the drier portions of the San Joaquin Valley with water from

the abundantly wet areas of Sacramento Valley through a series of canals. Water from the north finally reached Mendota in 1951. The cotton industry, which was already established in the area, took off after the CVP reached Mendota and the city (incorporated in 1942) saw another growth period from the large amount of migrant workers needed in the cotton fields. Mendota is still a nearly exclusively agricultural city and is now a leading producer of cantaloupes, grapes, and nut trees.

3.6.1.2 Regulatory Setting

Federal

National Register of Historic Places

The NRHP was established by the National Historic Preservation Act (NHPA), as "an authoritative guide to be used by federal, state, and local governments, private groups and citizens to identify the Nation's historic resources and to indicate what properties should be considered for protection from destruction or impairment" (36 CFR §60.2). The NRHP recognizes both historical-period and prehistoric archaeological properties that are significant at the national, state, and local levels.

To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must meet one or more of the following four established criteria, along with being at least 50 years old and possessing integrity to convey its significance (U.S. Department of the Interior 1995):

A. Are associated with events that have made a significant contribution to the broad patterns of our history;

B. Are associated with the lives of persons significant in our past;

C. Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

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

Resources identified as eligible for or listed in the NRHP are automatically considered eligible for listing in the California Register of Historical Resources.

State

California Register of Historical Resources

Created in 1992 and implemented in 1998, the California Register of Historical Resources (CRHR) is "an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change." A resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following

criteria, which are modeled on NRHP criteria, and retains sufficient integrity to reflect its historical significance:

1. It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2. It is associated with the lives of persons important in our past.
3. It embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of an important creative individual; or possesses high artistic values.
4. It has yielded, or may be likely to yield, information important in history or prehistory.

Typically, an archaeological site in California is recommended eligible for listing in the CRHR based on its potential to yield information important in prehistory or history (Criterion 4). Important information includes chronological markers such as projectile point styles or obsidian artifacts that can be subjected to dating methods or undisturbed deposits that retain their stratigraphic integrity. However, archaeological sites may also be recommended eligible under CRHR Criteria 1, 2, and/or 3.

California Environmental Quality Act

Under CEQA (Pub. Res. Code §21084.1), a project would have a significant effect on the environment if it causes a substantial adverse change in the significance of an historical resource. The CEQA Guidelines (14 CCR §15064.4) recognize that an historical resource includes: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR; (2) a resource included in a local register of historical resources, as defined in Public Resources Code Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of Public Resources Code 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be an historical resource as defined in Public Resources Code Section 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, then the provisions of Public Resources Code §21084.1 and CEQA Guidelines §15064.4 apply. If a project may cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired) in the significance of an historical resource, then the lead agency must identify potentially feasible measures to mitigate these effects (14 Cal. Code Regs. §§15064.4(b)(1), 15064.4(b)(4)).

If an archaeological site does not meet the historical resource criteria contained in the CEQA Guidelines, then the site may be treated in accordance with the provisions of Section 21083. As defined in Public Resources Section 21083.2, a "unique" archaeological resource is an

archaeological artifact, object, or site, for which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or,
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological site meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site is to be treated in accordance with the provisions of Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (Pub. Res. Code §21083.1(a)). If preservation in place is not feasible, mitigation measures shall be required.

If an archaeological resource is neither a unique archaeological nor a historical resource, then the effects of the project on those resources shall not be considered a significant effect on the environment (14 Cal. Code Regs. §15064.4(c)(4)).

Governor Brown approved the CEQA amendments set forth in Assembly Bill No. 52 (AB 52), relating to Native Americans, in 2014. AB 52's amendments to CEQA specify that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource, as defined in Public Resources Code Section 21074, is one that may have a significant effect on the environment. AB 52 requires a lead agency to begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project, if the tribe requested to the lead agency, in writing, to be informed by the lead agency of proposed projects in that geographic area and the tribe requests consultation, prior to determining which form of CEQA documentation is required for the project. Tribal Cultural Resources are addressed separately in Section 3.19.

Native American Heritage Commission

Public Resources Code Section 5097.91 established the NAHC, the duties of which include inventorying places of religious or social significance to Native Americans and identifying known graves and cemeteries of Native Americans on private lands. Public Resources Code Section 5097.98 specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner.

Other Relevant State Regulations

Sections of the Public Records Act (Sections 6254(r) and 6254.10), Health and Safety Code (Section 7050.5), Penal Code (Section 622.5), and Public Resources Code (Section 622.5) provide guidance for protection of archaeological resources and human remains. These codes provide protection from unauthorized excavation, looting, or vandalism; guidance following

discovery of human remains; penalty for injuring or destroying objects of historic or archaeological interest; and penalty for unauthorized disturbance or removal of archaeological or historical features.

Local

Fresno County 2000 General Plan

The Fresno County 2000 General Plan (2000) Open Space and Conservation Element contains several objectives and policies relevant to the protection of cultural resources within the Project site and surrounding area. The Historical, Cultural, and Geological Resources section of the Open Space and Conservation Element provides policies directing the protection of historical and archaeological resources within the County.

> **Goal OS-J:** To identify, protect, and enhance Fresno County's important historical, archeological, geological, and cultural sites and their contributing environment, and promote and encourage preservation, restoration, and rehabilitation of Fresno County's historically significant resources in order to promote historical awareness, community identify, and to recognize the County's valued assets that have contributed to past County events, trends, styles of architecture, and economy.
>
> ***Policy OS-J.1: Preservation of Historic Resources.*** The County shall encourage preservation of any sites and/or buildings identified as having historical significance pursuant to the list maintained by the Fresno County Historic Landmarks and Records Advisory Commission.
>
> ***Policy OS-J.2: Historic Resources Consideration.*** The County shall consider historic resources during preparation or evaluation of plans and discretionary development projects.
>
> ***Policy OS-J.14: Sites Protection and Mitigation.*** The County shall require that discretionary development projects, as part of any required CEQA review, identify and protect important historical, archeological, and cultural sites and their contributing environment from damage, destruction, and abuse to the maximum extent feasible. Project-level mitigation shall include accurate site surveys, consideration of project alternatives to preserve archeological and historic resources, and provision for resource recovery and preservation when displacement is unavoidable.

3.6.1.3 Cultural Resources Identified within the Project Site and Surrounding Area

Identification of Known Cultural Resources

Records Search and Historic Map Review

The research investigations completed for the Project consisted of a records search of the Project site and a 0.5-mile (LSA, February 23, 2015) and 1-mile (Dudek, November 9, 2016) radius buffer at the Southern San Joaquin Valley Information Center (SSJVIC), located at the California State University, Bakersfield. The SSJVIC, an affiliate of the State of California Office of Historic Preservation, is the official state repository of cultural resource records and reports for Fresno County. Staff at the SSJVIC conducted the records search at the request of LSA and

Dudek. As part of the records search, the following federal and State of California inventories were reviewed:

- California Inventory of Historic Resources (California Office of Historic Preservation 1976);
- California Points of Historical Interest (California Office of Historic Preservation 1992 and updates);
- California Historical Landmarks (California Office of Historic Preservation 1996); and
- Directory of Properties in the Historic Property Data File (California Office of Historic Preservation 2013). The directory includes the listings of the National Register of Historic Places, National Historic Landmarks, the California Register of Historical Resources, California Historical Landmarks, and California Points of Historical Interest.

Historic research also was performed to better understand the history of land use of the Project site. This research consisted of reviewing historic topographic map and aerials.

SSJVIC records indicate that 11 previous technical studies have been performed with the records search areas, although none of these included any portion of the Project site. The records searches also indicated that four previously recorded sites have been documented within 1 mile of the Project boundary, although none of these were located within the Project site. These resources included historic-period residences (P-10-5364 and P-10-006200) and historic-period trash scatters (P-10-6463 and P-10-6211).

Native American Contact

Tribal consultation conducted by Fresno County is included in its entirety in Section 3.19.

Archaeological Field Surveys

Field survey of the Project site occurred during LSA's and Dudek's analyses in February 2015 and November/December 2016, respectively. Evidence for buried cultural deposits was opportunistically sought through inspection of artificial excavated irrigation ditches. Resources were documented through field recordings and photo documentation, as appropriate.

No archaeological cultural resources were identified during the LSA field survey efforts. One historic architectural resource, the storage barn and silo complex, was identified during the pedestrian survey completed by Dudek. Dudek staff evaluated the barn and silo complex, and recommended it ineligible for listing in the CRHR due to a lack of significant historical associations.

Potential for Unknown Buried Cultural Resources

The ground surface of the Project site has been highly disturbed by previous agricultural activities. The United States Geological Survey (USGS) characterized deposits in the region as Quaternary alluvium and marine deposits. No major rivers, streams or drainages flow through the Project site. Groundwater generally flows through the Project site towards the northeast to join with the San Joaquin River and Fresno Slough, approximately 3 miles to the northeast. While the Project site itself would have likely been dry grassland prior to agricultural development following historic period Euro-American settlement, its proximity to the Slough would have made

this region an attractive place to reside while exploiting these resources. The low elevation and level ground at the Project site indicates the area could have been subject to seasonal flooding from the Slough, inundating and shifting alluvial sedimentation since the Holocene during wetter years.

Based on review of the results of a number of previous technical studies completed in the surrounding vicinity, little remains of undisturbed ground surface conditions and few archaeological surface deposits have been located in the area. Given the level of disturbance, there is a limited potential to support the presence of intact cultural deposits on the surface within the Project site.

While the potential for buried prehistoric archaeological deposits in neighboring regions has been characterized as "High" by the 2010 Caltrans Districts 6 and 9 Geoarchaeological Overview and Assessment (Meyer, Young, and Rosenthal 2010), such broad analyses must be tempered by local conditions. The Little Bear Solar Project site is located in an area that has a sparse record of prehistoric occupation, as supported by the records search. Moreover, while agricultural fields extensively disturb archaeological deposits, they do not erase them; to the contrary, such activities often bring buried deposits to the surface. No such deposits were identified in the Project site during the surface surveys. As such, the Project site is characterized as having a low potential for discovering significant archaeological deposits.

3.6.2 Significance Criteria

A project would result in significant impacts to cultural resources if it would:

a) Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5;

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines §15064.5;

c) Disturb any human remains, including those interred outside of formal cemeteries.

According to CEQA Guidelines §15064.5, a project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment. The CEQA Guidelines further state that a substantial adverse change in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historic resource would be materially impaired. Actions that would materially impair the significance of a historical resource are any actions that would demolish or adversely alter those physical characteristics of a historical resource that convey its historical significance and qualify it for inclusion in the CRHR or in a local register or survey that meet the requirements of Public Resources Code Sections 5020.1(k) and 5024.1(g). A lead agency also must take into account impacts to unique archaeological resources.

CEQA Guidelines Appendix G Section V, *Cultural Resources*, asks whether a project would "[d]irectly or indirectly destroy a unique paleontological resource or site or unique geologic feature." In response to AB 52's direction that the consideration of paleontological resources be

separated from tribal cultural resources, this analysis considers potential impacts to paleontological resources in Section 3.8, *Geology, Soils, and Paleontological Resources*.

3.6.3 Direct and Indirect Effects

3.6.3.1 Approach to Analysis

To evaluate the Project's potential effects on significant cultural resources, including prehistoric and historic archaeological sites, a cultural resources characterization and evaluation of the Project site were undertaken (Dudek 2017, LSA 2015). These efforts included a literature review, a Native American contact program, geoarchaeological review, and field surveys for areas of potential permanent and temporary impacts where facilities would be installed. The purpose of the evaluations was to identify any cultural resources that may be present within the Project site.

Impacts on cultural resources could result from Project-related ground-disturbing activities, including excavation, grading, trenching, vegetation clearance, the operation of heavy equipment, or other surface and sub-surface disturbance that could damage or destroy surficial or buried archaeological resources, including prehistoric and historic materials or human burials. No historic-period built resources were identified during the course of study by LSA and Dudek, and as such no impact to these resources is anticipated as a result of project construction or implementation. No further analysis of historic-period built resources is included as part of this report.

3.6.3.2 Direct and Indirect Effects of the Project

Impact 3.6-1: Ground disturbing activities associated with the Project could cause a substantial adverse change to previously unknown archaeological resources, pursuant to CEQA Guidelines §15064.5. *(Less than Significant with Mitigation Incorporated)*

As described above, results of the records search conducted by the SSJVIC and both the 2015 and 2017 field surveys identified no archaeological resources within the Project site. The closest previously-documented archaeological sites consist of historic period trash scatters approximately 1-mile north of the Project site. Additionally, geoarchaeological review characterized the Project site as having a low potential for discovering significant archaeological deposits. Nonetheless, Project-related earth moving activities (e.g., during the construction of proposed facilities) have the potential to result in a significant impact to previously undiscovered archaeological resources. Destruction or loss of integrity in these resources would result in a potentially significant impact.

Mitigation Measure 3.6-1: Implementation of Accidental Discovery Procedures

In the event that unanticipated archaeological resources are encountered during Project activities, compliance with federal and state regulations and guidelines regarding the treatment of cultural resources and/or human remains shall be required, along with implementation of the following mitigation.

i. If prehistoric or historic-period archaeological resources are encountered during project implementation, all construction activities within 100 feet shall halt and the County shall be notified.

1) A qualified archaeologist, defined as one meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology, shall inspect the findings and report the results of the inspection to the developer and the County.

2) In the event that the identified archaeological resource is determined to be prehistoric, the County and qualified archaeologist will coordinate with and solicit input from the appropriate Native American Tribal Representatives, as determined by consultation with the Native American Heritage Commission (NAHC), regarding significance and treatment of the resource as a tribal cultural resource. Any tribal cultural resources discovered during project work shall be treated in consultation with the tribe, with the goal of preserving in place with proper treatment.

3) If the County determines that the resource qualifies as a historical resource or a unique archaeological resource (as defined pursuant to the CEQA Guidelines) and that the project has potential to damage or destroy the resource, mitigation shall be implemented in accordance with Public Resources Code Section 21083.2 and CEQA Guidelines Section 15126.4. Consistent with CEQA Guidelines Section 15126.4(b)(3), mitigation shall be accomplished through either preservation in place or, if preservation in place is not feasible, data recovery through excavation conducted by a qualified archaeologist implementing a detailed archaeological treatment plan.

Significance After Mitigation: Less than Significant.

With the implementation of Mitigation Measure 3.6-1, Impact 3.6-1 would be reduced to a less-than-significant level because compliance with federal and State regulations and guidelines regarding the treatment of cultural resources and/or human remains, as a matter of policy, has been determined to reduce potential impacts to previously unknown prehistoric or historic-period archaeological resources below threshold levels.

Impact 3.6-2: Ground disturbing activities associated with the Project could result in damage to previously unidentified human remains. ***(Less than Significant with Mitigation Incorporated)***

As described above, there is no indication that the Project site has been used for human burial purposes in the recent or distant past. However, in the event that human remains are discovered, including those interred outside of formal cemeteries, the human remains could be inadvertently damaged, which would be a significant impact for purposes of CEQA. In the event that these resources are determined to be of Native American descent, impacts also would occur to tribal cultural resources (as described in Section 3.19, *Tribal Cultural Resources*). Earthmoving activities, including site grading and excavation for Project construction could result in damage to previously unidentified human remains. Damage to human remains would be a potentially significant impact.

Implement Mitigation Measure 3.6-1, and

Mitigation Measure 3.6-2: Accidental Discovery of Human Remains

If human remains are uncovered during Project activities, the Project owner shall immediately halt work, contact the Fresno County Coroner to evaluate the remains, and follow the procedures and protocols set forth in CEQA Guidelines Section 15064.4 (e)(1). If the County Coroner determines that the remains are Native American in origin, the Native American Heritage Commission (NAHC) will be notified, in accordance with Health and Safety Code Section 7050.5(c), and Public Resources Code Section 5097.98 (as amended by AB 2641). The NAHC shall designate a Most Likely Descendent (MLD) for the remains per Public Resources Code Section 5097.98, and the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in Public Resources Code Section 5097.98 with the MLD regarding their recommendations for the disposition of the remains, taking into account the possibility of multiple human remains.

Significance after Mitigation: Less than Significant.

With the implementation of Mitigation Measures 3.6-1 and 3.6-2, Impact 3.6-2 would be reduced to a less-than-significant level because compliance with federal and State regulations and guidelines regarding the treatment of cultural resources and/or human remains, as a matter of policy, has been determined to reduce potential impacts to previously unknown prehistoric or historic-period human remains below threshold levels.

3.6.3.3 Direct and Indirect Effects of Alternatives

Increased Habitat/Reduced Acreage Alternative

Compared to the Project, the Increased Habitat/Reduced Acreage Alternative would entail less construction and associated ground disturbing activities. The lessening of the disturbance footprint would result in lessened potential for disturbance of previously unknown cultural resources, including archaeological resources and human remains. However, the same mitigation measures recommended above also would be recommended to reduce the potential significant impacts of the Increased Habitat/Reduced Acreage Alternative.

No Project Alternative

If the No Project Alternative is implemented, the proposed demolition of structures would not occur; neither the solar facilities nor the Little Bear gen-tie line would be constructed, operated, or maintained; and the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would have no impact associated with Cultural Resources.

3.6.4 Cumulative Analysis

The geographic scope for cumulative impacts to cultural resources comprises a 5-mile radius from the Project site. This geographic scope of analysis is appropriate because the archaeological and historical resources within this radius are expected to be similar to those that occur on the Project site because their proximity, similar environments, landforms, and hydrology are expected to have resulted in similar land-uses over time. Similar geology within this vicinity would likely yield fossils of similar sensitivity and quantity. Based on the professional experience of the Draft EIR Preparers, research, and the prehistoric context, the area within this 5-mile radius of the Project site may contain a significant archaeological and historical record that has not been well documented or recorded. Therefore, this analysis conservatively assumes that the land within this area contains Cultural Resources that are not yet known.

The temporal scope for cumulative impacts to cultural resources would be the duration of the Project when ground-disturbing activities occur. In this context, the incremental impacts of the Project could combine with similar incremental impacts of other projects in the cumulative scenario to cause or contribute to a significant cumulative impact if any of the criteria in Section 3.6.2, *Significance Criteria*, were exceeded.

There is no indication in Section 3.6.1.1, *Environmental Setting*, or elsewhere in the Project record of any significant adverse existing archaeological conditions to which the Project or Increased Habitat/Reduced Acreage Alternative could contribute. Project-level mitigation measures would require cessation of activities and buffering of finds in a manner that would substantially reduce the incremental contribution of the Project or Increased Habitat/ Reduced Acreage Alternative to any potential cumulative impact. The negligible impact remaining after the implementation of recommended mitigation measures, in combination with the incremental impacts of other projects in the cumulative scenario, would not cause one. A less-than-significant cumulative impact to archaeological resources would result.

There is no indication of any existing significant adverse condition relating to the discovery of human remains in the geographic area of cumulative consideration to which the Project, Increased Habitat/Reduced Acreage Alternative, or any of the cumulative projects could contribute. A less-than-significant cumulative impact would result relating to the discovery of human remains.

3.6.5 References

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3.7 Energy Conservation

Public Resources Code section 21100(b) requires an EIR to discuss and consider mitigation measures for the potential energy impacts of proposed projects, with emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. This section examines the Project's energy characteristics to determine whether the Project could result in any significant environmental impacts relating to energy during construction, operation and maintenance, or decommissioning activities. The County received no scoping comments regarding Energy Conservation-related considerations (Appendix A).

The analysis in this section relies in part on information and assumptions provided by the Applicant in a Project-specific Air Quality and Greenhouse Gas Emissions Analysis Technical Report, which is provided in Appendix E. The preparers of this Draft EIR independently reviewed this and other materials prepared by or on behalf of the Applicants and determined them to be suitable for reliance on (in combination with other materials included in the formal record) in the preparation of this Draft EIR.

3.7.1 Setting

3.7.1.1 Environmental Setting

Pacific Gas and Electric Company

Pacific Gas and Electric Company (PG&E) is an investor-owned utility company that provides electricity and natural gas supplies and services throughout a 70,000 square-mile service area that includes western Fresno County (PG&E 2018). Operating characteristics of PG&E's electricity and natural gas supply and distribution systems are provided below.

PG&E Electric Utility Operations

PG&E provides "bundled" services (i.e., electricity, transmission and distribution services) to most of the six million customers in its service territory, including residential, commercial, industrial and agricultural consumers. Customers also can obtain electricity from alternative providers such as municipalities or Customer Choice Aggregators (CCAs), as well as from distributed-generation resources, such as rooftop solar installations.

In recent years, PG&E has improved its electric transmission and distribution systems to accommodate the integration of new renewable energy resources, distributed generation resources, and energy storage facilities, and to help create a platform for the development of new Smart Grid technologies. As required by California law, on July 1, 2015, PG&E filed its proposed electric distribution resources plan for approval by the California Public Utilities Commission (CPUC) (CPUC 2018a; PG&E 2015a). The plan identifies optimal locations on its electric distribution system for deployment of distributed energy resources. PG&E's proposal is designed to allow energy technologies to be interconnected with each other and integrated into the larger grid.

In 2016, PG&E generated and/or procured a total of 68,441 gigawatt hours (GWh) of electricity (PG&E 2017). Of this total, PG&E owns approximately 7,691 megawatts (MW) of generating

capacity, itemized below (see **Table 3.7-1**). The remaining electrical power is purchased from other sources within and outside of California.

TABLE 3.7-1
PG&E-OWNED ELECTRICITY GENERATING SOURCES

Source	Generating Capacity (Megawatts MW)
Nuclear (Diablo Canyon-2 reactors)	2,240
Hydroelectric	3,896
Fossil Fuel-Fired	1,400
Fuel Cell	3
Solar Photovoltaic (13 units-12 in Fresno County, 1 in Kings County)	152
Total	7,691

SOURCE: PG&E 2017

Renewable Energy Resources

California law requires load-serving entities, such as PG&E, to gradually increase the amount of renewable energy they deliver to their customers to at least 33 percent of their total annual retail sales by 2020. This program, known as the Renewables Portfolio Standard (RPS) program, became effective in December 2011, and established three multi-year compliance periods with gradually increasing RPS targets with the last and current being 2017 through 2020 (PG&E 2015b).

As of January 1, 2016, the amount of renewable energy that must be delivered by most load-serving entities, including PG&E, to their customers was increased from 33 percent of total annual retail sales by the end of the 2017-2020 compliance period, to 50 percent of total annual retail sales by the end of the 2028- 2030 compliance period, and in each three-year compliance period thereafter (PG&E 2017).

Renewable generation resources, for purposes of the RPS program, include bioenergy such as biogas and biomass, certain hydroelectric facilities (30 MW or less), wind, solar, and geothermal energy. As shown in **Table 3.7-2**, during 2016, 32.8 percent of PG&E's energy deliveries were from renewable energy sources, exceeding the annual RPS target of 23.3 percent (PG&E 2017).

TABLE 3.7-2
PG&E RENEWABLE ENERGY SOURCES

Source	Percent of Total Energy Portfolio
Bioenergy	4.3
Geothermal	5.4
Wind	7.9
RPS-Eligible Hydroelectric	2.6
Solar	12.6
Total	**32.8**

SOURCE: PG&E 2017

Electricity Consumption

Table 3.7-3 shows electricity consumption by sector in PG&E's service area based on the latest available data from the California Energy Commission (CEC). As shown in the table, PG&E produced approximately 83 billion kilowatt-hours (kWh) in 2016, of which approximately 4.5 billion kWh were consumed by other commercial uses (CEC 2016).

TABLE 3.7-3
ELECTRICITY CONSUMPTION IN PG&E SERVICE AREA (2016)

Agricultural and Water Pump	Commercial Building	Commercial Other	Industry	Mining and Construction	Residential	Streetlight	Total Usage
All Usage Expressed in Millions of kWh (GWh)							
6,692	30,661	4,546	10,620	1,909	28,625	355	83,408

SOURCE: CEC 2016

PG&E Natural Gas Operations

PG&E provides natural gas transportation services to "core" customers and to "non-core" customers (i.e., industrial, large commercial, and natural gas-fired electric generation facilities) that are connected to its gas system in its service territory. Core customers can purchase natural gas from either PG&E or non-utility third-party gas procurement service providers. PG&E offers backbone gas transmission, gas delivery (local transmission and distribution), and gas storage services as separate and distinct services to its non-core customers. Access to PG&E's backbone gas transmission system is available for all natural gas marketers and shippers, as well as non-core customers. PG&E also delivers gas to some customers outside of PG&E's service territory and to third-party natural gas storage customers. In 2016, total sales of natural gas were 195,990 million cubic feet (MMcf) (PG&E 2017).

Natural Gas Consumption

Table 3.7-4 shows the natural gas consumption by sector in the PG&E service area according to the latest data available from CEC.

TABLE 3.7-4
NATURAL GAS CONSUMPTION IN PG&E SERVICE AREA (2016)

Agricultural and Water Pump	Commercial Building	Commercial Other	Industry	Mining and Construction	Residential	Total Usage
All Usage Expressed in Millions of Therms						
36.1	854.6	56.3	1,797.6	69.7	1,745.5	4,559.8

SOURCE: CEC 2016.

As shown in the table above, PG&E delivered approximately 4.6 billion therms in 2016, of which approximately 56 million therms were consumed by other commercial uses (CEC 2016).

Gasoline and Diesel

Supply

California is nearly self-sufficient with regard to the gasoline and diesel fuel supply, obtaining almost all of the supply to meet local demand from the California refineries (CEC 2014). Refineries in California often operate at or near maximum capacity because of the high demand for petroleum products. When unplanned refinery outages occur, replacement supplies must be brought in by marine tanker from refineries in the state of Washington or on the U.S. Gulf Coast. California requires that all motorists use, at a minimum, a specific blend of motor gasoline called CaRFG (California Reformulated Gasoline) as part of an overall program to reduce emissions from motor vehicles. Refineries in several other countries can also supply CaRFG. However, locating and transporting replacement motor gasoline that conforms to California's strict fuel specifications from overseas can take several weeks (EIA 2017). As a result, unplanned outages often result in a reduction in supply that causes prices to increase, sometimes dramatically. The severity and duration of these price spikes depend on how quickly the refinery issue can be resolved and how soon supply from alternative sources can reach the affected market (EIA 2015a).

Most petroleum supply disruptions or shortage events are resolved by the energy industry before they become significant (NASEO 2018). An extended refinery outage occurred in 2015 due to a fire and explosion at ExxonMobil's Torrance, California, refinery in February 2015 that resulted in price spikes due to long lead times and higher prices of imported supplies. Other periods of price spikes have occurred in California, most notably in 2008, 2009, and 2012, that were similar in duration and magnitude to the 2015 supply disruption, and resulted in price increases that persisted for an average of eight weeks and took, on average, two weeks to be passed through to retail prices (EIA 2015a, 2015b). However, there are instances where the severity and scope of disasters require additional actions by government to help facilitate and coordinate response and recovery efforts (NASEO 2018).

Consumption and Distribution

Gasoline is the most used transportation fuel in California, with 97 percent of all gasoline being consumed by light-duty cars, pickup trucks, and sport utility vehicles (CEC 2018a). Diesel fuel is the second largest transportation fuel used in California, representing 17 percent of total fuel sales behind gasoline. Nearly all heavy duty-trucks, delivery vehicles, buses, trains, ships, boats and barges, farm, construction and heavy duty military vehicles and equipment have diesel engines. Diesel is the fuel of choice because it has 12 percent more energy per gallon than gasoline and has fuel properties that prolong engine life making it ideal for heavy duty vehicle applications (CEC 2018b). According to the State Board of Equalization (BOE), 15.5 billion gallons of gasoline and 3.0 billion gallons of diesel, including offroad diesel, was sold in 2016 (BOE 2017a, 2017b).

The CEC estimates that there were between 250-399 gasoline stations in Fresno County in 2016 (CEC 2018c). Commercial fleet fueling services are available in the City of Mendota, located approximately 2.7 miles northeast of the Project site (CFN 2018).

3.7.1.2 Regulatory Setting

Federal

National Energy Conservation Policy Act

The National Energy Conservation Policy Act (NECPA,42 U.S.C. §8201 et seq.) serves as the underlying authority for federal energy management goals and requirements and is the foundation of most federal energy requirements. NECPA established energy-efficiency standards for consumer projects and includes a residential program for low-income weatherization assistance, grants and loan guarantees for energy conservation in schools and hospitals, and energy-efficiency standards for new construction. Furthermore, the NEPCA established fuel economy standards for on-road motor vehicles in the United States. The National Highway Traffic and Safety Administration (NHTSA), which is part of the U.S. Department of Transportation (USDOT), is responsible for establishing additional vehicle standards and revising existing standards under the NEPCA. The USDOT is authorized to assess penalties for noncompliance. In the course of more than 30 years, this regulatory program has resulted in improved fuel economy throughout the United States' vehicle fleet (NHTSA 2014, 2017).

National Energy Policy Act of 2005

The National Energy Policy Act of 2005 (42 USC §13201 et seq.) sets equipment energy efficiency standards and seeks to reduce reliance on nonrenewable energy resources and provide incentives to reduce current demand on these resources. For example, under the act, consumers and businesses can attain federal tax credits for purchasing fuel-efficient appliances and products, including hybrid vehicles; and constructing energy-efficient buildings. Additionally, tax credits are available for the installation of qualified fuel cells, stationary microturbine power plants, and solar power equipment.

Energy and Independence Security Act of 2007 and Corporate Average Fuel Economy Standards

The Energy and Independence Security Act of 2007 (42 USC §17001) sets federal energy management requirements in several areas, including energy reduction goals for federal buildings, facility management and benchmarking, performance and standards for new buildings and major renovations, high-performance buildings, energy savings performance contracts, metering, energy-efficient product procurement, and reduction in petroleum use, including by setting automobile efficiency standards, and increase in alternative fuel use. This act also amends portions of the National Energy Policy Conservation Act, as described above.

State

Warren-Alquist Act

The 1975 Warren-Alquist Act (Pub. Res. Code §25000 et seq.) established the California Energy Resources Conservation and Development Commission, now known as the CEC. The Act established a State policy to reduce wasteful, uneconomical and unnecessary uses of energy by employing a range of measures. The Act also was the driving force behind the creation of Appendix F to the CEQA Guidelines.

State of California Integrated Energy Policy

Public Resources Code Section 25301(a) requires the CEC to develop an integrated energy plan at least every two years for electricity, natural gas, and transportation fuels. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. An overarching goal of the resulting Integrated Energy Policy Report (IEPR) is to achieve the statewide GHG reduction targets, while improving overall energy efficiency. See, for example, the CEC's 2018 Integrated Energy Policy Report Update, which includes integrating renewable energy as a key component (CEC 2018d).

Renewables Portfolio Standard (RPS)

The State's Renewables Portfolio Standard (RPS) was established in 2002 via SB 1078, which required 20 percent of the State's energy portfolio to be supplied by renewable sources such as solar, wind, hydroelectricity, geothermal, and bioenergy renewable energy by 2017. RPS goals have been accelerated over time to require the State's energy portfolio to be supplied by renewable sources in increasingly higher percentages. Since 2011, the RPS target has required all electricity retailers in the state, including investor-owned utilities including PG&E, Southern California Edison (SCE), and San Diego Gas and Electric (SDG&E) to procure 33 percent of their energy sales from renewable sources by the end of 2020 (CPUC 2018b). SB 350, passed in 2015, directs California utilities to further increase the amount of renewable energy to be delivered to customers to 50 percent by 2050. Collectively, PG&E, SCE, and SDG&E met the 33 percent goal in 2016 and are forecasted to reach 50 percent in 2020 (CPUC 2018c).

Energy-efficient Building Standards

The Energy Efficiency Standards for Residential and Nonresidential Buildings specified in Title 24, Part 6 of the California Code of Regulations include requirements for non-residential building lighting, insulation, ventilation, and mechanical systems (CEC 2015). Its provisions would be relevant to the Project's proposed structures, including O&M and Site Control Center buildings.

The California Green Building Standards Code (CALGreen, Title 24 Part 11) is a statewide regulatory code for all buildings. CALGreen is intended to encourage more sustainable and environmentally friendly building practices, require use of low-pollution emitting substances that cause less harm to the environment, conserve natural resources, and promote the use of energy-efficient materials and equipment (see, e.g., CBSC 2017).

Local

County of Fresno Solar Facility Guidelines

The Fresno County Board of Supervisors modified the Fresno County Solar Facility Guidelines regarding commercial solar projects and processing within unincorporated areas of Fresno County on December 12, 2017 (Fresno County 2017). The Guidelines identify general guidelines and policies related to the land use process for evaluating solar facilities that accommodate new renewable energy technology while balancing the need to protect important farmlands and minimize impacts to existing agricultural operations.

3.7.2 Significance Criteria

A project would result in significant impacts related to Energy Conservation if it would:

a) Consume or use energy wastefully, inefficiently, or unnecessarily during demolition/ construction, operation and maintenance, or decommissioning/restoration; or

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

3.7.3 Direct and Indirect Effects

3.7.3.1 Approach to Analysis

Consistent with Public Resources Code Section 21100(b)(3), this impact analysis evaluates the potential for the Project to result in a substantial increase in energy demand and/or wasteful use of energy during Project construction, operation and maintenance, and decommissioning. The impact analysis is informed by Appendix F of the CEQA Guidelines. The potential impacts are analyzed based on an evaluation of whether construction and operational energy use estimates for the Project would be considered excessive, wasteful, or inefficient taking into account that the Project would provide a new source of renewable energy. Energy emissions details supporting the Project estimates presented in this section also are presented in Section 3.9, *Greenhouse Gas Emissions*.

3.7.3.2 Direct and Indirect Effects of the Project

a) Would the Project consume or use energy wastefully, inefficiently, or unnecessarily during demolition/ construction, operation and maintenance, or decommissioning/restoration?

Impact 3.7-1: Project construction, operation and maintenance, and decommissioning would not result in the wasteful, inefficient, or unnecessary consumption or use of energy. (*Less than Significant Impact*)

Construction and Decommissioning

The analysis in this section utilizes the assumptions identified in Appendix E, *Air Quality and Greenhouse Gas Emissions Analysis Technical Report for the Little Bear Solar Project*. Because the California Emissions Estimator Model (CalEEMod) program used in this technical report does not display the amount and fuel type for construction-related sources, additional calculations were conducted and are summarized below and provided in Appendix G, *Little Bear Solar Project Fuel Use Calculations*.

Construction of the Project (including demolition of the existing metal shed and storage silos on the Little Bear 3 site) would result in fuel consumption from the use of construction tools and equipment, haul truck trips, and vehicle trips generated from construction workers traveling to and from the site. Project construction is expected to consume a total of approximately 219,132 gallons of diesel fuel from construction equipment and vendor, hauling, and water truck trips, and approximately 201,947 gallons of gasoline from construction worker vehicle trips. Construction activities and corresponding fuel energy consumption would be temporary and

localized, as the use of diesel fuel and heavy-duty equipment would not be a typical condition of the Project. In addition, there are no unusual Project characteristics that would cause the use of construction equipment that would be less energy efficient compared with other similar construction sites in other parts of the State. Therefore, construction-related fuel consumption by the Project would not result in inefficient, wasteful, or unnecessary energy use compared with other construction sites in the region.[1]

The Project is anticipated to be in commercial operation for approximately 30 years from the commencement of operations, with a potential for continued use in accordance with County permitting requirements. Within six months after the conclusion of each Facility-specific CUP period (including any extension that may be granted by the County), decommissioning and site reclamation of that Facility site would occur. These activities would require a year or more and would include the use of similar equipment to construction activities; therefore, similar impacts would be expected. Decommissioning activities and corresponding fuel energy consumption would be temporary and could be comparable to the construction-related fuel demand; decommissioning-related fuel use also would not represent a substantial demand on energy resources. Thus, decommissioning-related fuel consumption by the Project would not result in inefficient, wasteful, or unnecessary energy use compared with other construction sites in the region.[2] This impact would be less than significant.

Operations and Maintenance

The proposed solar PV project would use no process gas for the power generation process. Therefore, the Project would have no impact on natural gas supplies.

The Project would receive service power from PG&E, and would have emergency generators available onsite. Electricity would be consumed by the Project to operate lights, for example, but the demand would be far less than the amount of power generated by the Project. For operational activities, annual electricity consumption was calculated using demand factors for a warehouse type building, as CalEEMod does not provide demand factors specifically for solar facilities, as shown in the CalEEMod output in Appendix E. The Project's energy consumption was estimated to be approximately 189,800 kWh of electricity per year. As described in Appendix E using the installed tracker capacity of 180 MW (180,000 kW) AC, the Project is anticipated to generate approximately 447,538,272 kWh per year. Thus, the minimal amount of electricity required during Project operation would be greatly offset by the generation of electricity from the Project, and the Project's electricity demand would not constitute a wasteful, inefficient, or unnecessary use of energy.

Operation and maintenance would require the use of vehicles and equipment including crane trucks for major equipment maintenance, mowers or other vegetation management equipment, and additional maintenance equipment such as forklifts, manlifts, and chemical application equipment for weed abatement. No heavy equipment would be used during normal Project

1 Project construction CO_2e emissions were compared to the Tranquillity Solar Project in Fresno County (Fresno County 2014), the Westlands Solar Park Master Plan in Kings County (Westlands Water District [WWD] 2017), the Tulare Solar Project in Tulare County (Tulare County 2013), and the Isis Solar and Valentine Solar Projects in Kern County (Kern County 2014, 2016).

2 See Footnote 1 for the list of projects considered.

operation. Crane trucks, mowers, and other maintenance equipment may require the use of diesel fuel. As outlined in Chapter 2, *Description of Project and Alternatives*, major equipment maintenance would be performed at designated intervals, approximately every 10 to 15 years. Mowing may be required in three year intervals to keep vegetation below 9 inches. Other maintenance may be required on a quarterly, semi-annual, or annual basis. Thus, the amount of diesel fuel consumed during Project operation would be relatively minimal and would not constitute a wasteful, inefficient, or unnecessary use of energy.

Operation and maintenance of the Project would require on-site personnel consisting of plant operators, maintenance technicians, and security personnel. On a typical day, the number of staff may range from none (it is not necessary for staff to be present during plant operations) up to 20 during periodic, routine maintenance events. Non-routine (emergency) maintenance could require additional workers. Pick-up trucks, likely using gasoline, would be in daily use on the Project site during operations and maintenance. Gasoline would also be required by Project workers commuting to and from the Project site. Using the total CalEEMod mobile emissions rates (Appendix E) during operations yield a conservative estimate of 3,326 gallons of gasoline required annually during Project operation. The gasoline consumption by Project workers would be approximately 0.00002 percent of the State's consumption of gasoline in 2016 (BOE 2017a). Therefore, the gasoline use during Project operation would not constitute a wasteful, inefficient, or unnecessary use of energy. This impact would be less than significant.

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b) Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency? (*No Impact*)

The Project involves the construction, operation and maintenance, and decommissioning of a solar facility that would produce a new renewable source of energy in Fresno County. Therefore, the Project would directly support California's RPS goal of increasing the percentage of electricity procured from renewable sources to 50 percent.

As described in *Impact 3.7-1*, the Project would require diesel and gasoline fuel, as well as minimal amounts of electricity through the life of the Project. However, these energy inputs would be offset by the anticipated Project generation of approximately 447,538,272 kWh per year.

In terms of mobile energy usage, as described above, the NHTSA required manufacturers of light duty vehicles to meet an estimated combined passenger car and light truck average fuel economy level of 34.1 mpg by model year 2016. In the course of more than 30 years, the NECPA regulatory program has resulted in improved fuel economy throughout the United States' vehicle fleet, and has also protected against inefficient, wasteful, and unnecessary use of energy. Regardless of the uncertainty for fleet-wide emissions past 2021, the projected fleet-wide mpg for light duty vehicles is expected to reach 41.7 mpg by 2020 (USEPA 2012). Vehicles used by Project construction, maintenance, and decommissioning workers used to travel to and from the Project site would already incorporate these standards, therefore the Project would not impede the efficient use of mobile fuel.

If an O&M building is built on the Project site, the building would be subject to Building Energy Efficiency Standards as required by Title 24, Part 6. The Building Energy Efficiency Standards are intended to save energy, increase electricity supply reliability, and avoid the need to construct new power plants. Pursuant to the California Building Standards Code and the Energy Efficiency Standards, the County would review the design components of the Project's energy conservation measures when the Project's building plans are submitted. These measures could include: insulation; use of energy-efficient heating, ventilation and air conditioning equipment (HVAC); solar-reflective roofing materials; energy-efficient indoor and outdoor lighting systems, and other measures. The Project would also be subject to CALGreen during construction and decommissioning activities, which requires 65 percent construction and demolition waste diversion.

Since the Project would provide a new source of renewable energy supporting the state's energy goals, offset its fuel usage, and comply with fuel and energy efficiency regulations, the Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and no impact would occur.

3.7.3.3 Direct and Indirect Effects of Alternatives

Reduced Acreage Alternative

Under the Increased Habitat/Reduced Acreage Alternative, Little Bear 6 would not be constructed, reducing the Project impact acreage by approximately 161 acres. Compared to the Project, the Increased Habitat/Reduced Acreage Alternative would result in less surface disturbance and reduced construction and decommissioning activities which would require fewer fuel resources. However, the capacity of the Solar Facility would also be reduced, causing a lower production of energy generation. However, the minimal amount of electricity required during the Increased Habitat/Reduced Acreage Alternative operation would remain offset by the generation of electricity from the Increased Habitat/Reduced Acreage Alternative panels. Overall, the Increased Habitat/Reduced Acreage Alternative would result in no significant impacts to energy conservation; impact conclusions would be the same as those identified for the Project.

No Project Alternative

If the No Project Alternative is implemented, the proposed demolition of structures would not occur; neither the solar facilities nor the Little Bear gen-tie line would be constructed, operated, or maintained; and the Project site would continue to be used periodically for dry-farmed agriculture and/or disked and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would result in no adverse impact related to Energy Conservation. However, No Project Alternative would result in the loss of a new generator of renewable energy resources, thereby slowing the progress of the state's energy goals.

3.7.4 Cumulative Analysis

As analyzed in Section 3.7.3, neither the Project nor an alternative would conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Because no impact would result, neither the Project nor an alternative could cause or contribute to any cumulative effect in this regard. Therefore, this cumulative analysis focuses on whether the Project's or Reduced Acreage Alternative's less-than-significant impact relating to the consumption or use of energy during initial demolition and construction, operation and maintenance, or decommissioning/ restoration.

The geographic context for potential cumulative impacts related to electricity is within PG&E's service area and for equipment and vehicle fuel use is within the Project's construction workers' commute radius (assumed to be approximately 80 miles), since these are the areas within which energy resources would be demanded and supplied for the Project. The Project would use energy resources during initial demolition and construction, operation and maintenance, and decommissioning/restoration; therefore, it could contribute to potential cumulative impacts during any of these phases as well.

Regarding electricity, there is no existing significant adverse condition that would be worsened or intensified by the Project or an alternative. To the contrary, both the Project and the Reduced Acreage Alternative would provide an additional source of renewable energy that could serve the cumulative demand. No significant adverse cumulative effect would result relating to electricity use; instead, a beneficial cumulative impact on energy resources would result.

Similarly regarding the efficiency of fuel use, there is no existing significant adverse condition (such as a shortage) that would be worsened or intensified by the Project or an alternative. Past, present, and reasonably foreseeable future projects within approximately 80 miles of the Project site could require gasoline or diesel but would not combine with the fuel demands of the Project to cause a significant adverse cumulative impact relating to the wasteful, inefficient, or unnecessary consumption or use of fuel. In the event of a future shortage, higher prices at the pump would curtail unnecessary trips that could be termed "wasteful" and would moderate choices regarding vehicles, equipment, and fuel efficiency. Under these conditions, the Project's less-than-significant impact relating to wasteful, inefficient, or unnecessary consumption or use of fuel would not be cumulatively considerable.

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3.8 Geology, Soils, and Paleontological Resources

This section identifies and evaluates issues related to geology and soils in the context of the Project and alternatives. Discussed are the physical and regulatory setting; the criteria used for determining the significance of environmental impacts; the methodology used to assess impacts and the results of the impacts assessment. The County received no scoping comments pertaining to Geology- and Soils-related considerations (Appendix A).

This analysis is based in part on two previous geotechnical investigation reports that were prepared for the Project site: *Geotechnical Engineering Report Little Bear Solar Project* dated August 7, 2015, by Terracon Consultants (Appendix H1) and *Geologic Reconnaissance Report Little Bear Solar Project* dated March 22, 2017 by Ninyo & Moore (Appendix H2). The preparers of this Draft EIR independently reviewed these and other materials prepared by or on behalf of the Applicants and determined them to be suitable for reliance on (in combination with other materials included in the formal record) in the preparation of this Draft EIR.

3.8.1 Setting

3.8.1.1 Environmental Setting

Regional and Site Geology

The Project site is located within the Great Valley Geomorphic Province. The Great Valley Province is characterized by a long alluvial plain that runs approximately 400 miles through central California. The Great Valley can be further divided into the northern Sacramento Valley and the southern San Joaquin Valley. The project site is located within the San Joaquin Valley which is flanked by the Sierra Nevada Range to the east, and the Coast Range to the west. The Coast Range is dominated by the northwest trending San Andreas fault. Large coalescing alluvial fans have developed along each side of the valley. The larger and more gently sloping fans on the east side consist of deposits derived from the massive intrusive igneous rock sources of the Sierra Nevada; whereas, the smaller and more steeply sloping fans on the west side are built up by sediments originating from predominantly sedimentary rocks of the Coast Range. As a result, the valley floor consists mainly of two kinds of alluvial materials that differ widely in provenance and their respective engineering properties.

Soils

According to the Soil Survey mapping conducted by the Natural Resource Conservation Service, three different soil units have been identified on the site (Appendix H2). These soils include Tranquility Clay, Posochanet Clay Loam, and Calfax Clay Loam.

Geologic Hazards

This section discusses the hazards and/or adverse conditions that are associated with the geologic setting of the site. The Project site is located in a moderately active geologic area of California within the Great Valley geomorphic province.

Faulting and Seismicity

The Central Valley is generally characterized by relatively low seismicity with the only active faults[1] within 50 miles of the study area being the San Andreas and the Ortiglita faults (Jennings 2010). The geotechnical investigation prepared for the site also refers to the Great Valley 11 fault as an "active" fault. However, as previously noted, for the purposes of the Alquist-Priolo Act, an active fault must have evidence of displacement within the last 11,700 years. According to the United States Geological Survey, the Great Valley thrust fault system which includes the Great Valley 11 section, is listed as having its most recent deformation in middle to late Quaternary (<750,000 years ago), which would not make it an "active" fault (USGS 2018c).

As shown on **Figure 3.8-1, Regional Faults**, none of the active faults or even the Great Valley 11 fault intersect the Project site. The San Andreas Fault, located approximately 40 miles southwest of the Project site, is a right-lateral strike-slip fault[2] that follows the southwestern foothills of the Temblor Range before bending inland across the Tehachapi Mountains and continuing through Southern California into Mexico. The San Andreas is the major active fault in California and was formed due to the tectonic interaction between the Pacific Plate (to the west) and the North American Plate (to the east). The Ortigalita Fault, located approximately 30 miles northwest of the site, also is a right lateral strike slip fault in the central Coast Ranges that is considered an eastern part of the larger San Andreas Fault (USGS 2018). The Ortigalita Fault has not recorded any displacement within historic times whereas the San Andreas has had numerous seismic events in historic times. Both of these faults currently are considered active and may cause significant ground shaking and surface fault rupture. According to the Project-specific geotechnical investigations (Appendix H2), the nearest fault to the site is the Great Valley 11 fault, located approximately 13 miles west of the site.

Surface Fault Rupture

Ground surface rupture along an earthquake fault may cause damage to aboveground infrastructure and other features. It occurs when movement on a fault deep within the earth breaks through to the surface. Fault ruptures almost always follow pre-existing faults that are zones of weakness. Rupture may occur suddenly during an earthquake or slowly in the form of fault creep. Sudden displacements are more damaging to structures because they are accompanied by shaking. Fault creep is the slow, continuous aseismic fault split of the earth's crust. As noted above, the Project area is not located within a California Earthquake Special Studies Fault Zone according to mapping compiled by the California Geological Survey (Jennings 2010). As described above, the nearest active fault is the Ortigalita Fault, located approximately 30 miles northwest of the Project site. As a result, based on available geologic data, there is a very low potential for surface fault rupture to occur on the site during the design life of the Project.

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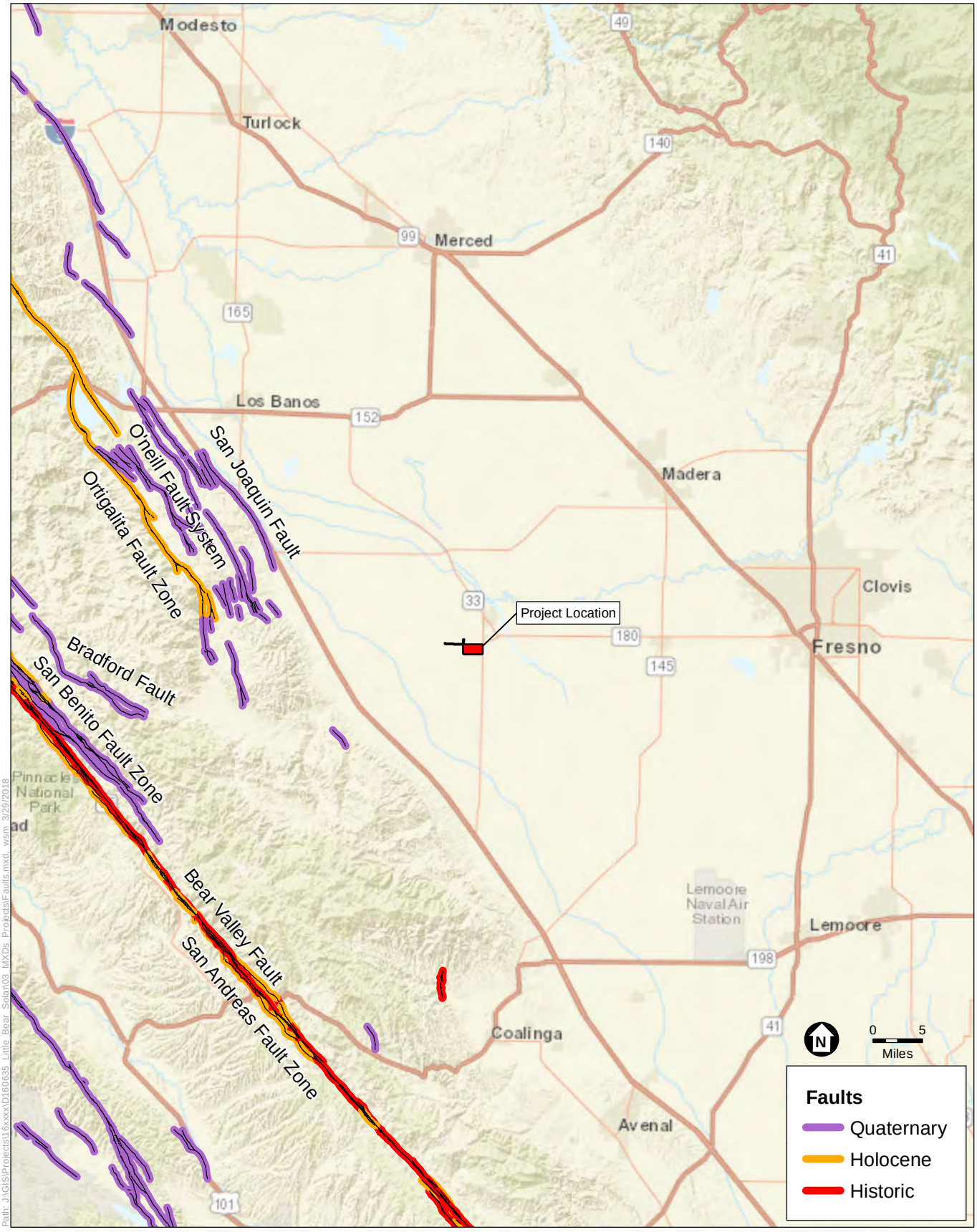
1 An active fault is defined by the state of California as a fault that has had surface displacement within Holocene time (approximately the last 11,700 years). Faults are classified by the CGS into three categories on the basis of the absolute age of their most recent movement: Holocene-active faults (moved during past 11,700 years), Pre-Holocene faults (have not moved in the past 11,700 years), and Age-undetermined faults (last fault movement has not been determined). Pre-Holocene faults may be still capable of surface rupture, but are not regulated under the Alquist-Priolo Act (CGS 2018).

2 "Right-lateral" movement in a fault is if you were to stand on the fault and look along its length, the right block moves toward you and the left block moves away. A "strike-slip" fault is a fault in which surfaces on opposite sides of the fault plane have moved horizontally and parallel to the strike of the fault.



SOURCE: CGS, 2010

Little Bear Solar Project
Figure 3.8-1
Regional Faults

Ground Shaking

Terminology and Concepts

The Project site lies within a region of California that contains active and potentially active faults and is considered an area of high seismic activity. The U.S. Geological Survey (USGS) along with the California Geological Survey and the Southern California Earthquake Center formed the Working Group on California Earthquake Probabilities which has evaluated the probability of earthquakes of Magnitude 5 (5 M) and greater occurring in the state of California over the next 30 years, beginning in 2014 (USGS 2015). The result of the evaluation indicated a that there is more than 99 percent likelihood that a 6.7 M or larger earthquake will occur in the greater California region (USGS 2015).

Richter magnitude is a measure of the size of an earthquake as recorded by a seismograph, a standard instrument that records groundshaking at the location of the instrument. The reported Richter magnitude for an earthquake represents the highest amplitude measured by the seismograph at a distance of 100 kilometers from the epicenter. Richter magnitudes vary logarithmically with each whole number step representing a tenfold increase in the amplitude of the recorded seismic waves. Earthquake magnitudes also are measured by their Moment Magnitude (Mw) which is related to the physical characteristics of a fault including the rigidity of the rock, the size of fault rupture, and movement or displacement across a fault (CGS 2002).

Ground movement during an earthquake can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and type of geologic material. The composition of underlying soils, even those relatively distant from faults, can intensify ground shaking. For this reason, earthquake intensities are also measured in terms of their observed effects at a given locality. The Modified Mercalli (MM) intensity scale commonly is used to measure earthquake damage due to ground shaking. The MM values for intensity range from I (earthquake not felt) to XII (damage nearly total), and intensities ranging from IV to X could cause moderate to significant structural damage.[3] The intensities of an earthquake will vary over the region of a fault and generally decrease with distance from the epicenter of the earthquake.

The common way to describe ground motion during an earthquake is with the motion parameters of acceleration and velocity in addition to the duration of the shaking. A common measure of ground motion is the peak ground acceleration (PGA). The PGA for a given component of motion is the largest value of horizontal acceleration obtained from a seismograph. PGA is expressed as the percentage of the acceleration due to gravity (g), which is approximately 32.174 feet per second squared. In terms of automobile accelerations, one “g” of acceleration is a rate of increase in speed equivalent to a car traveling 328 feet from rest in 4.5 seconds.

[3] The damage level represents the estimated overall level of damage that will occur for various MM intensity levels. The damage, however, will not be uniform. Not all buildings perform identically in an earthquake. The age, material, type, method of construction, size, and shape of a building all affect its performance.

Ground Shaking Potential on the Project Site

The Great Valley 11 Fault is considered to have the most significant effect at the site from a design standpoint (Appendix H1). At approximately 13 miles from the Project site, the maximum credible earthquake for this fault is estimated at 6.6 M and would have an anticipated PGA value at the site of 0.47g (Appendix H1, Appendix H2).[4]

Secondary Earthquake Hazards

Liquefaction

Liquefaction is a term to describe the transformation of soil from a solid to a liquefied state during which saturated soil temporarily loses strength and behaves more like a liquid than a solid, especially during earthquake-induced shaking. Soil susceptible to liquefaction primarily includes loose to medium dense sands and gravels, but also in some circumstances includes silts and clays. During a seismic event, liquefaction can cause ground displacement and other types of ground failure including what is known as lateral spreading, flow failures, and ground oscillation. When these types of soil failures occur, a structure can settle, tip, become buoyant and "float" upwards, or otherwise cause substantial damage.

Liquefaction and associated failures could damage foundations, roads, underground cables and pipelines, and disrupt utility service. Liquefaction is typically only considered a hazard when the aforementioned conditions are present in the upper 50 feet below ground surface. Groundwater has been encountered at approximate depths of 17 to 18 feet at the Project site (Appendix H1, Appendix H2). According to borings that were drilled at the site, thick lean clays with sand were encountered to a depth of 38 feet below which silty sand was observed. The overlying clayey materials may provide enough overburden to minimize the potential for liquefaction but the more recent geotechnical investigation concluded that liquefaction may still be a design consideration (Appendix H2).

Settlement

Settlement of the ground surface can be accelerated and accentuated by earthquakes. During an earthquake, settlement can occur as a result of the relatively rapid compaction and settling of subsurface materials (particularly loose, uncompacted, and variable sandy sediments above the water table) due to the rearrangement of soil particles during prolonged ground shaking. Settlement can occur both uniformly and differentially (i.e., where adjoining areas settle at different amounts).

Landslides

Slope failures, commonly referred to as landslides, include many phenomena that involve the downslope displacement and movement of material, either triggered by static forces (i.e., gravity) or dynamic forces (i.e., earthquake). A slope failure is a mass of rock, soil, and debris displaced downslope by sliding, flowing, or falling. Exposed rock slopes undergo rockfalls, rockslides, or rock avalanches, while soil slopes experience shallow soil slides, rapid debris flows, and deep-

[4] Note that the Terracon report indicated a potential PGA value of 0.589 at the site; however, the report was prepared in 2015 using an earlier version of the building code, which could have affected their calculations. The more recent (2017) Ninyo & Moore reported figures are used here.

seated rotational slides. Landslides may occur on slopes of 15 percent or less; however, the probability is greater on steeper slopes that exhibit old landslide features such as scarps, slanted vegetation, and transverse ridges. The Project site and vicinity are relatively level and unlikely to be susceptible to landslides.

Settlement

Settlement can occur relatively quickly, either through consolidation, shrinkage of expansive soil, or liquefaction. Immediate settlement occurs when a load from a structure or placement of new fill material is applied, causing distortion in the underlying materials. This settlement occurs quickly and typically is complete after placement of the final load. Consolidation settlement occurs in saturated clay from the volume change caused by squeezing out water from the pore spaces. Consolidation occurs over a period of time and is followed by secondary compression, which is a continued change in the void spaces of the soil under the continued application of the load. Soils tend to settle at different rates and by varying amounts depending on the load weight or changes in properties over an area, which is referred to as differential settlement.

Land Subsidence

Land subsidence is a geotechnical hazard with a history of occurrence throughout the San Joaquin Valley region, which causes a gradual or sudden sinking of the Earth's surface. Subsidence from groundwater withdrawal affects the San Joaquin Valley, particularly the southwest end of the Valley in the vicinity of the Buena Vista Lake Bed. In the San Joaquin Valley, about 5,200 square miles of land have undergone one or more feet of subsidence due to aquifer compaction. Land subsidence in the San Joaquin Valley first was noted in 1935 and historically was the most pronounced during the 1950s and 1960s until it generally slowed in the 1970s. The southern end of the Valley has seen the most subsidence, up to 4 to 8 feet in some areas with the maximum observed near Mendota, which measured at more than 28 feet.

Four types of subsidence are known to occur in the San Joaquin Valley. In order of decreasing magnitude, they are subsidence: (1) caused by aquifer system compaction due to the lowering of ground-water levels by sustained ground-water overdraft; (2) caused by the hydrocompaction (a volume decrease when dry soils are wetted for the first time); (3) related to fluid withdrawal from oil and gas fields; and (4) related to geologic crustal movements (USGS 1999).

Land subsidence in the San Joaquin Valley has been documented for more than 60 years and recent investigations using satellite imagery and other local methods indicate continuing problems in some areas. According to mapping compiled by the USGS, the Project site is located within an area with recorded subsidence, both historical and current (USGS 2018). The cause of this subsidence is groundwater extraction which allows fine-grained sediments that previously were arranged in random orientations to be rearranged into stacks that occupy less space than before.

Expansive Soils

Expansive soils are characterized by their potential "shrink-swell" behavior. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in certain fine-grained clay sediments from the process of wetting and drying. Clay minerals such as smectite, bentonite,

montmorillonite, beidellite, vermiculite and others are known to expand with changes in moisture content. The higher the percentage of expansive minerals present in near-surface soils, the higher the potential for significant expansion. The greatest effects occur when there are significant or repeated moisture content changes. Expansions of 10 percent or more in volume are not uncommon. This change in volume can exert enough force on a building or other structure to cause cracked foundations, floors and basement walls. Damage to the upper floors of the building also can occur when movement in the foundation is significant. Structural damage typically occurs over a long period of time, usually the result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils.

Erosion

Erosion is the wearing away of soil and rock by processes such as mechanical or chemical weathering, mass wasting, and the action of waves, wind and underground water. Excessive soil erosion can eventually lead to damage of building foundations and roadways. In general, areas that are most susceptible to erosion are those that would be exposed during the construction phase when earthwork activities disturb soils and require stockpiling. Typically, the soil erosion potential is reduced once the soil is graded and covered with concrete, structures, asphalt, or slope protection, however changes in drainage patterns can also cause areas to be susceptible to the effects of erosion.

Paleontological Setting

Paleontological resources are the mineralized (fossilized) remains of prehistoric plants and animals, including body fossils, such as bones, bark or wood, and shell, as well as trace fossils, such as shell, leaf, skin, or feather impressions, footprints, burrows, or other evidence of an organism's life or activity. These resources are located within sedimentary rocks or alluvium and are considered to be nonrenewable.

The Society of Vertebrate Paleontology (SVP 2010) defines a significant fossil resource as:

> fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years).

Based on the significance definitions of the SVP (2010), all identifiable vertebrate fossils are considered to have significant scientific value. Furthermore, all geologic units in which vertebrate fossils have previously been found are considered to have high sensitivity. Identifiable plant and invertebrate fossils are considered significant if found in association with vertebrate fossils or if defined as significant by project paleontologists, specialists, or local government agencies.

Paleontological sensitivity is defined as the potential for a geologic formation to produce scientifically significant fossils. This is determined by rock type, past history of the geologic unit in producing significant fossils, and fossil localities recorded from that unit. Paleontological sensitivity is derived from the known fossil data collected from the entire geologic unit, not just

from a specific survey. In its "Standard Guidelines for the Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources," the SVP (2010) defines four categories of paleontological sensitivity (potential) for rock units: high, low, undetermined, and no potential: *High Potential*, rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources; *Low Potential*, rock units that are poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule; *Undetermined Potential*, rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment; and *No Potential*, rock units like high-grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites) that will not preserve fossil resources.

Holocene alluvial deposits of unknown thickness are mapped at the surface within the Project site (Jennings and Strand 1958). At the surface these deposits date to modern times, and so are too young to preserve fossil resources (i.e., under 5,000 years old). Therefore, surficial layers of this unit have low paleontological sensitivity. However, these sediments increase in age with depth, and so deeper layers present in the Project site may be of an age to preserve fossil resources and have high paleontological sensitivity. Older Pleistocene-aged alluvium has a rich fossil history throughout central California, including in the San Joaquin Valley (Dundas et al. 2009; Ngo et al. 2013).

The exact depth at which the transition from low to high sensitivity sediments occurs in the subsurface of the Project site is unknown. However, the site is very close to the San Joaquin River, which is the source of sediment deposition across the Project site. Given this proximity, deposition rates are likely high across the Project site, and so it is unlikely ancient sediments would be encountered in the shallow subsurface.

3.8.1.2 Regulatory Setting

Federal

No federal statutes, regulations, plans, or policies govern geology, soils, seismicity, or paleontological resources in relation to the Project site.

State

California Building Code

The California Building Code (CBC), which is codified in Title 24 of the California Code of Regulations, Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, means of egress facilities, and general stability of buildings. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under State law, all building standards must be centralized in Title 24 or they are not enforceable. The

provisions of the CBC apply to the construction, alteration, movement, replacement, location, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The 2016 edition of the CBC is based on the 2015 International Building Code (IBC) published by the International Code Council. The code is updated triennially, and the 2016 edition of the CBC was published by the California Building Standards Commission in July, 2016, and took effect starting January 1, 2017. Seismic design provisions of the building code generally prescribe minimum lateral forces applied statically to the structure, combined with the gravity forces of the dead and live loads of the structure, which the structure then must be designed to withstand. The prescribed lateral forces are generally smaller than the actual peak forces that would be associated with a major earthquake because it would be economically impractical to require higher standards for most structures. Consequently, structures should be able to resist: (1) minor earthquakes without damage, (2) moderate earthquakes without structural damage but with some nonstructural damage, and (3) major earthquakes without collapse, but with some structural as well as nonstructural damage. Conformance to the current building code recommendations does not constitute any kind of guarantee that substantial structural damage would not occur in the event of a maximum magnitude earthquake. However, it is reasonable to expect that a structure designed in-accordance with the seismic requirements of the CBC should not collapse in a major earthquake.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients, all of which are used to determine a seismic design category (SDC) for a project. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site; SDC ranges from A (very small seismic vulnerability) to E/F (very high seismic vulnerability and near a major fault). Seismic design specifications are determined according to the SDC in accordance with Chapter 16 of the CBC. Chapter 18 of the CBC covers the requirements of geotechnical investigations (§1803), excavation, grading, and fills (§1804), load-bearing of soils (§1806), as well as foundations (§1808), shallow foundations (§1809), and deep foundations (§1810). For Seismic Design Categories D, E, and F, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also addresses measures to be considered in structural design, which may include ground stabilization, selecting appropriate foundation type and depths, selecting appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions.

The updated CBC no longer cites the 1997 UBC Table 18-1-B for identifying expansive soils; however, the significance criteria in Appendix G of the CEQA Guidelines still refers to this table. For purposes of analysis, this Draft EIR relies on the updated CBC section as provided below.

1803.5.3 Expansive Soil. In areas likely to have expansive soil, the building official shall require soil tests to determine where such soils do exist. Soils meeting all four of the following provisions shall be considered expansive, except that tests to show compliance with Items 1,2 and 3 shall not be required if the test prescribed in Item 4 is conducted:

1. Plasticity index (PI) of 15 or greater, determined in accordance with ASTM D 4318
2. More than 10 percent of the soil particles pass a No. 200 sieve (75 micrometers), determined in accordance with ASTM D 422
3. More than 10 percent of the soil particles are less than 5 micrometers in size, determined in accordance with ASTM D 422
4. Expansion index greater than 20, determined in accordance with ASTM D 4829

NPDES Construction General Permit

As described in greater detail in Section 3.11, *Hydrology and Water Quality*, the Central Valley Regional Water Quality Control Board (CVRWQCB) administers the National Pollutant Discharge Elimination System (NPDES) program, which protects water quality during construction activities disturbing one or more acres of land by requiring the preparation of a risk assessment and a Storm Water Pollution Prevention Plan (SWPPP) under the NPDES General Construction Permit prior to beginning construction. The risk assessment and SWPPP must be prepared by a state-qualified SWPPP Developer. The SWPPP provides specific construction-related best management practices (BMPs) to prevent soil erosion and loss of topsoil. Additional discussion of SWPPP requirements is provided in Section 3.11, *Hydrology and Water Quality*.

Public Resources Code Section 5097.5 and Section 30244

Public Resources Code Section 5097.5 defines as a misdemeanor the unauthorized disturbance or removal of a paleontological feature located on public lands, while Public Resources Code Section 30244 requires the implementation of reasonable mitigation measures where development would adversely impact paleontological resources.

Local

Fresno County Solar Guidelines

Fresno County has prepared solar development guidelines (Fresno County 2017) that contain the following requirement relevant to geology and soils:

4. Identify (with supporting data) the current soil type and mapping units of the parcel pursuant to the standards of the California State Department of Conservation and the Natural Resources Conservation Service[.]

Fresno County Department of Public Health, Environmental Health Division

The Environmental Health Division of the Fresno County Department of Public Health is responsible for enforcing the California Plumbing Code, International Association of Plumbing and Mechanical Officials Installation Standards, Fresno County Ordinance Code – Chapter 15.20 Plumbing Code, California Regional Water Quality Control Board- Central Valley Region-

Guidelines for Waste Disposal From Land Developments, and the U.S. Department of Health, Education, and Welfare "Manual of Septic Tank Practice" as they pertain to installation of septic systems. As part of the requirements, proponents proposing to install septic systems must conduct test holes to identify subsurface conditions and conduct percolation tests to adequately demonstrate the range of percolation rates within the primary disposal area.

Fresno County General Plan

The Health and Safety Element of the Fresno County General Plan (Fresno County 2000) outlines Fresno County's planning strategies regarding emergency management and response, fire hazards, flood hazards, seismic and geological hazards, airport hazards, hazardous materials, and noise. The following policies of the Health and Safety Element are relevant to seismic and geological hazards.

> ***Policy HS-D.3:*** The County shall require that a soils engineering and geologic-seismic analysis be prepared by a California-registered engineer or engineering geologist prior to permitting development, including public infrastructure projects, in areas prone to geologic or seismic hazards (i.e., fault rupture, groundshaking, lateral spreading, lurchcracking, fault creep, liquefaction, subsidence, settlement, landslides, mudslides, unstable slopes, or avalanche).
>
> ***Policy HS-D.4:*** The County shall require all proposed structures, additions to structures, utilities, or public facilities situated within areas subject to geologic-seismic hazards as identified in the soils engineering and geologic-seismic analysis to be sited, designed, and constructed in accordance with applicable provisions of the Uniform Building Code (Title 24 of the California Code of Regulations) and other relevant professional standards to minimize or prevent damage or loss and to minimize the risk to public safety.
>
> ***Policy HS-D.5:*** Pursuant to the Alquist-Priolo Earthquake Fault Zoning Act (Public Resources Code, Chapter 7.5), the County shall not permit any structure for human occupancy to be placed within designated Earthquake Fault Zones unless the specific provisions of the Act and Title 14 of the California Code of Regulations have been satisfied.
>
> ***Policy HS-D.8:*** The County shall require a soils report by a California-registered engineer or engineering geologist for any proposed development, including public infrastructure projects, that requires a County permit and is located in an area containing soils with high "expansive" or "shrink-swell" properties. Development in such areas shall be prohibited unless suitable design and construction measures are incorporated to reduce the potential risks associated with these conditions.
>
> ***Policy HS-D.9:*** The County shall seek to minimize soil erosion by maintaining compatible land uses, suitable building designs, and appropriate construction techniques. Contour grading, where feasible, and revegetation shall be required to mitigate the appearance of engineered slopes and to control erosion.

The Open Space and Conservation Element of the Fresno County General Plan (Fresno County 2000) outlines Fresno County's planning strategies regarding protecting and preserving natural resources and open spaces. The following policies of the Open Space and Conservation Element are relevant to paleontological resources.

Policy OS-J.1: The County shall require that discretionary development projects, as part of any required CEQA review, identify and protect important historical, archeological, paleontological, and cultural sites and their contributing environment from damage, destruction, and abuse to the maximum extent feasible. Project-level mitigation shall include accurate site surveys, consideration of project alternatives to preserve archeological and historic resources, and provision for resource recovery and reservation when displacement is unavoidable.

3.8.2 Significance Criteria

A project would result in significant impact related to Geology and Soils if it would:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

   i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (Refer to Division of Mines and Geology Special Publication 42 [CGS 2018]);

   ii) Strong seismic ground shaking;

   iii) Seismic-related ground failure, including liquefaction; or

   iv) Landslides;

b) Result in substantial soil erosion or the loss of topsoil;

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

d) Be located on expansive soil, as defined in Table 18-1 B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property;

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water; or

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

3.8.3 Direct and Indirect Effects

3.8.3.1 Approach to Analysis

Potential effects with respect to Geology and Soils are assessed based upon existing publications and maps completed by federal and state agencies, such as the USGS, United States Department of Agriculture (USDA), and the California Geological Survey (formerly the California Division of Mines and Geology). The potential for damage to proposed structures or increased risk of injury due to geologic hazards is analyzed using available data from the aforementioned sources. In addition, the severity and significance of geology and soils impacts are analyzed in the context

of existing regulations and policies aimed at abating potential impacts to soil resources and from geologic and seismic hazards.

3.8.3.2 Direct and Indirect Effects of the Project

a) Whether the Project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

***i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault*. (No Impact)**

The Project would not cause adverse effects including risk of loss, injury, or death involving rupture of a known earthquake fault. As noted above in the setting, the Project site is not located within or near an Alquist-Priolo Earthquake Fault Zone and as a result would have a very low likelihood of experiencing fault rupture. No impact would result.

ii) Strong seismic ground shaking

Impact 3.8-1: The Project would not cause adverse effects including risk of loss, injury, or death related to strong seismic ground shaking. (*Less than Significant Impact*)

The Project could include an Operation & Maintenance (O&M) building which would be staffed for operational activities. Should strong seismic ground shaking occur at the Project site, damage to the PV modules, the O&M building, or other ancillary facilities could result in potential damage and/or injury to onsite staff.

As described above, the site is located in a seismic region and, while not within 30 miles of any active faults, it could still be subject to ground shaking hazards from several fault systems, including the active San Andreas and Ortigalita faults or the potentially active Great Valley 11 fault. Any of these faults are capable of generating ground motions that could affect the Project area. According to the most recent geotechnical report, the calculated maximum considered earthquake for the site would produce peak ground acceleration of as much as 0.45g, which could cause substantial ground shaking at the site. The Project proponent is required to design Project infrastructure to withstand substantial ground shaking in accordance with applicable California Building Code seismic design standards, as adopted by Fresno County, and as recommended by a California registered professional geotechnical engineer in the site-specific geotechnical review.

Prior to the issuance of grading permits, the Project proponent would be required to retain a licensed geotechnical engineer to design the Project facilities to withstand probable seismically-induced ground shaking at the site. All grading and construction onsite would adhere to the specifications, procedures, and site conditions contained in the final design plans, which would be fully compliant with the seismic recommendations by the California-registered professional geotechnical engineer in accordance with California and Fresno County Building Code requirements. The required measures would encompass site preparation, foundation specifications, and protection measures for buried metal. The final structural design would be subject to approval and follow-up inspection by the Fresno County Building and Safety Team. Final design requirements would be provided to the onsite construction supervisor and the Fresno

County Building Inspector to ensure compliance. Implementation of these building code requirements and local agency enforcement would reduce impacts from ground shaking to less-than-significant.

iii) Seismic-related ground failure, including liquefaction

Impact 3.8-2: The Project would not cause adverse effects including risk of loss, injury, or death related to ground failure including liquefaction. (*Less than Significant Impact*)

In general, saturated cohesionless soils (e.g., sands and gravels) that are found in the upper 50 feet of ground surface can be susceptible to liquefaction and/or ground failure that could cause substantive damage to proposed improvements. Based on the preliminary geotechnical report (Appendix H2), the site does include a saturated sandy layer below 38 feet. The report included only two borings at the site, and as a result have concluded that due to the thick overlying layer of clays, the potential for liquefaction may be low or fairly uniform and should be a design consideration.

As noted above, the Project proponent is required to design proposed improvements in accordance with applicable California Building Code seismic design standards, as adopted by Fresno County, and as recommended by a California-registered professional geotechnical engineer in the site-specific geotechnical review. As part of the final design level geotechnical report, consistent with building code seismic design standards, the licensed geotechnical engineer would be required to consider potential liquefaction in the final design plans. Liquefaction hazards can generally be addressed through site preparation measures or foundation design measures such as removal and replacement of liquefiable soils, densification of these soils, or specific foundation design recommendations. Implementation of these measures in accordance with building code requirements can effectively reduce the hazard to minimize any potential for substantive damage.

The final structural design would be subject to approval and follow-up inspection by the Fresno County Building and Safety Team. Final design requirements would be provided to the onsite construction supervisor and the Fresno County Building Inspector to ensure compliance. Implementation of these building code requirements and local agency enforcement would reduce impacts related to liquefaction to less than significant.

iv) Landslides (No Impact)

The Project would not cause adverse effects including risk of loss, injury, or death related to landslides. The Project site is located on relatively level topography that is not considered susceptible to landslides. No landslides were observed during the preliminary geotechnical investigation and there would be no impact related to this criterion.

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b) Whether the Project would result in substantial soil erosion or the loss of topsoil.

Impact 3.8-3: The Project would not result in substantial soil erosion or loss of topsoil. (*Less than Significant Impact*)

Initial demolition of existing structures and construction of the Project would involve earthwork activities that could expose soils to erosion. The Project is proposed on relatively flat topography and would not involve grading steep slopes; however, earthmoving and construction activities could loosen soil, and the removal of overlying vegetation could contribute to soil loss and erosion by wind and stormwater runoff. The Project would disturb more than 1 acre and therefore would be subject to the requirements of the Construction General NPDES Program permit. As part of these permit requirements, the proponent must prepare and implement a SWPPP. The SWPPP would specify BMPs to prevent disturbed soils (such as topsoil), from moving offsite such as through separation of topsoil for reuse in revegetation plans. Given the relatively flat nature and pervious surface of the Project site, it is unlikely that soil erosion from water runoff would occur with implementation of the construction SWPPP and the required BMPs. As a result, the Project would have less-than-significant impacts related to erosion during construction.

Project operations would include the periodic cleaning of the panels with water; however, this is not expected to result in soil erosion because of the infrequency (not likely to be more than semi-annually) of water use and limited volumes of water involved with panel washing; water would fall to the ground, infiltrate into the subsurface, and would not run off or generate substantial erosion or soil loss. This impact is considered less than significant. For additional discussion of erosion-related impacts, see Section 3.11, *Hydrology and Water Quality,* of this EIR.

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c) Whether the Project would 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.

Impact 3.8-4: The Project would not be located on unstable soils or become unstable as a result of the Project including landslides, lateral spreading, subsidence, liquefaction, or collapse. (*Less than Significant Impact*)

The Project site is located on an alluvial fan and surface soils include loose alluvial soils, undocumented and potentially poorly compacted fill materials, as well as agricultural topsoil. The topography is relatively level with a very low potential for landslides. Lateral spreading is associated with liquefaction which is discussed above; however, considering the level topography, the potential for lateral spreading is low.

The subsurface materials at the site can be characterized as relatively loose, unconsolidated alluvial sediments that may have a potential for settlement and/or soil collapse. Collapsible soils are distinguished by their potential to undergo a significant decrease in volume upon increase in moisture content, with or without an increase in external loads. The degree of compaction, material types, and underlying ground conditions of existing fill at the site is unknown. Settlement and differential settlement of soils can cause damage to Project improvements if not engineered appropriately.

As noted above in Section 3.8.1, *Setting*, the Project site is located in an area that has had a history of subsidence, primarily due to groundwater extraction. As discussed in more detail in Section 3.11, *Hydrology and Water Quality*, the Project would require the bulk of its water supply needs during the construction period. The Project proposes to use the nearby North Star well which previously was used to provide water for the North Star Solar project. Monitoring of that well following construction of the North Star Solar project showed that groundwater levels returned to previous levels and no permanent deficit to the aquifer volume or lowering of the water table was observed although the North Star Solar project was only 628 acres (Appendix I4). While the Project would involve a larger footprint, the proposed pumping rate would be relatively similar to the North Star Solar project and the duration of pumping would be limited. Therefore, considering the temporary nature of the groundwater extraction required for the construction period, and the observations made during construction of a similar type of project on an adjacent site, the potential for subsidence due to the water supply needs of the Project are considered less than significant.

The Project would be designed to comply with applicable building codes and structural improvement requirements to withstand the effects of settlement or collapsible soils. Areas of soft ground can be addressed by removal and/or replacement of soils as engineered compacted fill in accordance with building code requirements. With adherence to all applicable building code regulations, the Project would avoid potential impacts to proposed improvements resulting from unstable soils, and potential impacts would be less than significant.

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d) Whether the Project would be located on expansive soil, as defined in Table 18-1 B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.

Impact 3.8-5: The Project would not create substantial direct or indirect risks to life or property by being located on expansive soils. (*Less than Significant Impact*)

According to the preliminary geotechnical investigation, the soils at the site are have a moderate potential for expansion. If not addressed during the construction and site preparation phase, any expansive soils that may be present at the site could, over time, cause ground cracks or fissures that can damage foundations and other improvements. As noted above, the Project would be designed to comply with applicable building codes and structural improvement requirements that would include addressing any expansive soil hazards. Use of engineered fill or treatment of expansive soils, both common geotechnical strategies, have proven to be very effective measures to minimize this hazard. As required by the California and Fresno County Building Code requirements, construction of the Project would be done in accordance with a final design level geotechnical report that includes final site preparation measures to address any identified expansive soils onsite. Implementation of these measures would reduce the potential impact to less than significant levels.

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e) Whether the Project site would have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

Impact 3.8-6: The Project site would have soils capable of accommodating a septic or other alternative waste water disposal system. (*Less than Significant Impact*)

The Project may include the construction of an O&M building which would require installation of a septic system for disposal of wastewater. An in-ground septic system would consist of up a septic tank (up to 750 gallons) and an approximately 3,000 square foot leach field located in proximity to the O&M building. If not designed appropriately, soils could be incapable of adequately supporting disposal of the wastewater produced at the O&M building. However, the Project would be required to adhere to the Fresno County Environmental Health Department septic system permit requirements, specifically the percolation rate requirements of the Fresno County Ordinance 15.20 Plumbing Code. Adherence to these requirements would ensure that the soils would be capable of adequately supporting the proposed septic system. Therefore, potential impacts would be less than significant.

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f) Whether the Project would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Impact 3.8-7: Ground disturbing activities associated with the Project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, as defined in CEQA Guidelines §15064. (*Less than Significant with Mitigation Incorporated*)

Holocene-age alluvial sediments are mapped at the surface within the Project site. These sediments are relatively recent in age at the surface (under 5,000 years old), and therefore have low paleontological sensitivity; however, it is possible that these younger surficial sediments are underlain by older alluvial sediments that have high paleontological sensitivity. Pleistocene-aged alluvial sediments (11,700 years and older), which have greater paleontological sensitivity, are likely present at depth at the Project site. Ground-disturbing activity is anticipated to be shallow across the majority of the Project site, and is therefore unlikely to disturb geologic units with high paleontological sensitivity; therefore, there is a low likelihood that construction of the Project would cause an adverse impact on scientifically significant paleontological resources.

Although unlikely, construction of the Project could encounter paleontological resources in areas where excavations result in disturbance at depths greater than 20 feet. This depth is an estimate based upon the proximity of the Project site to the river and the associated high levels of sedimentation in recent times at the Project site. Implementation of the Worker Environmental Awareness Program (WEAP) described in Section 2.5.7.6 in combination with Mitigation Measure 3.8-7 would assure that potential damage to paleontological resources would be less-than-significant.

Mitigation Measure 3.8-7: Paleontological Monitoring

The qualified paleontologist shall oversee paleontological monitoring of all excavation at depths greater than 20 feet in previously undisturbed sediments. Monitoring shall be conducted by a paleontological monitor meeting the standards of the SVP (2010). If a

paleontological resource is found, regardless of depth or setting, the Project contractor shall cease ground-disturbing activities within 50 feet of the find and contact the qualified paleontologist. The qualified paleontologist shall evaluate the significance of the resources and recommend appropriate treatment measures. At each fossil locality, field data forms shall be used to record pertinent geologic data, stratigraphic sections shall be measured, and appropriate sediment samples shall be collected and submitted for analysis. Any significant fossils encountered and recovered shall be catalogued and curated at an accredited institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County. Accompanying notes, maps, and photographs shall also be filed at the repository. The qualified paleontologist shall prepare a report documenting evaluation and/or additional treatment of the resource. The report shall be filed with the County and with the repository.

Significance after Mitigation: Less than Significant.

With the implementation of Mitigation Measures 3.8-7 and 3.8-8, Impact 3.8-7 would be reduced to a less-than-significant level. If any significant fossil resources are encountered during Project activities, the implementation of paleontological monitoring will ensure they are salvaged and reposited with an appropriate institution, such that the Project will not result in the loss or destruction of significant paleontological resources, as required by CEQA.

3.8.3.3 Direct and Indirect Effects of Alternatives

Increased Habitat/Reduced Acreage Alternative

The Increased Habitat/Reduced Acreage Alternative would consist of a reduction in the amount of construction disturbance, the number of solar panels, and associated appurtenances. As a result, there would be a reduction in the volume of soils that could become exposed to erosion; a reduction in the improvements (e.g., solar panels, substations, connections, and access roadways) that could be subject to geotechnical hazards present at the site; and a reduction in the potential to encounter significant fossil resources commensurate with the reduction in disturbance. Because the existing regulatory requirements including the NPDES Construction General Permit and the California Building Code with local amendments would still apply to this alternative and because Mitigation Measure 3.8-7 would reduce this Alternative's potential significant impact of damaging significant paleontological resources, the Increased Habitat/Reduced Acreage Alternative would ensure that potential impacts related to Geology, Soils, and Paleontological Resources would be less than significant.

No Project Alternative

If the No Project Alternative is implemented, the proposed earthwork activities would not occur; neither the solar facilities nor the Little Bear gen-tie line would be constructed, operated, or maintained; and the Project site would continue to be used periodically for dry-farmed agriculture and/or disked and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would have no impact related to Geology and Soils.

3.8.4 Cumulative Analysis

The geographic context for the cumulative analysis for Geology and Soils is an approximate 50-mile radius of the site to encompass a general area of seismic influence. However, in general, seismic hazards are dependent on site specific factors that can change considerably over relatively short distances. As a result, hazards tend to be localized and other past, present, or reasonably foreseeable projects do not typically combine to become cumulatively considerable. Cumulative projects listed in Table 3.1-1, also would be subject to a range of similar seismic hazards with varying degrees of severity dependent on a number of different factors including the characteristics of subsurface materials, distance to active faults, topography, and others.

Development of the Project or the Increased Habitat/Reduced Acreage Alternative, with implementation of the regulatory requirements discussed above, would result in less-than-significant impacts related to exposing persons or structures to geologic, soils, or seismic hazards. Similar to the Project, other projects in the area would be required to adhere to the same California and Fresno County Building Codes that would reduce the risk to people and property to less-than-significant levels. While future seismic events cannot be predicted, adherence to all federal, state, and local programs, requirements and policies pertaining to building safety and construction would limit the potential for injury or damage to a less-than-significant level. Therefore, the Project or the Increased Habitat/Reduced Acreage Alternative, combined with past, present, and other reasonably foreseeable development in the area, would not result in a cumulatively significant impact by exposing people or structures to risk related to geologic hazards, soils, and/or seismic conditions. Therefore, the Project and Increased Habitat/Reduced Acreage Alternative would result in less-than-significant cumulative impacts related to geology and soils.

However, surficial deposits, namely erosion and sediment deposition, can be cumulative in nature, depending on the type and amount of development proposed in a given geographical area. The cumulative setting for soil erosion consists of existing, planned, proposed, and reasonably foreseeable land use conditions in the region. However, construction constraints primarily are based on specific sites within a proposed development and on the soil characteristics and topography of each site. Individual projects are required to comply with applicable codes, standards, and permitting requirements (e.g., preparation of a SWPPP) to mitigate erosion impacts. Development of the project site has the potential to contribute to soil erosion and loss of topsoil during construction. These potential impacts would be mitigated through the implementation of the SWPPP and BMPs. Impacts associated with erosion are addressed on a project-by project basis, which would reduce the overall cumulative impact to a less than significant level.

The geographic scope for cumulative impacts to Paleontological Resources comprises the San Joaquin Valley because paleontological resources are tied to geologic units, not specific geographical distances. In the case of the San Joaquin Valley, the geology (thick alluvium) is consistent across the entire valley. The excavation depth of 20 feet for the Project site, for which discovery of paleontological resources could occur, was established based on the proximity to the San Joaquin River. Excavation depths for encountering paleontological resources for other

projects would likely fluctuate based on increased and reduced past flood deposition based on distance from the river. Excavation activities associated with the Project in the context of ongoing impacts of past projects and in conjunction with the potentially cumulative projects within the San Joaquin Valley could contribute to the progressive loss of fossil remains, as-yet unrecorded fossil sites, associated geological and geographic data, and fossil bearing strata. However, there is no indication of an existing significant adverse cumulative condition to which the Project or the Increased Habitat/Reduced Acreage Alternative could contribute, and no indication that the limited number of cumulative projects would combine to cause one. A less-than-significant cumulative impact to paleontological resources would result.

3.8.5 References

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3.9 Greenhouse Gas Emissions

This section describes Greenhouse Gas (GHG) emissions associated with the initial demolition and construction, operation and maintenance, decommissioning and site restoration activities of the Project and alternatives, as well as the existing environmental setting and associated regulatory framework. The impact analysis presents the criteria used to evaluate the significance of impacts as a consequence of implementing the Project or an alternative, the methods used in evaluating these impacts, and the results of the impact assessment. The County did not receive any scoping comments regarding GHG emissions (Appendix A).

This analysis is based in part on a Project-specific technical report entitled *Air Quality and Greenhouse Gas Emissions Analysis Technical Report for the Little Bear Solar Project*. The report was prepared by Dudek on behalf of the Applicant and is provided in Appendix E. The preparers of this Draft EIR independently reviewed these and other materials prepared by or on behalf of the Applicants and determined them to be suitable for reliance on (in combination with other materials included in the formal record) in the preparation of this Draft EIR.

3.9.1 Setting

3.9.1.1 Environmental Setting

Gases that trap heat in the atmosphere are known as greenhouse gasses or "GHGs.". GHGs allow sunlight to enter the atmosphere, but trap a portion of the outward-bound infrared radiation, which warms the air. The process is similar to the effect greenhouses have in raising their internal temperature. Both natural processes and human activities emit GHGs. The accumulation of GHGs in the atmosphere regulates the Earth's temperature; however, emissions from human activities (such as fossil fuel-based electricity production and the use of motor vehicles) have elevated the concentration of GHGs in the atmosphere. Scientists agree that this accumulation of GHGs has contributed to an increase in the temperature of the Earth's atmosphere and has contributed to global climate change. Global climate change is a change in the average weather on Earth that can be measured by wind patterns, storms, precipitation, and temperature. Although there is disagreement as to the rate of global climate change and the extent of the impacts attributable to human activities, most scientists agree that there is a direct link between increased emissions of GHGs and long term global temperature increases.

The principal GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs). CO_2 is the most common reference gas for climate change. To account for the warming potential of GHGs, GHG emissions often are quantified and reported as CO_2 equivalents (CO_2E). For example, SF_6 is a GHG commonly used in the utility industry as an insulating gas in circuit breakers and other electronic equipment. SF_6, while comprising a small fraction of the total GHGs emitted annually world-wide, is a much more potent GHG with 23,900 times the global warming potential as CO_2, which has a global warming potential of 1. Large emission sources are reported in million metric tons of CO_2E.[1]

[1] The term metric ton is commonly used in the U.S. to refer to the metric system unit, tonne, which is defined as a mass equal to 1,000 kilograms. A metric ton is approximately 1.1 short tons and approximately 2,204.6 pounds.

In California, climate change is contributing to an escalation of serious problems, including raging wildfires, coastal erosion, disruption of water supply, threats to agriculture, spread of insect-borne diseases, and continuing health threats from air pollution (CARB 2017b). In recent decades, changes in climate have caused impacts on natural and human systems on all continents and across the oceans. Since the 1950s, the atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen. Changes in many extreme weather and climate events also have been observed since approximately 1950, including a decrease in cold temperature extremes, an increase in warm temperature extremes, an increase in extreme high sea levels and an increase in the number of heavy precipitation events in a number of regions.

Surface temperature is projected to rise over the 21st century under all assessed emission scenarios. It is very likely that heat waves will occur more often and last longer, and that extreme precipitation events will become more intense and frequent in many regions. The expectation is that the ocean will continue to warm and acidify, and global mean sea level will rise. Continued emission of GHGs will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems. Limiting climate change would require substantial and sustained reductions in greenhouse gas emissions which, together with adaptation, can limit climate change risks (IPCC 2014).

Since 1990, United States (U.S.) GHG emissions have increased by about 4 percent. Electricity production generates the largest share of GHG emissions (29 percent in 2015) followed by transportation (27 percent), industrial sources (21 percent), commercial and residential sources (12 percent), and agriculture (9 percent). Land areas can act as a sink by absorbing CO_2 levels from the atmosphere. Land use and forestry contributed to an offset of 11.8 percent of GHG emissions in 2015 (USEPA 2018). California's GHG emissions profile from 2009 to 2015 is presented in **Table 3.9-1**.

TABLE 3.9-1
CALIFORNIA GREENHOUSE GAS EMISSIONS (MILLION METRIC TONS CO_2E)

Emission Inventory Category	2009	2010	2011	2012	2013	2014	2015	
Transportation	166.37	163.01	159.68	159.44	158.14	160.03	164.63	37%
Electric Power	101.37	90.34	88.06	95.09	89.65	88.24	83.67	19%
Commercial and Residential	43.63	45.05	45.50	42.89	43.54	37.37	37.92	9%
Industrial	87.45	91.01	90.65	90.90	93.48	93.77	91.71	21%
Recycling and Waste	8.27	8.37	8.47	8.49	8.52	8.59	8.73	14%
High Global Warming Potential	12.43	13.64	14.74	15.74	16.82	17.82	19.05	
Agriculture	33.83	34.64	35.28	36.42	34.93	36.03	34.65	
Total Gross Emissions	**453.35**	**446.06**	**442.38**	**448.97**	**445.08**	**441.85**	**440.36**	**100%**

SOURCE: CARB 2017a

3.9.1.2 Regulatory Setting

Federal

U.S. Environmental Protection Agency "Endangerment" and "Cause or Contribute" Findings

In *Massachusetts v. Environmental Protection Agency* et al. (2007) 549 U.S. 497, California, other states, cities, and environmental organizations sued to require the U.S. Environmental Protection Agency (USEPA) to regulate GHGs as pollutants under the Clean Air Act. The U.S. Supreme Court ruled that GHGs fit within the Clean Air Act's definition of a pollutant and the USEPA had the authority to regulate GHGs.

On December 7, 2009, the USEPA Administrator signed two findings regarding GHGs under Section 202(a) of the federal Clean Air Act:

- **Endangerment Finding:** The current and projected concentrations of six key GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, the USEPA released its final Greenhouse Gas Reporting Rule (Reporting Rule). The Reporting Rule is a response to the fiscal year (FY) 2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110-161), that required the USEPA to develop "…mandatory reporting of GHGs above appropriate thresholds in all sectors of the economy." The Reporting Rule applies to most entities that emit 25,000 metric tons of CO_2E or more per year. The Project is not expected to reach this threshold.

American Recovery and Reinvestment Act

On February 17, 2009, President Obama signed the American Recovery and Reinvestment Act of 2009 (ARRA). The ARRA was passed in response to the economic crisis of the late 2000s with the primary purpose of maintaining existing jobs and creating new jobs. Among the secondary objectives of the ARRA was investment in "green" energy programs including facilitating funding for private companies developing renewable energy technologies; local and state governments implementing energy efficiency and clean energy programs; research in renewable energy, biofuels, and carbon capture; and development of high-efficiency or electric vehicles (USEPA 2009).

State

The legal framework for GHG emission reduction in California has come about through Executive Orders, legislation, and regulations. The major components of California's climate change initiative are summarized below.

Executive Order S-3-05

In 2005, in recognition of California's vulnerability to the effects of climate change, then-Governor Arnold Schwarzenegger established Executive Order S-3-05 (EO S-3-05), which announced target dates by which statewide GHG emissions would be progressively reduced. These included a reduction of GHG emissions to 2000 levels by 2010; a reduction of GHG emissions to 1990 levels by 2020; and a reduction of GHG emissions to 80 percent below 1990 levels by 2050. As discussed below, the 2020 reduction target was codified in 2006 as Assembly Bill 32. However, the 2050 reduction target has not been codified and the California Supreme Court has ruled that CEQA lead agencies are not required to use it as a significance threshold. *Cleveland National Forest Foundation v. San Diego Association of Governments* (2017) 3 Cal.5th 497.

Assembly Bill 32 and the California Climate Change Scoping Plan

In 2006, the California legislature passed Assembly Bill 32 (Health and Safety Code §38500 et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 requires CARB to design and implement feasible and cost-effective emission limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions). AB 32 anticipates that the GHG reduction goals will be met, in part, through local government actions. CARB has identified a GHG reduction target of 15 percent from current levels for local governments and notes that successful implementation relies on local governments' land use planning and urban growth decisions.

Pursuant to AB 32, CARB adopted a Scoping Plan in December 2008 (CARB 2009), which was re-approved by CARB on August 24, 2011, that outlines measures to meet the 2020 GHG reduction goals. To meet these goals, California must reduce its GHG emissions by 30 percent below projected 2020 business-as-usual emissions levels or about 15 percent from today's levels. The Scoping Plan recommends measures for further study and possible State implementation, such as new fuel regulations. It estimates that a reduction of 174 million metric tons of CO_2E (about 191 million U.S. tons) from the transportation, energy, agriculture, and forestry sectors and other sources could be achieved should the State implement all of the measures in the Scoping Plan. The Scoping Plan relies on the requirements of Senate Bill (SB) 375 (discussed below) to implement the carbon emission reductions anticipated from land use decisions.

The Scoping Plan is required by AB 32 to be updated at least every five years. The first update to the AB 32 Scoping Plan was approved on May 22, 2014 by CARB (CARB 2014). The 2017 Scoping Plan Update was adopted on December 14, 2017. The Scoping Plan Update addresses the 2030 target established by Senate Bill 32 (SB 32) as discussed below, and establishes a proposed framework of action for California to meet a 40 percent reduction in GHG emissions by 2030 compared to 1990 levels. The key programs that the Scoping Plan Update builds on include: increasing the use of renewable energy in the state, the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, and reduction of methane emissions from agricultural and other wastes (CARB 2017b).

Executive Order B-30-15 and Senate Bill 32

California Executive Order B-30-15 (April 29, 2015) set an "interim" statewide emission target to reduce GHG emissions to 40 percent below 1990 levels by 2030, and directed state agencies with

jurisdiction over GHG emissions to implement measures pursuant to statutory authority to achieve this 2030 target. Specifically, the Executive Order directed CARB to update the Scoping Plan to express this 2030 target in metric tons. On September 8, 2016, Governor Jerry Brown signed Senate Bill 32 (SB 32) which codified the 2030 reduction target called for in Executive Order B-30-15. CARB's 2017 Scoping Plan update addresses the 2030 target, as discussed above (CARB 2017b).

Senate Bill 605

On September 21, 2014, Governor Jerry Brown signed Senate Bill 605 (SB 605), which required CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state no later than January 1, 2016. As defined in the statute, short-lived climate pollutant means "an agent that has a relatively short lifetime in the atmosphere, from a few days to a few decades, and a warming influence on the climate that is more potent than that of carbon dioxide." SB 605, however, does not prescribe specific compounds as short-lived climate pollutants or add to the list of GHGs regulated under AB 32. In developing the strategy, the CARB completed an inventory of sources and emissions of short-lived climate pollutants in the state based on available data, identified research needs to address any data gaps, identified existing and potential new control measures to reduce emissions, and prioritized the development of new measures for short-lived climate pollutants that offer co-benefits by improving water quality or reducing other air pollutants that impact community health and benefit disadvantaged communities.

Senate Bill 375

In addition to policy directly guided by AB 32, the legislature in 2008 passed SB 375, which provides for regional coordination in land use and transportation planning and funding to help meet the AB 32 GHG reduction goals. SB 375 aligns regional transportation planning efforts, regional GHG emissions reduction targets, and land use and housing allocations. SB 375 requires Regional Transportation Plans (RTPs) developed by the state's 18 metropolitan planning organizations (MPOs) to incorporate "Sustainable Communities Strategies" (SCS) that will achieve GHG emission reduction targets set by CARB and coordinate regional housing and transportation. The Fresno Council of Governments (FCOG) is the federally recognized MPO for Fresno County.

The FCOG is the regional planning agency for Fresno County and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. FCOG has prepared the *2014 Regional Transportation Plan and Sustainable Communities Strategy* for the region. In September 2010, CARB adopted the first SB 375 targets for the regional MPOs. The targets for the FCOG are a 5 percent reduction in emissions per capita by 2020 and a 10 percent reduction by 2035. Achieving these goals through adoption of a SCS is the responsibility of the MPOs. FCOG adopted its latest Regional Transportation Plan /Sustainable Communities Strategy in 2015. The plan quantified a 9 percent reduction by 2020 and an 11 percent reduction by 2035 (FCOG 2014). In 2015, CARB accepted FCOG's quantification of GHG reductions and its determination the SCS, if implemented, would achieve FCOG targets. Project consistency with the *2014 Regional Transportation Plan and Sustainable Communities Strategy* would therefore support AB 32 GHG reduction goals.

Senate Bill 1368

SB 1368 (Chapter 598, Statutes of 2006) is the companion bill of AB 32 and was signed by then-Governor Schwarzenegger in September 2006. SB 1368 requires the California Public Utilities Commission (CPUC) to establish a GHG emission performance standard for baseload generation from investor-owned utilities by February 1, 2007. The California Energy Commission also was required to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the CPUC and California Energy Commission (CEC). The Project, as a renewable energy generation facility, is determined by rule to comply with the GHG EPS requirements of SB 1368.

Renewables Portfolio Standards

The State's Renewables Portfolio Standard (RPS) was established in 2002 via SB 1078, which required 20 percent of the State's energy portfolio to be supplied by renewable sources such as solar, wind, hydroelectricity, geothermal, and bioenergy renewable energy by 2017. RPS goals have been accelerated over time, requiring the State's energy portfolio to be supplied by renewable sources in increasingly higher percentages. Since Senate Bill X1-2 was signed in 2011, the RPS target has required all electricity retailers in the state, including investor-owned utilities such as PG&E, Southern California Edison (SCE), and San Diego Gas and Electric (SDG&E) to procure 33 percent of their energy sales from renewable sources by the end of 2020 (CPUC 2018a). SB 350, passed in 2015, directs California utilities to further increase the amount of renewable energy to be delivered to customers to 50 percent by 2050. Collectively, PG&E, SCE, and SDG&E met the 33 percent goal in 2016 and are forecasted to reach 50 percent in 2020 (CPUC 2018b).

17 Cal. Code Regs. §95350 et seq.

The purpose of this regulation is to achieve GHG emission reductions by reducing SF_6 emissions from gas-insulated switchgear. Switchgear equipment containing SF_6 gas will be installed at on-site substations. Owners of such switchgear must not exceed maximum allowable annual emissions rates, which are reduced each year until 2020, after which annual emissions must not exceed 1.0 percent. Owners must regularly inventory gas-insulated switchgear equipment, measure quantities of SF_6, and maintain records of these for at least 3 years. Additionally, by June 1st each year, owners also must submit an annual report to CARB's Executive Officer for emissions that occurred during the previous calendar year.

Local

San Joaquin Valley Air Pollution Control District

In August 2008, the San Joaquin Valley Air Pollution Control District (SJVAPCD)'s Governing Board adopted the *Climate Change Action Plan* (CCAP) (SJVAPCD 2008). The CCAP directed the SJVAPCD Air Pollution Control Officer to develop guidance to assist lead agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project-specific GHG emissions on global climate change.

On December 17, 2009, the SJVAPCD adopted the guidance: *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA,* and the policy: *District Policy – Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*. The guidance and policy rely on the use of performance-based standards, otherwise known as Best Performance Standards (BPS), to assess significance of project-specific GHG emissions on global climate change during the environmental review process, as required by CEQA (SJVAPCD 2009a; 2009b).

Use of BPS is a method of streamlining the CEQA process of determining significance and is not a required emission-reduction measure. Projects implementing BPS would be determined to have a less than cumulatively significant impact.

However, SJVAPCD's adopted BPS are specifically directed at reducing GHG emissions from stationary sources that require a permit from the District; therefore, the adopted BPS would not generally be applicable to the Project as the Project would not be a stationary source of emissions.

CAPCOA Guidance

California Air Pollution Control Officers Association (CAPCOA) recommended an interim 900 Metric Tons (MT) CO_2E screening level as a theoretical approach to identify projects that require further analysis and potential mitigation (CAPCOA 2008). Following CAPCOA's analysis of development applications in various cities, it was determined that the threshold of 900 MT CO_2E per year would achieve the objective of 90 percent capture and ensure that new development projects would keep the State on track to meet its AB 32 goals. SJVAPCD supports the use of the interim threshold established by CAPCOA when adopted thresholds are not applicable (SJVAPCD 2009b).

Fresno Council of Governments

SB 375 requires MPOs to prepare a Sustainable Communities Strategy in their Regional Transportation Plan. As discussed in above, the FCOG developed the *2014 Regional Transportation Plan and Sustainable Communities Strategy* as the region's strategy to fulfill the requirements of SB 375. The *2014 Regional Transportation Plan and Sustainable Communities Strategy* establishes a development pattern for the region that, when integrated with the transportation network and other policies and measures, would reduce GHG emissions from transportation (excluding goods movement). Specifically, the *2014 Regional Transportation Plan and Sustainable Communities Strategy* links the goals of sustaining mobility with the goals of fostering economic development; enhancing the environment; reducing energy consumption; promoting transportation-friendly development patterns; and encouraging all residents affected by socioeconomic, geographic, and commercial limitations to be provided with fair access. The *2014 Regional Transportation Plan and Sustainable Communities Strategy* does not require that local general plans, specific plans, or zoning be consistent with it but provide incentives for consistency for governments and developers.

3.9.2 Significance Criteria

A project would result in significant GHG emissions-related effects on the environment if it would:

a) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

3.9.3 Direct and Indirect Effects

3.9.3.1 Approach to Analysis

Neither CEQA Guidelines section 15064.4 nor any other law[2] requires or endorses a specific analytical methodology or quantitative criteria for determining the significance of GHG emissions. Rather, lead agencies are to make a "good faith effort" to "describe, calculate or estimate" GHG emissions and to consider the extent to which the project would: increase or reduce GHG emissions; exceed a locally applicable threshold of significance; or comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions." A project may be found to have a less-than-significant impact related to GHG emissions if it complies with an adopted plan that includes specific measures to sufficiently reduce GHG emissions (14 Cal. Code Regs. §15064(h)(3)).

As described above, the SJVAPCD has adopted its *Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects Under CEQA*. The SJVAPCD guidance does not limit a lead agency's authority in establishing its own process and guidance for determining significance of project-related impacts on global climate change. SJVAPCD supports the use of the interim threshold established by CAPCOA when adopted thresholds are not applicable (SJVAPCD 2009b). Because an adopted quantitative threshold does not apply to this Project, this analysis relies on CAPCOA's recommended interim threshold of 900 MT CO_2E to determine whether the Project's GHG emissions would be significant. As a conservative estimate, GHG emissions include initial demolition and construction emissions annualized over the 30-year life of the Project, as well as operational emissions, and decommissioning emissions were estimated to be equivalent to construction emissions.

The potential for the Project to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHG was assessed by examining any potential conflicts of the proposed Project with the GHG reduction measures related to implementation of AB 32, including the potential conflict with CARB's *Climate Change Scoping Plan*. Under the SJVAPCD's CEQA guidance for GHG, a project would not have a significant GHG impact if it is

[2] See *Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal.4th 204 (identifying three "potential options" for lead agencies evaluating cumulative significance of a proposed land use development's GHG emissions and explicitly stating that none of the three options came with a "guarantee" that it would be sufficient if later challenged.)

consistent with an applicable plan to reduce GHG emissions, and a CEQA-compliant analysis was completed for the GHG reduction plan (SJVAPCD 2009a). The applicable plan is FCOG's RTP/SCS.

3.9.3.2 Direct and Indirect Effects of the Project

a) Whether the Project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

Impact 3.9-1: The Project would generate GHG emissions, directly and indirectly. (*Less than Significant Impact*)

Initial Demolition and Construction Emissions

The Project's initial demolition and construction activities would involve demolition of an existing metal shed and silos, the use of off-road construction equipment, vendor trucks, and worker vehicles, all of which would emit GHGs. This phase of the Project is anticipated to begin in September 2019 and to conclude at the end of September 2020, lasting a total of approximately 12 months[3]. On-site sources of GHG emissions include off-road equipment and off-site sources include on-road vehicles (e.g., haul trucks, vendor trucks, and worker vehicles). **Table 3.9-2** presents construction emissions for the Project in 2019 and 2020 from on-site and off-site emission sources. Additional details on calculations can be found in the Air Quality and Greenhouse Gas Emissions Analysis Technical Report provided in Appendix E.

TABLE 3.9-2
ESTIMATED ANNUAL CONSTRUCTION GREENHOUSE GAS EMISSIONS

Year	CO_2	CH_4	N_2O	CO_2E
	Metric Tons per Year			
2019	1,236.21	0.14	0.00	1,239.67
2020	2,767.14	0.22	0.00	2,772.69
Total	**4,003.35**	**0.61**	**0.00**	**4,012.36**
Amortized Annual Emissions over 30 Years				133.75

NOTES:
Columns may not total precisely due to rounding.
CH_4 = methane; CO_2 = carbon dioxide; CO_2E = carbon dioxide equivalent; N_2O = nitrous oxide

SOURCE: Appendix E, Table 13

The SJVAPCD recommends that construction emissions be amortized over a 30-year project lifetime, so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies. Thus, the total construction GHG emissions were calculated, amortized over 30 years, and added to the total operational emissions for comparison with the GHG significance threshold of 900 MT CO_2E per year.

[3] The total construction period is estimated to last between approximately 10 to 14 months, but was assumed to be 12 months for the purposes of the Air Quality analysis. The overall GHG emissions would be the same whether the emissions are compacted to a 12-month period or spread over a 14-month period.

As shown in Table 3.9-2, the estimated total GHG emissions during Project construction would be approximately 1,239.67 MT CO_2E in 2019 and 2,772.69 MT CO_2E in 2020, for a total of 4,012.36 MT CO_2E over the construction period. Estimated Project-generated construction emissions amortized over 30 years, consistent with SJVAPCD Guidance, would be approximately 133.75 MT CO_2E per year.

GHG emissions generated during initial demolition and construction of the Project would be short-term in nature, and would not represent a long-term source of GHG emissions. Emissions associated with decommissioning of the Project were conservatively estimated to be the same as those from construction, or 133.75 MT CO_2E per year, and so also would not represent a long-term source of GHG emissions. The total construction and decommissioning GHG emissions were calculated, amortized over 30 years, and added to the total operational emissions for comparison with the GHG significance threshold of 900 MT CO_2E per year, below.

Operation and Maintenance Emissions

Operation and maintenance of the Project would generate GHG emissions through motor vehicle trips to and from the Project site; energy use (natural gas or electricity consumed by the Project, as required when the Project is not powered by on-site energy generation); solid waste disposal; and generation of electricity associated with water supply, treatment, and distribution and wastewater treatment. CalEEMod was used to calculate the annual GHG emissions based on the operational assumptions described in Appendix E.[4]

SF_6 has a high global warming potential and is used for insulation in electric power transmission and distribution equipment. During operation and maintenance, one of the main sources of GHG emissions would be fugitive emissions from equipment containing SF_6 gas installed at the proposed on-site substations. The only piece of equipment within a substation that would have SF_6 gas would be the 115 kV breakers. It is estimated that the Project would have a total of up to seven 115 kV breakers, for a total of 540 lbs of SF_6 gas. The Project's circuit breakers would have a maximum annual leak rate of 0.5 percent based on the manufacturer's guaranteed specifications.

Table 3.9-3 shows the estimated operational Project-generated GHG emissions in the Project's first expected operational year (2021) from area sources, energy usage, motor vehicles, solid waste generation, and water usage and wastewater generation.

As shown in Table 3.9-3, estimated annual Project-generated GHG emissions would be approximately 121 MT CO_2E per year as a result of Project operation. Estimated annual Project generated operational emissions in 2021 and amortized Project construction and decommissioning emissions would be approximately 388 MT CO_2E per year. Therefore, the total annual Project-related GHG emissions would not exceed the GHG significance threshold of 900 MT CO_2E per year. Project operational GHG emissions, which include amortized emissions from construction and decommissioning, therefore would be less than significant.

[4] Since CalEEMod does not have demand factors specifically for solar facilities, emissions were calculated using demand factors for a warehouse type building, as shown in the CalEEMod output.

TABLE 3.9-3
ESTIMATED ANNUAL OPERATIONAL GREENHOUS GAS EMISSIONS

Emission Source	CO_2	CH_4	N_2O	SF_6	CO_2E
	Metric Tons per Year				
Energy	55.22	0.01	0.00	0.00	55.43
Area	0.00	0.00	0.00	0.0012	29.27[a]
Mobile	29.26	0.01	0.00	0.00	29.31
Off-road	0.78	0.00	0.00	0.00	0.78
Stationary	1.43	0.00	0.00	0.00	1.43
Waste	0.19	0.01	0.00	0.00	0.47
Water	2.47	0.04	0.00	0.00	3.83
Total	**89.35**	**0.07**	**0.00**	**0.0012**	**120.52**
Amortized Construction Emissions over 30 Years					133.75
Amortized Decommissioning Emissions over 30 Years					133.75
Operation including Construction Total					**388.02**

NOTES:
[a] Emissions from SF_6 are considered an area source.

Columns may not total precisely due to rounding, and due to the influence of minimal amounts of less common GHGs not represented in the table.

Operation and maintenance phase GHG emissions would be offset to the extent that renewable energy generated by the Project served a demand that otherwise would rely on a fossil fuel source.

SOURCE: Appendix E, Table 14.

Renewable energy offsets GHG emissions generated by fossil-fuel power plants to the extent that it serves demand that otherwise would be served with a fossil-fuel powered source. As explained in more detail in Appendix E, the Project would provide a potential reduction of 82,544 MT CO_2E per year if the electricity generated by the Project were to be used in place of electricity generated by fossil-fuel sources, after accounting for the annualized construction and decommissioning, and annual operational emissions of 388 MT CO_2E per year. Overall, this would be a beneficial impact.

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b) Whether the Project would conflict with an applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions.

Impact 3.9-2: The Project could conflict with an applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions. (*Less than Significant Impact*)

The Project involves the construction, operation and maintenance, and decommissioning of a solar facility that would produce a new renewable source of energy in Fresno County. Therefore, the Project would directly support the renewable energy target under the 2017 Scoping Plan Update and a goal of SB 350, or increasing California's procurement of electricity from renewable sources from 33 percent to 50 percent by 2030.

As described under Impact 3.9-1, during operation and maintenance, one of the main sources of GHG emissions would be fugitive emissions from equipment containing SF_6 gas installed at the

proposed on-site substations. The Project would comply with CARB's *Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear* (17 Cal. Code Regs. §95350 et seq.), which requires that annual emissions of SF_6 must not exceed 1.0 percent after 2020. The Project's circuit breakers would have a maximum annual leak rate of 0.5 percent, based on the manufacturer's guaranteed specifications.

Under the SJVAPCD's CEQA thresholds for GHG, a project would not have a significant GHG impact if it is consistent with an applicable plan to reduce GHG emissions, and a CEQA-compliant analysis was completed for the GHG reduction plan. The FCOG's Regional Transportation Plan and Sustainable Communities Strategy would be considered an applicable plan adopted for the purpose of reducing GHGs from the land use and transportation sectors in Fresno County and was adopted after completion of a Program EIR, and approved by CARB in 2015 (CARB 2015). Thus, a project could result in a significant impact due to a conflict with an applicable plan, policy, or regulation if it would be inconsistent with the adopted FCOG *2014 Regional Transportation Plan and Sustainable Communities Strategy*.

The Project could have a potential conflict with the Regional Transportation Plan and Sustainable Communities Strategy if it were to be found inconsistent based on a qualitative assessment of the Project's consistency with FCOG's Sustainable Communities Strategy policies. The GHG emission reduction goals in the FCOG Regional Transportation Plan and Sustainable Communities Strategy are based on demographic data trends and projections that include household, employment, and total population statistics. Since the Project does not propose housing, and would not result in a population increase, only the Project's contribution to employment would need to be considered.

The FCOG Regional Transportation Plan and Sustainable Communities Strategy projects that the total employment in Fresno County will be 1,378,000 in 2020 and 1,466,000 in 2025, or 17,600 additional jobs per year in that timeframe (FCOG 2014). The Project construction and decommissioning workforce would be temporary, lasting 12-14 months of employment, and is expected to come from the existing construction labor pool in Fresno County. The Project is anticipated to have on-site personnel consisting of plant operators and maintenance technicians starting in 2021. Therefore, the additional jobs estimated by the Project would be well within the annual growth projection for the FCOG Regional Transportation Plan and Sustainable Communities Strategy. Therefore, the Project would be consistent with the FCOG Regional Transportation Plan and Sustainable Communities Strategy, and the Project would have a less-than-significant impact with regard to conflicts with the FCOG Regional Transportation Plan and Sustainable Communities Strategy.

3.9.3.3 Direct and Indirect Effects of Alternatives

Increased Habitat/Reduced Acreage Alternative

Under the Increased Habitat/Reduced Acreage Alternative, Little Bear 6 would not be constructed, reducing the Project acreage by approximately 161 acres, and the approximate generating capacity would be reduced by 20 MW. The on-site 115 kV gen-tie line proposed to interconnect Little

Bear 6 would not be constructed; no solar panels, substation, energy storage system, detention pond, or meteorological stations would be constructed in that area. Compared to the Project, the Increased Habitat/Reduced Acreage Alternative would entail less construction and decommissioning emissions. Land within the Little Bear 6 site would continue to be used as fallowed farm land, and occasionally dry-farmed. Overall, the Increased Habitat/Reduced Acreage Alternative would result in a reduction in GHG emissions relative to the Project as proposed due to its smaller size. Similar to the Project, the Increased Habitat/Reduced Acreage Alternative would have less than significant impacts in regards to generation of GHG emissions and conflicts with plans, policies, or regulations adopted for the purpose of reducing GHG emissions. However, the reduced generating capacity also would contribute to a reduced overall benefit in terms of GHG emissions if the electricity generated by the Project were to be used in place of electricity generated by fossil-fuel sources.

No Project Alternative

If the No Project Alternative is implemented, the proposed demolition of structures would not occur; neither the solar facilities nor the Little Bear gen-tie line would be constructed, operated, or maintained; and the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. The No Project Alternative would result in the continued long-term adverse impact associated with annual GHG emissions compared to implementation of the Project.

3.9.4 Cumulative Analysis

GHG emissions are inherently a cumulative concern, in that the significance of GHG emissions is determined based on whether such emissions would have a cumulatively considerable impact on global climate change. Although the geographic scope of cumulative impacts related to GHG emissions is global, this analysis focuses on the state, the region, and this Project's direct and/or indirect generation or offset of GHG emissions. CAPCOA considers GHG impacts to be exclusively cumulative impacts, in that no single project could, by itself, result in a substantial change in climate (CAPCOA 2008). Therefore, the evaluation of cumulative GHG impacts presented above evaluated whether the Project would make a considerable contribution to cumulative climate change effects. The Project would result in a 30-year long-term net reduction of approximately 82,156 MT CO_2E per year and would not conflict with the state's GHG reduction goals. Therefore, the Project-specific incremental impact on GHG emissions would not be cumulatively considerable.

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3.10 Hazards and Hazardous Materials

This section identifies and evaluates issues related to Hazards and Hazardous Materials in the context of the Project and alternatives. It includes the environmental and regulatory setting, the criteria used to evaluate the significance of environmental impacts, the methods used in evaluating these impacts, and the results of the impact assessment. Although the County did not receive any scoping comments during the scoping period regarding Hazards and Hazardous Materials (Appendix A), the Fresno County Fire Protection District (FCFPD) later requested consideration that all of the proposed improvements comply with California Code of Regulations Title 24 – Fire Code (FCFPD 2017).

This analysis is based in part on six individual reports that were prepared for different groups of parcels within the Project site as development of the proposal progressed and as more information was learned about the different areas. Each of the reports is provided in Appendix I, *Hazards and Hazards Materials*. The preparers of this Draft EIR independently reviewed these and other materials prepared by or on behalf of the Applicants and determined them to be suitable for reliance on (in combination with other materials included in the formal record) in the preparation of this Draft EIR.

3.10.1 Setting

3.10.1.1 Environmental Setting

The Project site is located in a rural, agricultural portion of Fresno County in the western San Joaquin Valley. Hazardous waste handlers and generators in Fresno County include industries, businesses, public and private institutions, and households. Agricultural land use can involve the storage and application of pesticides and the storage and use of fuel. Gasoline stations and other facilities that utilize or store solvents, chemicals or other hazardous materials are other potential sources of hazardous materials in rural areas. These sources of hazardous materials, if encountered, can cause exposures that may result in adverse environmental and health effects.

Definition of Hazardous Materials

A hazardous material is defined as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment (Health and Safety Code §25501(o)). The term “hazardous materials” refers to both hazardous substances and hazardous wastes. Under federal and state laws, any material, including wastes, may be considered hazardous if it is specifically listed by statute as such or if it is toxic (causes adverse human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), or reactive (causes explosions or generates toxic gases).

In some cases, past industrial or commercial activities on a site have resulted in spills or leaks of hazardous materials to the ground, resulting in soil and/or groundwater contamination. If improperly handled, this contamination can threaten public health if released from the soil, groundwater, or into the air. The four primary exposure pathways through which an individual can

be exposed to a hazardous material are inhalation, ingestion, bodily contact, and injection. Exposure can come as a result of an accidental release of hazardous materials during transport, storage, or handling. Disturbance of contaminated subsurface soil during construction also can cause exposures to workers, the public, or the environment through stockpiling, handling, or transport of soils.

Soil and Groundwater Contamination

In California, regulatory databases listing hazardous materials sites provided by numerous federal, state, and local agencies were originally consolidated in the "Cortese List" pursuant to Government Code Section 65962.5, effective in 1992. However, subsequent changes in web-based information availability since that time have made a consolidation of this list no longer necessary and the databases are maintained on an individual basis by the following responsible agencies:

- List of Hazardous Waste and Substances sites from Department of Toxic Substances Control (DTSC) EnviroStor database;
- List of Leaking Underground Storage Tank Sites by County and Fiscal Year from the State Water Resources Control Board (SWRCB) GeoTracker database;
- List of solid waste disposal sites identified by SWRCB with waste constituents above hazardous waste levels outside the waste management unit;
- List of "active" Cease and Desist Order and Cleanup and Abatement Order from the SWRCB; and
- List of hazardous waste facilities subject to corrective action pursuant to Health and Safety Code Section 25187.5, as identified by DTSC and listed on its EnviroStor database.

The five databases cited above identify sites with suspected and confirmed releases of hazardous materials to the subsurface soil and/or groundwater. The SWRCB GeoTracker database includes leaking underground storage tanks, permitted underground storage tanks, and Department of Defense sites, and Cleanup Program sites. The DTSC EnviroStor database includes federal and state response sites, voluntary, school, and military cleanups and corrective actions, and permitted sites. The reporting and statuses of these sites change as identification, monitoring, and clean-up of hazardous materials sites progress. Typically, a listed site is considered no longer to be of concern once it has been demonstrated that existing site uses combined with the levels of identified contamination present no significant risk to human health or the environment.

According to a review of the Geotracker database, the Project site is not included as a leaking underground storage tank, Department of Defense, or Cleanup Program site nor are there any sites in the database within 1 mile of the Project site (SWRCB 2018). Similarly, the EnviroStor database identified no sites within 1 mile of the Project site (DTSC 2018).

According to the California Department of Conservation – Division of Oil, Gas and Geothermal Resources (DOGGR), the Project site is not located within a known oil production field, nor does the site have any known active or abandoned oil wells (DOGGR 2018).

Phase I and II Investigations

A total of six Phase I and Phase II Environmental Site Assessments have been prepared for the Project site (Appendix I). The purpose of these investigations was to identify any known or suspected areas of a previous release of hazardous materials may have occurred on or within close proximity to the site. The Phase I assessments all found no evidence of any recognized environmental conditions (RECs), controlled recognized environmental conditions (CREC), or historical recognized environmental conditions (HREC) which are defined as follows:

- A REC is defined as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: 1) due to release to the environment; 2) under conditions indicative of a release to the environment; or 3) under conditions that pose a material threat of a future release to the environment. *De minimis* conditions are not RECs.
- A CREC is defined as a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority and that subjects the property to activity and/or use limitations.
- A HREC is defined as a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed in a manner accepted by the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent), without subjecting the property to any activity and use limitations.

The Project site has a history of agricultural use that included row crops and grazing. Some minor improvements on the site were noted including minor structures associated with agricultural use, such as pipelines and storage silos. According to the investigations, the past agricultural land uses very likely could have used persistent herbicides and/or pesticides; however, without known evidence of misuse or spill incidents, these past practices do not indicate a REC. Regardless, limited Phase II investigations were conducted at the site to assess the potential for metals, pesticides, and herbicides to be present in surface soils at concentrations above regulatory screening levels (Appendix I3, Appendix I6). The findings of the laboratory results for the soil samples showed that none of the analytes were present above screening levels with the exception of arsenic. However, arsenic is a naturally occurring metal which was found at concentrations that are consistent with background levels and likely do not represent any potential health threat at the site (Appendix I3).

Cadmium Telluride

The PV solar modules that would be installed on the Project site utilize Cadmium Telluride (CdTe) thin film technology. The semiconductor layer in the modules is in the environmentally stable form of a compound rather than the leachable form of a metal. The CdTe compound is encapsulated in the PV module with the PV module containing less than 0.1 percent Cd content by weight. Due to optimal optical properties, only a 3-micron thin layer of CdTe is used to absorb incident sunlight, with Cd content per eight square feet of PV module less than that of one C–size flashlight NiCd battery.

It has been demonstrated that standard operation of CdTe PV systems does not result in cadmium emissions to air, water, or soil. During the PV module manufacturing process, CdTe is bound under high temperature to a sheet of glass by vapor transport deposition, coated with an industrial

laminate material, insulated with solar edge tape, and covered with a second sheet of glass. The module design results in the encapsulation of the semiconductor material between two sheets of glass thereby preventing the exposure of CdTe to the environment.

Several peer-reviewed studies have evaluated the environmental, health, and safety aspects of CdTe PV modules. See, e.g., National Renewable Energy Centre 2013, Fthenakis and Zweibel 2003, and Fthenakis undated. These studies consistently have concluded that during normal operations, CdTe PV modules do not present an environmental risk. CdTe releases are also unlikely to occur during accidental breakage or fire due to the high chemical and thermal stability of CdTe. Disposal risks of end-of-life CdTe PV modules are minimized because of the low solubility of CdTe and because the modules can be recycled effectively at the end of their approximately 30-year life. The PV module manufacturer provides CdTe module collection and recycling services. Since 2005, the end-of-life CdTe PV modules have been characterized as federal non-hazardous waste, and as a California-only hazardous waste. Solar equipment and infrastructure would be recycled as practical or disposed of in compliance with applicable laws. CdTe PV modules are an article of commerce, and are not classified as a hazardous material for shipping purposes under either federal or state law.

Schools and Daycare Facilities

There are no schools or daycare facilities within 0.25-mile of the Project site. The closest schools to the Project site is the Mendota High School and the Crescent View West charter school both located approximately 2 miles north of the site. The nearest daycare facility, Mendota Headstart, is also approximately 2 miles north of the site.

Airports

The closest airport to the Project site is the William Robert Johnston Airport. It is located approximately 2.8 miles northeast of the site.

Wildland Fire

The California Department of Forestry and Fire Prevention (CAL FIRE) requires counties within the state to develop fire protection management plans that address potential threats of wildland fires. The Fresno-Kings Unit Strategic Fire Plan governs fire protection activities for 955,167 State Responsibility Area acres and 1,626,782 Local Responsibility Area acres with a Cooperative Fire Protection Agreement with the FCFPD (CAL FIRE and FCFPD 2017). California's "fire season" is typically May to November (Fresno County 2018b). The Project site is sparsely vegetated and not within an area identified by CAL FIRE as a very high fire hazard severity zone[1] (CAL FIRE 2007).

[1] Designations as a "very high fire hazard severity zone" are based consistent application of state-wide criteria, including "fuel loading, slope, fire weather, and other relevant factors including areas where Santa Ana, Mono, and Diablo winds have been identified by [CAL FIRE] as a major cause of wildfire spread" (Gov't Code §51178).

Naturally-Occurring Asbestos

Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. When rock containing asbestos is broken or crushed, asbestos fibers may be released and become airborne. Exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest and abdominal cavity), and asbestosis (a non-cancerous lung disease which causes scarring of the lungs). Sources of asbestos emissions include: unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present. According to mapping of ultramafic rocks in California, there are isolated areas within the County where ultramafic rocks are found but the Project site is located well outside of any known ultramafic rock outcrops (CDMG 2000).

3.10.1.2 Regulatory Setting

This section describes the regulatory oversight of hazardous materials storage and handling, emergency response, site investigation and cleanup, and worker safety. In addition, regulations regarding fire hazards and local plans and policies are discussed.

Federal

Hazardous Materials Management

The primary federal agencies with responsibility for hazardous materials management include the U.S. Environmental Protection Agency (USEPA), U.S. Department of Labor Occupational Safety and Health Administration (OSHA), and the U.S. Department of Transportation. State and local agencies often have either parallel or more stringent regulations than these federal agencies. In most cases, state law mirrors or overlaps federal law and enforcement of these laws is the responsibility of the state or of a local agency to which enforcement powers are delegated.

Hazardous Materials Transportation

The U.S. Department of Transportation regulates hazardous materials transportation on all interstate roads pursuant to its authority under the Hazardous Materials Transportation Uniform Safety Act (49 U.S.C. §5101 et seq.). The purpose of the Act is to “protect against the risks to life, property, and the environment that are inherent in the transportation of hazardous material in intrastate, interstate, and foreign commerce” (49 U.S.C.A. §5101). Within California, the state agencies with primary responsibility for enforcing federal and state regulations and for responding to transportation emergencies are the California Highway Patrol and California Department of Transportation. Together, federal and state agencies determine driver-training requirements, load labeling procedures, and container specifications.

Clean Air Act

Regulations under the Clean Air Act are designed to prevent accidental releases of hazardous materials. The regulations require facilities that store minimum quantities (called threshold quantities) or greater of listed regulated substances to develop a Risk Management Plan including hazard assessments and response programs to prevent accidental releases of listed chemicals.

National Emission Standards for Hazardous Air Pollutants

Air toxics regulations under the Clean Air Act specify work practices for asbestos to be followed during demolitions and renovations of all facilities, including, but not limited to, structures, installations, and buildings (excluding residential buildings that have four or fewer dwelling units). The regulations, found in the Code of Federal Regulations (CFR) under 40 CFR 61 Subpart M, require a thorough inspection where the demolition or renovation operation will occur. Performing the work in accordance with the national emissions standard for asbestos helps to ensure that areas in use during the renovation are not contaminated and that the area under renovation, when it is complete, also is free of contamination.

Toxic Substances Control Act, Resource Conservation and Recovery Act

The Federal Toxic Substances Control Act of 1976 and the Resource Conservation and Recovery Act of 1976 (RCRA) established a program administered by the USEPA for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Amendments, which affirmed and extended the "cradle to grave" system of regulating hazardous materials and wastes.

Occupational Safety

OSHA is the agency responsible for assuring worker safety in the handling and use of chemicals in the workplace. The federal regulations pertaining to worker safety are contained in Title 29 of the CFR, as authorized in the Occupational Safety and Health Act of 1970. They provide standards for safe workplaces and work practices, including standards relating to hazardous materials handling. At sites known or suspected to have soil or groundwater contamination, construction workers must receive training in hazardous materials operations and a site health and safety plan must be prepared. The health and safety plan establishes policies and procedures to protect workers and the public from exposure to potential hazards at the contaminated site.

North American Electric Reliability Corporation Standards

The North American Electric Reliability Corporation (NERC) is a nonprofit corporation comprising 10 regional reliability councils. The overarching goal of NERC is to ensure the reliability of the bulk power system in North America. To achieve its goal, the NERC develops and enforces reliability standards, monitors the bulk power systems, and educates, trains, and certifies industry personnel (NERC 2018). In order to improve the reliability of regional electric transmission systems and in response to the massive widespread power outage that occurred on the Eastern Seaboard, NERC developed a transmission vegetation management program.

The plan, which first became effective on April 1, 2005 and most recently was updated February 15, 2018, establishes requirements of the formal transmission vegetation management program, which include identifying and documenting clearances between vegetation and any overhead, ungrounded supply conductors, while taking into consideration transmission line voltage, the effects of ambient temperature on conductor sag under maximum design loading, fire risk, line terrain and elevation, and the effects of wind velocities on conductor sway. The clearances identified must be no less than those set forth in the IEEE Standard 516-2003 (*Guide for*

Maintenance Methods on Energized Power Lines) (IEEE 2003), which establishes minimum vegetation-to-conductor clearances in order to maintain electrical integrity of the electrical system.

State

In January 1996, the California Environmental Protection Agency (Cal EPA) adopted regulations implementing a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program, Health & Safety Code §25404 et seq.). The program has six elements: hazardous waste generators and hazardous waste on-site treatment; underground storage tanks; aboveground storage tanks; hazardous materials release response plans and inventories; risk management and prevention programs; and Unified Fire Code hazardous materials management plans and inventories. The plan is implemented at the local level. The Certified Unified Program Agency (CUPA) is the local agency that is responsible for the implementation of the Unified Program. In the County of Fresno, the Fresno County Division of Environmental Health is the designated CUPA for all businesses (Fresno County 2018a).

Hazardous Materials Management

The California Hazardous Materials Release Response Plans and Inventory law (Business Plan Act, Health and Safety Code §25500 et seq.) requires any business that handles hazardous materials at or above specified thresholds to prepare a hazardous materials business plan (HMBP). The HMBP must include the following:

- Details, including floor plans, of the facility and business conducted at the site;
- An inventory of hazardous materials that are handled or stored on site;
- An emergency response plan; and
- A safety and emergency response training program for new employees with annual refresher courses.

The primary purpose of the HMBP requirement is to provide basic information needed by first responders to prevent or mitigate damage to the public health and safety and to the environment from a release or threatened release of a hazardous material (Cal OES 2014). HMBP requirements could apply, for example, to the handling of mineral oil, which is a highly-refined hydrocarbon-based oil used as an insulation medium and coolant in transformers and other electrical equipment.

Hazardous Waste Handling

DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and, in the event that such materials are accidentally released, to prevent or to mitigate injury to health or the environment. Laws and regulations require hazardous materials users to store these materials appropriately and to train employees to manage them safely.

Individual states may implement their own hazardous waste programs in lieu of RCRA, as long as the state program is at least as stringent as federal RCRA requirements. In California, the DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. The

hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; prescribe management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in landfills. These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. The California Hazardous Waste Control Law is codified at Health and Safety Code §25100 et seq.

Occupational Safety

The California Department of Industrial Relations Division of Occupational Safety and Health (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations in California. Because California has a federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in Title 29 of the CFR.

Cal/OSHA regulations concerning the use of hazardous materials in the workplace require employee safety training, safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations, which contain training and information requirements, including procedures for identifying and labeling hazardous substances, and communicating hazard information relating to hazardous substances and their handling. The hazard communication program also requires that material safety data sheets (MSDSs) be available to employees, and that employee information and training programs be documented. These regulations also require preparation of emergency action plans (escape and evacuation procedures, rescue and medical duties, alarm systems, and training in emergency evacuation).

Other State Regulations

The California Code of Regulations contains additional requirements that would apply to the Project, including:

1. 8 Cal. Code Regs. §2700 et seq., High Voltage Electrical Safety Orders, which establish essential requirements and minimum standards for installation, operation, and maintenance of electrical equipment to provide practical safety and freedom from danger.
2. 14 Cal. Code Regs. §§1250-1258, Fire Prevention Standards for Electric Utilities, which provide specific exemptions from electric pole and tower firebreak and electric conductor clearance standards, and specifies when and where standards apply. It establishes minimum clearance requirements for flammable vegetation and materials surrounding structures.
3. 22 Cal. Code Regs. §66273 Standards for Universal Waste Management, which regulate the management of universal wastes. These wastes are not fully regulated as hazardous waste in order to encourage their recycling. Batteries, electronic devices, mercury-containing equipment, lamps, cathode ray tubes and tube glass, and aerosol cans are considered universal wastes in California. A person or business who generates universal waste is required to follow the Management Requirements for Universal Waste Handlers (22 Cal. Code Regs. §§66273.30-66273.39), which include storage, spill protection, and disposal rules designed to minimize risk of harm to public health and the environment.

NPDES Construction General Permit

The Regional Water Quality Control Board (RWQCB) administers the stormwater permitting program in the Central Valley Region pursuant to authority delegated under the federal Clean Water Act's National Pollutant Discharge Elimination System (NPDES) program. Construction activities disturbing one acre or more of land are subject to the permitting requirements of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (Construction General Permit) and must apply for Construction General Permit coverage. Additional details of the Construction General Permit are provided in Section 3.11, *Hydrology and Water Quality*.

California Fire Code

The California Fire Code is contained within Title 24, Chapter 9 of the California Code of Regulations. Based on the International Fire Code, the California Fire Code is created by the California Buildings Standards Commission and regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. Similar to the International Fire Code, the California Fire Code and the California Building Code (CBC) use a hazards classification system to determine the appropriate measures to incorporate to protect life and property. Section 608 of the International Fire Code (IFC) has been adopted by the State of California and Fresno County to minimize risk of fire from stationary battery storage systems and to contain fire in the event of such an incident. Compliance with Article 480 of the Electrical Code, which identifies insulation and venting requirements for stationary storage batteries, further reduces potential fire risk.

California Public Resources Code

The Public Resources Code includes fire safety regulations that apply to State Responsibility Areas during the time of year designated as having hazardous fire conditions, i.e., "fire season." In Fresno and Kings counties for 2018, fire season has been identified as year-round (CAL FIRE 2018b). During the fire hazard season, these regulations restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors[2] on equipment that has an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire-suppression equipment that must be provided on-site for various types of work in fire-prone areas.

Public Resources Code section 4291 provides that a person who owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining brush- or grass-covered lands or land that is covered with flammable material shall at all times maintain defensible space of 100 feet from each side and from the front and rear of the structure, but not beyond the property line.

Public Resources Code sections 4292 and 4293 require that any person who owns, controls, operates, or maintains any electrical transmission or distribution line shall maintain a firebreak clearing around and adjacent to any pole, tower, and conductor that carries electric current as specified in the section.

[2] A spark arrestor is a device that prohibits exhaust gases from an internal combustion engine from passing through the impeller blades where they could cause a spark. A carbon trap is commonly used to retain carbon particles from the exhaust.

California Strategic Fire Plan

The 2010 Strategic Fire Plan for California (Fire Plan), revised in April 2016, is the statewide plan for adaptive management of wildfire (CAL FIRE 2018a). The Fire Plan is a cooperative effort between the State Board of Forestry and Fire Protection and CAL FIRE. The central goals that are critical to reducing and preventing the impacts of fire revolve around both suppression efforts and fire prevention efforts (CAL FIRE 2016). The Fire Plan emphasizes pre-fire adaptive management of risk, including measures such as fuelbreaks, defensible space, and other fuel reduction strategies. The Fire Plan does not contain any specific requirements or regulations. Rather, it acts as an assessment of current fire management practices and standards and makes recommendations on how best to improve the practices and standards in place (CAL FIRE 2016).

Health and Safety Code §41700

This statute states, "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."

Emergency Response

The California Governor's Office of Emergency Services (Cal OES) developed the State of California Emergency Plan (Cal OES 2017) to coordinate federal, state, local, and private agency emergency service providers' response to natural or human-caused emergencies. Responding to hazardous materials incidents is one part of this plan. The plan is administered by Cal OES, which coordinates the responses of other agencies.

State Responsibility Area

In designated State Responsibility Areas, the State is financially responsible for the suppression and prevention of wildfires (Pub. Res. Code §4102). Its designated State Responsibility Areas consist of more than 31 million acres, including the Fresno-Kings County Unit. The Fresno County Fire Hazard Severity Zone Map identifies the Project site and the surrounding area as an unincorporated Local Responsibility Area. (CAL FIRE 2007). There are no Very High Fire Hazard Severity Zones in Fresno County (CAL FIRE 2008).

Local

Fresno County General Plan

The Health and Safety Element of the Fresno County General Plan outlines Fresno County's planning strategies regarding emergency management and response, fire hazards, flood hazards, seismic and geological hazards, airport hazards, hazardous materials, and noise. The following list consists of the policies of the Health and Safety Element relevant to Hazards and Hazardous Materials:

> ***Policy HS-B.1:*** The County shall review project proposals to identify potential fire hazards and to evaluate the effectiveness of preventive measures to reduce the risk to life and property.

Policy HS-B.5: The County shall require development to have adequate access for fire and emergency vehicles and equipment.

Policy HS-B.8: The County shall refer development proposals in the unincorporated County to the appropriate local fire agencies for review of compliance with fire safety standards. If dual responsibility exists, both agencies shall review and comment relative to their area of responsibility. If standards are different or conflicting, the more stringent standards shall apply.

Policy HS-B.11: The County shall require new development to have water systems that meet County fire flow requirements. Where minimum fire flow is not available to meet County standards, alternate fire protection measures, including sprinkler systems, shall be identified and may be incorporated into development if approved by the appropriate fire protection agency.

Goal HS-F: To minimize the risk of loss of life, injury, serious illness, and damage to property resulting from the use, transport, treatment, and disposal of hazardous materials and hazardous wastes.

Policy HS-F.1: The County shall require that facilities that handle hazardous materials or hazardous wastes be designed, constructed, and operated in accordance with applicable hazardous materials and waste management laws and regulations.

Policy HS-F.3: The County, through its Hazardous Materials Incident Response Plan, shall coordinate and cooperate with emergency response agencies to ensure adequate Countywide response to hazardous materials incidents.

Fresno County Office of Emergency Services Operational Area Master Emergency Services Plan

In 1995, the Fresno County Board of Supervisors adopted California's Standardized Emergency Management System, established the geographic area of the County of Fresno as the Fresno County Operational Area, and designated Fresno County as the Operational Area Lead Agency. Fresno County Office of Emergency Services (OES) coordinates the development and maintenance of the Fresno County Operational Area Master Emergency Services Plan (Fresno County OAMESP). This Plan serves as a guide for the County's response to emergencies/ disasters in the unincorporated areas of the County (Fresno County 2018c). Emergency facilities in the County are identified in this plan. The Emergency Operations Center is located in downtown Fresno, approximately 35 miles east of the Project site. Public junior high and high schools throughout the County are identified as the primary resource for public shelters during disasters. For large evacuated populations in locations where junior high and high schools are not available, public elementary schools, County fairgrounds, community centers, auditoriums, armories, churches, and some commercial and industrial buildings are also possible shelter sites.

Fresno County Solar Facility Guidelines

Fresno County has prepared solar development guidelines designed to balance the need for renewable energy with the need to protect agricultural lands and operations (Fresno County 2017). Included in these guidelines is the requirement to prepare a Reclamation Plan for any solar facility erected in the County. Reclamation Plans must describe the handling of any hazardous

chemicals/materials to be removed from the solar facility site upon decommissioning. A preliminary Closure, Decommissioning, and Reclamation Plan for the Project is included in Appendix B1.

3.10.2 Significance Criteria

A project would result in significant hazards and hazardous materials effects on the environment if it would:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;

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

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

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or

g) Expose people or structures, either directly or indirectly, 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.

h) For a project located in or near state responsibility area lands or lands classified as very high fire hazard severity zones, would the project: 1) impair an adopted emergency response plan or emergency evacuation plan; 2) due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire; 3) require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or 4) directly or indirectly cause potential significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

3.10.3 Direct and Indirect Effects

3.10.3.1 Approach to Analysis

This impact analysis focuses on potential effects associated with the Project and alternatives related to Hazards and Hazardous Materials. The analysis is based on an assessment of existing conditions at the Project site; a review of relevant environmental databases and site investigation

reports; applicable statutes, regulations and guidelines; and the requirements of Project construction. Impacts related to the potential release of toxic air contaminants are discussed in Section 3.4, *Air Quality*.

3.10.3.2 Direct and Indirect Effects of the Project

a) Whether the Project would create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Impact 3.10-1: The Project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. *(Less than Significant)*

Initial Demolition and Construction

The Project would not involve the routine transport, use, or disposal of hazardous materials, as defined by the Hazardous Materials Transportation Uniform Safety Act. Most of the hazardous waste generated by the Project would occur during the temporary initial demolition and construction period and would consist of liquid waste (including cleaning fluids, dust palliative, herbicides, and solvents) and some solid hazardous waste (such as welding materials and dried paint). These materials would be transported to the site during construction, and any hazardous materials that are produced as a result of Project construction would be collected and transported away from the site. During construction, material safety data sheets for all applicable materials present at the site would be made readily available to onsite personnel. During construction of the facilities, non-hazardous construction debris would be generated and disposed of in local landfills. Sanitary waste would be managed using portable toilets located at a reasonably accessible onsite location.

Fuels and lubricants used on field equipment would be subject to the hazardous materials handling BMPs and other measures contained within the required Stormwater Pollution Prevention Plan to limit releases of hazardous materials and wastes. Further discussion of best management practice (BMP) requirements is provided in Section 3.11, *Hydrology and Water Quality*, of this EIR. Recyclable materials including wood, shipping materials, and metals would be separated when possible for recycling. Liquids and oils in the transformer and other equipment would be used in accordance with applicable regulations. The disposal of all oils, lubricants, and spent filters would be performed in accordance with all applicable regulations including the requirements of licensed receiving facilities. Overall the relatively limited use of hazardous materials during construction would be controlled through compliance with applicable regulations and would result in a less-than-significant impact.

Operation

Operation and Maintenance (O&M) activities associated with a PV solar facility is relatively small when compared to other land uses such as conventional power plants, and would require limited use of hazardous materials. Any hazardous materials that would be used would be stored onsite and in designated areas. The site would be fenced to prevent public access to hazardous

materials and the PV panels. The gen-tie portions of the Project would not require use of hazardous materials during operation.

Operational activities are limited to monitoring plant performance, conducting scheduled maintenance for onsite electrical equipment, and responding to utility needs for plant adjustment. No heavy equipment would be used during normal project operation. O&M vehicles would include trucks (pickup, flatbed), forklifts, and loaders for routine and unscheduled maintenance, and water trucks for solar panel washing. Large heavy-haul transport equipment and cranes may be brought to the Project site infrequently for equipment repair or replacement. Long-term maintenance and equipment replacement would be scheduled in accordance with manufacturer recommendations. Solar panels are warrantied for 25 years or longer and are expected to have a life of 30 or more years. Moving parts, such as motors and tracking module drive equipment, motorized circuit breakers and disconnects, and inverter ventilation equipment would be serviced on a regular basis, and unscheduled maintenance would be conducted as necessary. Adherence to the Hazardous Materials Business Plan as required by the California Hazardous Materials Release Response Plans and Inventory law (Health and Safety Code §25500 et seq.) would ensure that all handling, storage, and disposal of hazardous materials would be conducted in accordance with proven practices to minimize exposure to workers or the public.

The PV modules that would be installed on the project site utilize CdTe thin film technology. CdTe is generally bound to a glass sheet by a vapor transport deposition during the manufacturing process, followed by sealing the CdTe layer with a laminate material and then encapsulating it in a second glass sheet. The modules meet rigorous performance testing standards demonstrating durability in a variety of environmental conditions. The PV modules conform to the International Electrotechnical Commission (IEC) test standards IEC 61646 and IEC61730 PV as tested by a third party testing laboratory certified by the IEC. In addition, the PV modules also conform to Underwriters Laboratory (UL) 1703, a standard established by the independent product safety certification organization. In accordance with UL 1703, the PV modules undergo rigorous accelerated life testing under a variety of conditions to demonstrate safe construction and to monitor their performance. Studies indicate that unless the PV module is purposefully ground to a fine dust, use of CdTe in PV modules do not generate any emissions of CdTe (Fthenakis 2003). The Project includes operational and maintenance protocols that would be used to identify and remove damaged or defective PV modules during annual inspections.

Dust palliatives and herbicides, if used during operations to control vegetation, may be transported to the Project site. These materials would be stored in appropriate containers and, to the extent applicable, managed in accordance with the Hazardous Materials Business Plan to prevent their accidental release at the site. Therefore, impacts related to operation would be less-than-significant.

Project operations would require the use of transformer oil at the Project substations and the energy storage facility could contain battery acids, as well as lead acid, sodium sulfur, and sodium or nickel hydride. All transformers would be equipped with spill containment areas and battery storage would be in accordance with OSHA requirements such as inclusion of ventilation, acid resistant materials, and spill response supplies. All components would have a comprehensive

Spill Prevention, Control, and Countermeasure plan, in accordance with all applicable federal, state, and local regulations. Dust palliatives and herbicides may be transported to the Project site if they are used during operations to control vegetation. These materials would be stored in appropriate containers to prevent accidental release. Therefore, the preparation and implementation of an HMBP that would describe proper handling, storage, transport, and disposal techniques and methods to be used to avoid spills and minimize impacts in the event of a spill, would further reduce impacts related to hazards to a less-than-significant level.

Closure, Decommissioning, and Site Restoration

It is anticipated that decommissioning and site restoration would return the site to its present-day (pre-Project) conditions to the extent feasible by proceeding substantially in accordance with the procedures described in the Preliminary Closure, Decommissioning and Reclamation Plan (Appendix B1). For example, Project structures and electrical equipment would be removed from the site and disturbed areas would be reclaimed. As described in Section 3.1 of the Preliminary Closure, Decommissioning and Reclamation Plan, "Pre-decommissioning activities would include removing hazardous materials from the site including residues that occur in equipment." Operational liquids and chemicals would be removed and properly disposed of. As described in Section 3.4 of the Preliminary Closure, Decommissioning and Reclamation Plan, disposal and transportation of hazardous waste would be conducted in compliance with all applicable requirements. Further, "In areas where no record of hazardous waste exposure occurred, a visual inspection would be conducted. If a concern is identified, further evaluation of the area shall occur and the area or structure will be treated accordingly. A licensed state waste contractor would be used to ensure that all required laws and regulations have been met and to address any remaining requirements needed to successfully close the Project."

Specifically regarding the solar panels, First Solar's existing recycling facilities are certified to meet globally-recognized standards[3] and achieve high recovery rates. First Solar indicates that up to 90 percent of the semiconductor material can be reused in new modules, 90 percent of the glass can be reused in new glass products, and that a third party conducts cadmium and tellurium separation and refining on the company's behalf (First Solar 2017). As a result, minimal disposal to landfills is expected to occur. Even if CdTe PV modules were to reach a landfill, however, current CdTe PV modules pass federal leaching criteria for non-hazardous waste, due in part to the low solubility of CdTe (Fthenakis 2003) which means they would not pose a significant risk for cadmium leaching if they reached a landfill.

Several peer-reviewed studies have evaluated the environmental, health, and safety aspects of CdTe PV modules. See, e.g., National Renewable Energy Centre 2013, Fthenakis and Zweibel 2003, and Fthenakis undated. These studies consistently have concluded that during normal operations, CdTe PV modules do not present an environmental risk. CdTe releases are also unlikely to occur during accidental breakage or fire due to the high chemical and thermal stability of CdTe. Therefore, decommissioning and disposal of Project components, including the solar

[3] Such standards include ISO 14001 for Environmental Management, ISO 9001 for Quality, and OHSAS 18001 for Occupational Health and Safety (First Solar 2013).

panels, would have a less than significant impact related to the routine transport, storage and disposal of hazardous materials.

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b) Whether the Project would 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.

Impact 3.10-2: The Project could create a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving a release of hazardous materials. (*Less Than Significant with Mitigation Incorporated*)

Initial Demolition and Construction

Potential impacts that may result from upsets or accidents during construction of the Project include the accidental release of materials, such as cleaning fluids and petroleum products including lubricants, fuels, and solvents. Implementation of the BMPs required by the NPDES Construction General Permit would reduce this impact to a less-than-significant level.

As with most agricultural properties, it is possible that irrigation lines on the Project site may contain asbestos or be wrapped in asbestos. The Phase I reports prepared for the Project site noted the presence of irrigation lines on the site and noted the potential for asbestos lining (Appendix I). A potential significant impact could result if asbestos-containing materials are uncovered during initial demolition and construction activities. Mitigation Measure 3.10-2 is recommended to reduce the potential significant asbestos-related impacts.

Despite the relatively open spaces surrounding the site, nearby sensitive receptors could be exposed to pollutant emissions during construction of the Project, resulting in adverse health risks in the event of upset or accident conditions involving hazardous materials used onsite including herbicides. However, vegetation control would primarily occur through mowing and any herbicide application would be made by qualified personnel following product label instructions and in accordance with applicable regulatory requirements such that the risk of upset and accident conditions would be minimized.

Operation and Maintenance

Operation and maintenance of the gen-tie lines, PV modules, and inverters would produce no hazardous waste and thus none that could be spilled or accidentally released. Each enclosed transformer at the substation would include mineral oil, but upsets or accidents would be controlled via the secondary containment provided in accordance with applicable federal, state, and local laws and regulations. The mineral oil contained in each transformer does not normally require replacement, minimizing the potential for upsets or accidents involving its use. Further, Health and Safety Code Section 25500 et seq. requires the preparation of hazardous materials release response plans such as a Hazardous Material Business Plan (HMBP) under specified circumstances.

Hazardous materials are unlikely to be released during accidental breakage of the PV panels because they have been found to be sufficiently contained within sheets of glass (Fthenakis, 2003). Similarly, fire damage would not result in the release of hazardous materials because at

typical flame temperatures, the CdTe compounds were not found to vaporize (Fthenakis, 2003). The polycrystalline silicon PV panel does not pose a threat to the public or the environment. Specifically, CdTe releases are unlikely to occur from accidental breakage of or fires involving the PV modules. CdTe is a highly stable semiconductor compound due to strong chemical bonding that translates to extremely low solubility in water, low vapor pressure, and a melting point greater than 1,800˚F. Potential impacts to soil, air, and groundwater quality from broken CdTe PV modules are highly unlikely to pose a potential health risk as they are below both human health screening levels and background levels (Sinha et al. 2012)

Potential CdTe emissions from fire are unlikely to occur at the Project site because of the general lack of fuel to support a sustained wildfire and the regular vegetation management activities that would occur as part of the Project. Grass fires are the most likely fire exposure scenario for ground-mounted PV systems, and these fires tend to be short-lived due to the thinness of grass fuels. As a result, these fires are unlikely to expose PV modules to prolonged fire conditions or to temperatures high enough to volatilize CdTe, which has a melting point of 1,906 ˚F. Moreover, even if a wildfire could reach that temperature, the actual CdTe emissions from a PV module would be insignificant (approximately 0.04 percent) due to encapsulation in the molten glass matrix (Fthenakis et al. 2003).

Potential CdTe emissions from broken PV modules exposed to precipitation are also unlikely. Based on warranty return data, the breakage rate of CdTe PV modules is one percent over 25 years, which translates to an average of 0.04 percent per year (Sinha, 2012). This breakage rate is an overestimate because over one-third of PV module breakage occurs during shipping and installation (Sinha, 2012). Modules that break during shipping and installation are removed from the construction site and returned to a manufacturing facility for recycling. Even if the CdTe semiconductor layer becomes exposed to the environment, it strongly resists being released from the PV module into the environment, and CdTe has an extremely low solubility in water.

The CdTe PV modules do not pose a threat to the public, including nearby residences. The use of CdTe PV modules at the Project site would not result in human or aquatic exposure of cadmium. Research on this question is summarized in an article entitled “Fate and Transport Evaluation of Potential Leaching Risks from Cadmium Telluride Photovoltaics” (Sinha et al, 2012), which further substantiates that during operation, CdTe PV modules do not pose a threat to human health or the environment due to its construction. The study evaluates the worst-case scenario to estimate potential exposures to CdTe compounds in soil, air or groundwater. The results show that exposure point concentrations in soil, air, and groundwater are one to six orders of magnitude below human health screening levels and below background levels, indicating that it is highly unlikely that exposures would pose potential health risks to onsite workers, offsite residents, or the public in general.

In addition, the hazardous materials that would be present in the Energy Storage System would be contained within specifications that follow applicable federal, state, and local requirements. OSHA requirements call for the inclusion of appropriate ventilation, acid resistant materials, and presence of spill protection supplies.

Herbicides may be used as part of the Project if necessary to control vegetation that cannot be controlled adequately through mowing and/or where leaving vegetation root structure in place

may be beneficial (e.g., prevention of erosion and dust generation). If not handled properly, use of these herbicides could create a hazard to the public (construction workers, maintenance employees, and nearby residences), which would result in a potentially significant impact unless (in part) addressed as described in the Project Description. See Section 2.5.4.2 of the Project Description under the heading Land Preparation, where it says, "Herbicide would be applied by qualified personnel following product label instructions and applicable regulations." This applicant-proposed activity would reduce impacts related to use of herbicides to a less-than-significant level.

As noted above, the Project would not involve the routine transport, use, or disposal of hazardous materials, as defined by the Hazardous Materials Transportation Uniform Safety Act. The closest designated route for the transport of hazardous materials is State Route 138, which is located 3 miles south of the Project site. Adherence to regulations and standard protocols during the storage, transportation, and usage of any hazardous materials would minimize and avoid the potential for significant upset and accident condition impacts.

Overall, adherence to regulations and standard protocols during the storage, transportation, and usage of any hazardous materials, and implementation of Mitigation Measure 3.10-2 would minimize or reduce potential impacts to a less-than-significant level.

Closure, Decommissioning, and Site Restoration

The closure, decommissioning, and site restoration process is summarized under Impact 3.10-1, above. Most panel materials would be recycled to the extent feasible, with minimal disposal to occur in landfills in compliance with all applicable laws. The PV module manufacturer provides CdTe module collection and recycling services. In any case, current CdTe PV modules pass federal leaching criteria for non-hazardous waste, due in part to the low solubility of CdTe, which means they would not pose a significant risk for cadmium leaching if they reached a landfill. U.C. Santa Barbara's Bren School of Environmental Science & Management published an assessment of the Environmental Impacts of Utility-Scale Battery Storage in California (Balakrishnan et al. 2018), which concluded that the potential environmental impacts from batteries can be substantially reduced if the batteries ultimately are recycled rather than landfilled. Because the batteries within the Energy Storage System would be recycled to the extent feasible, minimal landfill disposal is anticipated and the decommissioning and disposal of the solar plant site components including the batteries would have a less than significant impact related to upset and accident conditions.

Mitigation Measure 3.10-2: Suspected Asbestos-containing Materials

The Project proponent shall continuously comply with the following mitigation in the event that materials suspected to contain asbestos are uncovered during initial demolition and construction activities:

1. In the event that suspect asbestos-containing materials are discovered during Project activities, work within a 100-foot distance of the discovery shall immediately halt and a California-certified asbestos professional shall take samples for analysis of the suspect materials.

2. All damaged asbestos-containing material and asbestos-containing material that would be disturbed by Project activities shall be removed in accordance with federal,

state, and local laws and the National Emissions Standards for Hazardous Air Pollutants guidelines before work may recommence.

3. All demolition activities shall be undertaken in accordance with California Occupational Safety and Health Administration standards, as contained in Title 8 of the California Code of Regulations, Section 1529, to protect workers from exposure to asbestos. Demolition shall be performed in conformance with federal, state, and local laws and regulations so that construction workers and/or the public avoid significant exposure to asbestos-containing materials.

Significance after Mitigation: Less than Significant. The implementation of Mitigation Measure 3.10-2 would reduce impacts related to asbestos to a less-than-significant level because it would require work at the Project site to halt so that a proper assessment could be made of the suspect materials and all potentially friable asbestos-containing materials could be removed in accordance with applicable law.

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c) Whether the Project would emit hazardous emissions or handle hazardous substances or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school. (*No Impact*)

The Project would not emit hazardous emissions or handle hazardous substances within a 0.25-mile radius of an existing or proposed school. There are no schools, existing or planned, within a 0.25-mile radius of the Project site. In addition, the Project would not include any substantive emissions or handling of hazardous waste. Therefore, there would be no impact related to this criterion.

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d) Whether the Project would 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, create a significant hazard to the public or the environment. (*No Impact*)

The Project is not located on a site included on a list of hazardous materials sites pursuant to Government Code Section 65962.5. According to the Phase I reports prepared for the Project site (Appendix I) and a recent review of publicly available environmental databases, the Project site is not listed as a hazardous materials site (SWRCB, 2018; DTSC, 2018). As a result, the potential impact related to being included on a hazardous materials site list would be negligible.

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e) Whether the Project is located within an airport land use plan or within 2 miles of a public airport or a public use airport, and so result in a safety hazard or excessive noise for people residing or working in the project area. (*No Impact*)

The Project would not be located within an airport land use plan or within 2 miles of public airport. The William Robert Johnston Airport is the closest airport to the Project site and is more than 2 miles away. As a result, the Project site is not part of any airport land use plan and would

not interfere or result in any safety hazard to visitors or workers at the site. There would be no impact related to airports.

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f) Whether the Project would impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (*No Impact*)

The Project would not impair implementation of or physically interfere with the Fresno County Operational Area Master Emergency Services Plan coordinated by the Fresno County Office of Emergency Services. The Project site is located in a sparsely-populated rural area. The Project would not alter or impair any of the existing road networks and would require relatively low staffing for operation and maintenance activities. As a result, the Project would not impair implementation of or physically interfere with any adopted emergency response plan or emergency evacuation plan. There would be no impact.

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g) Whether the Project would expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

Impact 3.10-3: The Project would not expose people or structures to significant risk due to wildland fires. (*Less than Significant Impact*)

The Project site is sparsely vegetated in a largely agricultural region with no forested areas within the vicinity. According to the California Department of Forestry and Fire Protection, the site is not identified as an area of high fire risk (CAL FIRE 2007). The Project would include elements such as battery storage in the Energy Storage Systems and other electrical equipment that could be susceptible to fire. However, each Energy Storage System used on site would be designed, operated, and ultimately disposed of in compliance with all applicable requirements including, for example, Section 608 of the International Fire Code (IFC), which has been adopted by the State of California and Fresno County, to minimize risk of fire from stationary battery storage systems and contain fire in the event of such an incident; Article 480 of the Electrical Code, which identifies insulation and venting requirements for stationary storage batteries to further reduce potential fire risk. The proposed O & M building also would be required to adhere to the California Fire Code and include fire safety and prevention measures, as applicable. Therefore, with adherence to these fire suppression design requirements, and the physical characteristics of the Project location, the potential impacts related to wildfires would be less than significant.

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h) Whether the Project is located in or near state responsibility areas or lands classified as very high fire hazard severity zones. (*No Impact*)

The Project site is not located within a state responsibility area and is not within a designated "very high fire hazard severity" area (CAL FIRE 2007, 2008). Therefore, there would be no impact related to a state responsibility area or lands classified as very high fire hazard severity.

3.10.3.3 Direct and Indirect Effects of Alternatives

Reduced Acreage Alternative

The Increased Habitat/Reduced Acreage Alternative would consist of less construction disturbance, and a reduction in the number of solar panels and associated infrastructure. As a result, there would be a reduction in the amount of hazardous materials required for construction and operation, although the use of hazardous materials during operation under the Project already is not substantial. However, the NPDES Construction General Permit would still apply to this alternative to reduce potential construction impacts to less than significant. Other impacts associated with the operational phase of the Project generally would be reduced but similarly addressed by the existing regulatory requirements as under the Project. This Alternative would require the same mitigation measures identified for the Project to address potential asbestos-related and herbicide-related impacts. Overall, the potential impacts would be reduced compared to the Project, but with implementation of regulatory requirements and the mitigation measures identified above, the impacts would be less than significant.

No Project Alternative

If the No Project Alternative is implemented, the proposed demolition of structures would not occur; neither the solar facilities nor the Little Bear gen-tie line would be constructed, operated, or maintained; and the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would cause no impact to Hazards and Hazardous Materials.

3.10.4 Cumulative Analysis

As analyzed in Section 3.10.3, the Project would have no impact related to the emission of hazardous emissions or handling of hazardous substances or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school; no impact related to the location of the Project on a listed hazardous materials site; no impact related to airport-related hazards; no impact related to impairment of the implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan; and no impact related to location within an SRA or a very high fire hazard severity zone. Therefore, the Project could not cause or contribute to any cumulative effect in any of these regards.

Also as analyzed in Section 3.10.3, the Project would contribute less than significant impacts to cumulative conditions related to the potential creation of a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials and the potential exposure of people or structures to significant risk due to wildland fires. With mitigation measures incorporated, the Project would contribute a less-than-significant impact related to the potential creation of a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving a release of hazardous materials. The Project could contribute these incremental less-than-significant impacts to cumulative conditions at any

time from the initiation of transportation of materials to the site for initial demolition and construction through the conclusion of on-site work following final site restoration.

The geographic scope of consideration for potential cumulative impacts to these considerations encompasses the Project site, a 0.25-mile-radius area around the Project site, and the roadways that could be used to transport hazardous materials for Project use. Risks related to hazards and hazardous materials typically are localized in nature since they tend to be related to onsite site-specific conditions and/or hazards caused by the project's construction or operation. A geographic scope of a 0.25-mile-radius also coincides with the distance used to determine whether hazardous emissions or materials would have a significant impact upon an existing or proposed school.

Ongoing impacts of past projects are reflected in the description provided in Section 3.10.1.1, Environmental Setting. As noted, no sites located within 1 mile of the Project site are identified as in the Geotracker database (SWRCB 2018) or the EnviroStor database (DTSC 2018). Thus, there is no evidence of significant adverse cumulative conditions to which the Project and other present or future projects could contribute.

Two projects are identified as part of the cumulative scenario (Table 3.1-1, Little Bear Solar Generating Facility Project Cumulative Impact Analysis Projects List) within 0.25-mile of the Project site that could be causing impacts that might combine with those of the Project: The North Star Solar Project is adjacent to and directly north of Little Bear 1 and the Citizen Solar B project is located adjacent to and northwest of Little Bear 1. Both projects are in the operation and maintenance phase. Either with or without mitigation measures, it is assumed for purposes of this analysis that both projects are contributing less-than-significant impacts related to the routine transport, use, or disposal of hazardous materials; reasonably foreseeable upset and accident conditions involving a release of hazardous materials; and wildland fire risks. This assumption is based on the fact that mitigated negative declarations were adopted as part of the CEQA review for each project and because both are PV solar projects likely to generate similar types of impacts as the Project but at less intensity given the comparatively smaller site size. No reasonably foreseeable future projects are identified as part of the cumulative scenario within the relevant geographic area.

The incremental, less-than-significant impacts of the Project would not combine with the incremental impacts of the North Star Solar Project and the Citizen Solar B project to cause a significant cumulative impact because the handling, use, and/or storage of hazardous materials would be project-site-specific and would not include measureable amounts of hazardous materials that could combine in the soils, water, or air with the incremental impacts of the other cumulative projects. Conformance with existing federal, state, and county requirements and implementation of appropriate safety measures would further minimize potential cumulative effects.

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3.11 Hydrology and Water Quality

This section identifies and analyzes issues related to Hydrology and Water Quality in the context of the Project and alternatives. It includes the environmental and regulatory setting; the criteria used to determine the significance of potential impacts; the methods used in evaluating these impacts; and the results of the impact assessment. The County did not receive any scoping comments regarding Hydrology and Water Quality (Appendix A).

This analysis is based in part on a Project-specific and site-specific Hydrology and Water Quality Technical Report prepared by Dudek in September 2017 (Appendix J1), a Water Supply Assessment prepared by West Yost Associates in January 2018 (Appendix J2), an Identification of Sources of Water for the Little Bear Solar Project Pursuant to Requirements of Fresno County Solar Facility Guidelines also prepared by West Yost Associates in January 2018 (Appendix J3), and a letter report regarding water supply that was prepared by URS in October 2015 (Appendix J4). The preparers of this Draft EIR independently reviewed these and other materials prepared by or on behalf of the Applicants and determined them to be suitable for reliance on (in combination with other materials included in the formal record) in the preparation of this Draft EIR.

3.11.1 Setting

3.11.1.1 Environmental Setting

Regional Setting and Climate

The Project site is located in the southern portion of the San Joaquin Valley. The San Joaquin Valley makes up the southern half of the great California Central Valley. The portion of the Valley in which the Project site is located is bounded on the east by the foothills of the Sierra Nevada Range and on the west by the Coast/Diablo Range. The San Joaquin Valley is characterized by a Mediterranean climate of hot, dry summers and cool, rainy winters. Most rainfall occurs between the months of November and March. Average annual precipitation at the Project site is relatively low, ranging from 6 to 7 inches per year, increasing eastward (WRCC 2018). The Project site is located in the west-central portion of the southern San Joaquin Valley floor, in a fairly flat area comprised predominantly of floodplain and terrace deposits with elevations ranging from 175 to 200 feet above mean sea level (msl) (Appendix J3). The site and vicinity have a gentle slope from west to east and characterized by predominantly agricultural land uses with a few scattered residences.

Surface Water Hydrology

The San Joaquin Valley generally is comprised of two large basins: the San Joaquin River basin, which drains northward to the Delta, and the Tulare-Buena Vista Lakes basin, which forms the southernmost extent of the San Joaquin Valley and is internally drained (i.e., it has no natural surface water outlet). The Project site is within the latter (Tulare-Buena Vista Lakes basin), which is bordered by the San Joaquin River basin to the north, the Sierra Nevada mountains to the east, the Coast/Diablo Range mountains to the west, and the Tehachapi Mountains to the south. Historically, drainages in area surrounding the Project site (such as the Kings River) flowed

toward and/or into Tulare Lake or other similar features and depressions on the valley floor. Tulare Lake had no natural outlet below a certain elevation and at lake levels above this, water from Tulare Lake could flow northward into the San Joaquin River basin (ECORP 2007).

Within the Tulare Lake Basin, the project site falls within the Huron hydrologic subarea of the Westlands hydrologic area. The region is characterized by low average annual precipitation on relatively level land.

Fresno Slough and the Kings River

The Kings River drains a portion (1,742 square miles) of the Sierra Nevada Range and spills onto the San Joaquin Valley floor (from the east) approximately 50 miles east of the Project site, near Fresno. For the most part it is internally drained, flowing west and southwest toward the historic location of Tulare Lake. However, during flood flows a portion of the Kings River can connect and drain north to the San Joaquin River watershed. Fresno Slough is one of the historic connections between the Kings River and the San Joaquin River, though it has been modified in recent times to become part of the large and intricate regional irrigation system. The Fresno Slough functions as both a distributary[1] of the Kings River, which is located over 30 miles to the southeast, as well as a southerly conveyance of irrigation water from the Mendota Pool (located about 4.5 miles to the north-northeast). During the irrigation season, water is directed south from the San Joaquin River at the Mendota Pools towards the Kings River through a series of irrigation control structures (pumps, canals). Only under exceptional circumstances (i.e., when the Kings River is at flood stage) does water flow north through the Fresno Slough to the San Joaquin River. The relatively flat grade of the Fresno Slough and the topographic position between two major river systems (i.e., the Kings River and San Joaquin River) does permit water to flow in both directions but it rarely flows north.

Project Site Drainage

Existing stormwater drainage infrastructure in the project area is limited to pipe culverts that intersect main roads (Appendix J1). Stormwater runoff generated from the Project area generally flows east-northeast through roadside swales which receive runoff from adjacent agricultural plots, and ultimately discharges into the Fresno Slough, located approximately 3 miles east of the Project site.

Prior to discharging to the Fresno Slough, surface flow passes over the San Luis Drain through a culvert along West Panoche Road approximately 1.5 miles east of the site. This drainage feature was engineered to receive subsurface flows from the surrounding agricultural fields while precluding the discharge of surface flows into it, and conveying them to the Sacramento-San Joaquin Bay Delta. Due to high concentrations of selenium in the agricultural discharge, this use of this drainage feature was discontinued in 1985 and the system was closed to the Delta (U.S. Bureau of Reclamation 2012).

[1] A distributary allows stream flow to occur away from a main stream channel, the opposite of a tributary.

Surface Water Quality

The Central Valley Regional Water Quality Control Board (RWQCB) implements the Water Quality Control Plan for the Tulare Lake Basin (Basin Plan) (Central Valley RWQCB 2016), which designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan (Water Code §§13240–13247). The Basin Plan provides quantitative and narrative criteria for a range of water quality constituents applicable to certain receiving water bodies and groundwater basins within the Tulare Lake Basin. Specific criteria are provided for the larger, designated water bodies within the region, as well as general criteria or guidelines for surface and groundwater. In general, the narrative criteria require that degradation of water quality does not occur due to increases in pollutant loads that will adversely affect the designated beneficial uses of a water body. Surface waters within the Huron Subarea have been assigned beneficial uses agricultural and industrial water supply, industrial process, recreation, wildlife habitat, and rare species habitat.

Groundwater Hydrology

The Central Valley is characterized by one large aquifer composed of numerous smaller interconnected groundwater basins and subbasins. The Project site is located within the approximately 640,500 acre Westside Subbasin (5-22.09), within the larger San Joaquin Valley Groundwater Basin (5-22) (approximately 8,871,000 acres) as defined by the Department of Water Resources (DWR) Bulletin 118 (DWR 2006). The Westside Subbasin is characterized by an upper unconfined to semi-confined aquifer and a lower confined aquifer. The two aquifers are separated by an aquitard known as the Corcoran Clay (E-Clay) member of the Tulare Formation. The depth to the top of the Corcoran Clay varies from approximately 500 feet to 850 feet (DWR 2006). Primary recharge to the aquifer system is from the seepage of Coast Range streams along the west side of the subbasin and the deep percolation of surface irrigation.

Groundwater Quality

Groundwater quality in the subbasin generally is high in sulfate, a naturally-occurring mineral, or bicarbonate type which means it is high in alkalinity, a measure of the capacity of water to neutralize acid (DWR 2006). The upper aquifer is generally high in calcium and magnesium sulfate. Groundwater below 300 feet and above the Corcoran Clay layer show a tendency to have decreased dissolved solids. In general, the lower aquifer has higher quality water than the upper. Areas of the subbasin have high total dissolved solids, an indication of salt content, in the upper aquifer as wells as some areas of high selenium and boron.

Flooding

The Federal Emergency Management Agency (FEMA) produces Flood Insurance Rate Maps (FIRMs) to identify flood zones and areas that are susceptible to 100-year and 500-year floods. According to FEMA FIRM Panel 06019C1985H, the Project site is not located within a FEMA Special Flood Hazard Area, which includes all types of 100-year flood zones (FEMA 2018) Furthermore, the Project is also outside of a 500-year flood zone (i.e., unshaded Zone X).

Dam Inundation Zones

The Project site is not located within any potential dam inundation zones (Appendix J1).

3.11.1.2 Regulatory Setting

Federal and State

The primary statutes that govern the activities related to the Project that could affect water quality are the federal Clean Water Act (CWA) (33 U.S.C. §1251) and the Porter-Cologne Water Quality Control Act (Porter-Cologne) (Water Code §13000 et seq.). These acts provide the basis for water quality regulation that is applicable to the Project. Groundwater use typically is managed at the local level although State requirements, including the Groundwater Management Act (Water Code §10750 et seq.), which encourages local agencies to develop groundwater management plans, would not apply directly to the Project. Similarly, the Sustainable Groundwater Management Act (Water Code §10720 et seq.) requires local agencies to prepare groundwater sustainability plans.

The California Legislature has assigned the primary responsibility to administer and enforce statutes for the protection and enhancement of water quality to the State Water Resources Control Board (SWRCB) and its nine RWQCBs. The SWRCB provides state-level coordination of the water quality control program by establishing statewide policies and plans for the implementation of state and federal regulations. The nine RWQCBs throughout California adopt and implement water quality control plans that recognize the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and water quality problems. The RWQCB adopts and implements a Water Quality Control Plan that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan (Water Code §§13240-13247).

Clean Water Act

The CWA, enacted by Congress in 1972 and amended several times since its inception, is the primary federal law regulating water quality in the United States and forms the basis for several state and local laws throughout the country. Its objective is to reduce or eliminate water pollution in the nation's rivers, streams, lakes, and coastal waters. The CWA authorizes the U.S. Environmental Protection Agency (USEPA) to implement federal water pollution control programs such as setting water quality standards for contaminants in surface water, establishing wastewater and effluent discharge limits for various industry categories, and imposing requirements for controlling nonpoint-source pollution. At the federal level, the CWA is administered by the USEPA and U.S. Army Corps of Engineers (USACE). At the state and regional levels, the act is administered and enforced by the SWRCB and the nine RWQCBs.

Beneficial Use and Water Quality Objectives (CWA §303)

The RWQCB is responsible for the protection of the beneficial uses of waters within Fresno County. The RWQCB uses its planning, permitting, and enforcement authority to meet this responsibility and has adopted the Water Quality Control Plan for the Tulare Lake (the "Basin Plan") to implement plans, policies, and provisions for water quality management. The RWQCB

published the second edition of the Basin Plan which was approved into law in February 1996 and has been subsequently updated, most recently in July 2016 (RWQCB 2016).

In accordance with state policy for water quality control, the RWQCB employs a range of beneficial use definitions for surface waters, groundwater basins, marshes, and mudflats that serve as the basis for establishing water quality objectives and discharge conditions and prohibitions. The Basin Plan identifies existing and potential beneficial uses supported by the key surface water drainages throughout its jurisdiction (RWQCB 2016). **Table 3.11-1** identifies beneficial uses designated in the Basin Plan for the surface water and groundwater bodies relevant to the Project site. The Basin Plan also includes water quality objectives that are protective of the identified beneficial uses; the beneficial uses and water quality objectives collectively comprise the water quality standards for a given region and Basin Plan (RWQCB 2016).

TABLE 3.11-1
DESIGNATED BENEFICIAL USES OF WATER BODIES IN THE PROJECT SITE AND SURROUNDING AREA

Water Body	Designated Beneficial Uses
Valley Floor Waters	Agricultural Supply (AGR), Industrial Service Supply (IND), Industrial Process Water Supply (PRO), Groundwater Recharge (GWR), Body Contact Recreation (REC-1), Noncontact Recreation (REC-2), Wildlife Habitat (WILD), Warm Freshwater Habitat (WARM), and Preservation of Rare and Endangered Species (RARE)
Westside Groundwater Basin	Municipal and Domestic Supply (MUN), AGR, and IND

SOURCE: RWQCB 2016

National Pollutant Discharge Elimination System Program (CWA §402)

The CWA provides that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Amendments to the CWA added a framework for regulating municipal and industrial stormwater discharges, as well as stormwater discharges from construction sites that disturb one or more acres of soil. In California, the SWRCB has been delegated permitting authority for discharges regulated by NPDES permits.

NPDES Construction General Permit

The RWQCB administers the NPDES stormwater permitting program in the Central Valley Region. Construction activities disturbing 1-acre or more of land, which includes the Project, are subject to the permitting requirements of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (Construction General Permit) and must apply for Construction General Permit coverage.

The Construction General Permit requires that the site be assigned a risk level of 1 (low), 2 (medium), or 3 (high) based on sediment and receiving waters risk. The sediment risk level is the relative amount of sediment that can be discharged given the project and location details. The receiving water's risk level reflects the risk sediment discharges pose to the receiving waters. A construction analysis provides a preliminary risk level assessment.

The Construction General Permit requires the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP), which must be prepared before construction begins. At a minimum, a SWPPP includes:

- Description of construction materials, practices, and equipment storage maintenance;
- List of pollutants likely to contact stormwater and site-specific erosion and sedimentation control practices;
- List of provisions to eliminate or reduce discharge of materials to stormwater;
- Best management practices (BMPs) for fuel and equipment storage;
- Non-stormwater management measures such as installing specific discharge controls during activities such as paving operations and vehicle and equipment washing and fueling; and
- Commitment that equipment, materials, and workers will be available for rapid response to spills and/or emergencies. All corrective maintenance or BMPs will be performed as soon as possible, depending upon worker safety.

The SWPPP provides specific construction-related BMPs to prevent soil erosion and loss of topsoil. BMPs implemented could include, but would not be limited to: physical barriers to prevent erosion and sedimentation, construction of sedimentation basins, limitations on work periods during storm events, use of swales, protection of stockpiled materials, and a variety of other measures that would substantially reduce or prevent erosion from occurring during construction. Post-construction requirements require that construction sites match pre-project hydrology to ensure that the physical and biological integrity of aquatic ecosystems are sustained in their existing condition. However, other requirements apply if the site is located within an area subject to the post-construction standards of an active Phase I or II municipal separate storm sewer system (MS4) permit that has an approved stormwater management plan. The Project site is subject to the waste discharge requirements of the Phase I MS4 permit for Fresno County (see below).

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act, Water Code §13000 et seq.) establishes the SWRCB and each RWQCB as the principal state agencies with primary responsibility to coordinate and control water quality in California. The SWRCB establishes statewide policy for water quality control and provides oversight of the RWQCBs' operations. The RWQCBs have jurisdiction over specific geographic areas that are defined by watersheds. In addition to other regulatory responsibilities, the RWQCBs have the authority to conduct, order, and oversee investigation and cleanup where discharges or threatened discharges of waste to waters of the State could cause pollution or nuisance, including impacts to public health and the environment. Fresno County is under the jurisdiction of the Central Valley RWQCB.

Waste Discharge Requirements

Actions that involve or are expected to involve discharge of waste may be subject to waste discharge requirements (WDRs) under the Porter-Cologne Act. Chapter 4, Article 4 of the Porter-Cologne Act (Water Code §§13260-13274) states that persons discharging or proposing to

discharge waste that could affect the quality of waters of the state (other than into a community sewer system) shall file a Report of Waste Discharge with the applicable RWQCB. However, the RWQCB has issued a waiver for certain types of discharges, as discussed below.

Waiver for Specific Types of Discharges (Central Valley RWQCB Resolution R5-2013-0145)

The RWQCB has adopted a waiver of WDR (Resolution R5-2013-0145, *Waiver of Reports of Waste Discharge and Waste Discharge Requirements for Specific Types of Discharge within the Central Valley Region*) for specific types of low-threat discharges to the land surface within the Central Valley region. Construction dewatering and dredged material disposal to land are among the activities covered by this waiver, providing the subject activities meet the conditions specified within the waiver. Waivers serve much the same purpose as general permits in that they are intended to describe a range of protective measures that could be applied to a broad category of activities. This waiver must be obtained from the RWQCB for any actions that would potentially involve dewatering and/or long-term storage of excavated material on the land surface.

Local

Storm Water Quality Management Program

On May 31st, 2013, the Central Valley Water Board adopted Waste Discharge Requirements Order R5-2013-0080 (Order) (NPDES Permit No. CA0083500), prescribing waste discharge requirements for the Fresno Metropolitan Flood Control District, City of Fresno, City of Clovis, Fresno County, and California State University Fresno (collectively referred to as "Permittees") Phase I MS4, Fresno County. This Board order required the Permittees to revise the Storm Water Quality Management Program (SWQMP) to address the requirements of Order R5- 2013-0080 and to submit the revised program for public review/comment and adoption by the Central Valley RWQCB, which approved a revised SWQMP on April 17, 2015 as Resolution No. R5-2015-0046. The Storm Water Quality Management Program includes the following components:

1. Program Management
2. Construction Program
3. Industrial and Commercial Program
4. Municipal Operations Program
5. Illicit Connection and Discharge Program
6. Public Involvement and Education Program
7. Planning and Land Development Program
8. Stormwater Quality Monitoring Program
9. Program Effectiveness Assessment and Reporting Program

Fresno County General Plan

The following policies identified in the General Plan Open Space and Conservation, and Public Facilities and Services Elements (Fresno County 2000) would apply to the Project:

Policy OS-A.23: The County shall protect groundwater resources from contamination and overdraft by pursuing the following efforts:

a. Identifying and controlling sources of potential contamination;

b. Protecting important groundwater recharge areas;

c. Encouraging water conservation efforts and supporting the use of surface water for urban and agricultural uses wherever feasible;

d. Encouraging the use of treated wastewater for groundwater recharge and other purposes (e.g., irrigation, landscaping, commercial, and nondomestic uses);

e. Supporting consumptive use where it can be demonstrated that this use does not exceed safe yield and is appropriately balanced with surface water supply to the same area;

f. Considering areas where recharge potential is determined to be high for designation as open space; and g. Developing conjunctive use of surface and groundwater.

Policy OS-A.25: The County shall minimize sedimentation and erosion through control of grading, cutting of trees, removal of vegetation, placement of roads and bridges, and use of off-road vehicles. The County shall discourage grading activities during the rainy season unless adequately mitigated to avoid sedimentation of creeks and damage to riparian habitat.

Policy OS-A.26: The County shall continue to require the use of feasible and practical best management practices (BMPs) to protect streams from the adverse effects of construction activities and urban runoff.

Policy PF-C.3: To reduce demand on the County's groundwater resources, the County shall encourage the use of surface water to the maximum extent feasible.

Policy PF-E.7: The County shall require new development to pay its fair share of the costs of Fresno County storm drainage and flood control improvements within unincorporated areas.

Policy PF-E.11: The County shall encourage project designs that minimize drainage concentrations and maintain, to the extent feasible, natural site drainage patterns.

Policy PF-E.13: The County shall encourage the use of natural storm water drainage systems to preserve and enhance natural drainage features.

Policy PF-E.14: The County shall encourage the use of retention-recharge basins for the conservation of water and the recharging of the groundwater supply.

Policy PF-E.21: The County shall require the use of feasible and practical best management practices (BMPs) to protect streams from the adverse effects of construction activities, and shall encourage the urban storm drainage systems and agricultural activities to use BMPs.

Fresno County Solar Facility Guidelines

The Fresno County Solar Facility Guidelines (Fresno County 2017) include a number of provisions applicable to the process for the review of applications for solar facilities that are relevant to hydrology and water quality. These include:

- Information shall be submitted that identifies the source of water for the subject parcel (surface water from irrigation district, individual well(s), conjunctive system). If the source of water is via district delivery, the applicant shall submit information documenting the allocations received from the irrigation district and the actual disposition of the water (i.e., utilized on-site or moved to other locations) for the last ten years. If an individual well system is used, provide production capacity of each well, water quality data and data regarding the existing water table depth;
- Identify (with supporting data) the current soil type and mapping units of the parcel pursuant to the standards of the California State Department of Conservation and the Natural Resources Conservation Service;
- Provide a Reclamation Plan detailing the lease life, timeline for removal of the improvements and specific measures to return the site to the agricultural capability prior to installation of solar improvements.

Fresno County Development Services and Capital Projects Division

The Development Services Division provides a complete range of land use, engineering, resource management and development services. Development Services is comprised of four sections: Building & Safety, Development Engineering, Planning & Environmental Analysis and Water, Geology and Natural Resources. Prior to issuance of a building permit, development projects are required to submit an Engineered Grading and Drainage Plan for review and approval prior to the County issuing a building permit for construction. A grading permit or voucher shall be required for any grading proposed with this application. Drainage requirements can include the design of an on-site retention basin designed to County Standards to retain the runoff from existing and proposed development.

3.11.2 Significance Criteria

A project would result in significant impacts to Hydrology and Water Quality if it would:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;

b) Substantially decrease[2] groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

[2] CEQA Guidelines Appendix G Section VIII, *Hydrology and Water Quality*, asks whether a project will "substantially deplete" groundwater supplies. To avoid potential confusion that may arise by a reading of the word "deplete" as meaning "empty," this analysis clarifies the question to ask whether the project would "substantially decrease groundwater supplies."

i. result in substantial erosion or siltation on- or off-site;

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

iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

iv. impede or redirect flood flows.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

3.11.3 Direct and Indirect Effects

3.11.3.1 Approach to Analysis

This impact analysis considers the potential impacts to Hydrology and Water Quality of activities associated with the initial demolition and construction, operation and maintenance, and decommissioning and site reclamation for the Project and alternatives. The analysis considers the potential direct, indirect, and cumulative impacts on hydrology and water resources as well as any mitigation measures that would be implemented to avoid or minimize potential significant impacts. Water resources comprise surface water, groundwater, and water quality considerations. Surface waters include, but are not limited to, overland flow, undirected flow, and deliberately channeled surface water flow.

3.11.3.2 Direct and Indirect Effects of the Project

a) Whether the Project would violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.

Impact 3.11-1: The Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. (*Less Than Significant Impact*)

Initial Demolition and Construction; Decommissioning and Site Restoration

The Project site is relatively flat, with only a modest potential for any concentrated runoff to occur. This condition would not change with Project construction, which would include the following activities: demolition of the existing structures within the Little Bear 3 site, grading for access roads; stationary ground-mounted PV module foundations; inverters and transformers; substations; potential installation of a permanent O&M building; and the material laydown and equipment staging areas. Conventional grading would be performed throughout the site. However, because the area is relatively flat, it is anticipated that grading would be limited in most areas. Grading and maintenance excavation would also be required for the proposed foundations. These activities would affect current drainage patterns and/or erosion on the Project site; however careful design of access road gradients and other Project features, such as the inverter pads, would prevent substantial alterations to drainage patterns and/or erosion within the site. In

addition, the Project would be required to prepare and implement an Engineered Grading and Drainage Plan as approved by the County Development Engineering department prior to the County issuing a building permit for construction. The grading permit would ensure that proposed grading and drainage features would be consistent with County requirements.

The amount of impervious surfaces from construction of access roads; PV module foundations; substation; and the O&M building would be relatively limited compared to the overall perviousness of the Project site (0.94 percent of the site) and spread out across the entire Project area.

Potential impacts on water quality from erosion and sedimentation are expected to be localized and temporary during construction and decommissioning/site restoration. Activities would disturb more than 1 acre and would require the project proponent to prepare and implement a SWPPP for the Project in accordance with the NPDES General Construction Permit. The SWPPP would include BMPs to be implemented to prevent soil erosion and discharge of other construction-related pollutants that could contaminate nearby drainages, and would be applicable to all aspects of the Project, including the solar fields and the gen tie line. Specific BMPs for the construction phase would be identified during completion and County review of the SWPPP. However, typical BMPs which could be implemented include the following:

- Proper stockpiling and disposal of demolition debris, concrete, and soil
- Installation of a stabilized construction entrance/exit and stabilization of disturbed areas
- Implementing erosion controls
- Properly managing construction materials
- Proper protections for fueling and maintenance of equipment and vehicles
- Managing waste, aggressively controlling litter, and implementing sediment controls

In addition, during Project construction and decommissioning, any activity that results in the accidental release of hazardous or potentially hazardous materials could result in water quality degradation. Materials that could contribute to this impact include, but are not limited to, the following: diesel fuel, gasoline, lubricant oils, hydraulic fluid, antifreeze, transmission fluid, lubricant grease, cement slurry, and other fluids utilized by construction and maintenance vehicles and equipment. Motorized equipment could leak hazardous materials such as motor oil, transmission fluid, or antifreeze due to inadequate or improper maintenance, unnoticed or unrepaired damage, improper refueling, or operator error. As noted in Section 3.10, *Hazards and Hazardous Materials,* the Project would be required to provide a Hazardous Materials Business Plan that would delineate hazardous material and hazardous waste storage areas; describe proper handling, storage, transport, and disposal techniques; describe methods to be used to avoid spills and minimize impacts in the event of a spill; describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction; and establish public and agency notification procedures for spills and other emergencies, including fires. The Project proponent would provide the Hazardous Materials Business Plan to all contractors working on the Project site and would ensure that one copy is available at the Project site at all times.

Operation and Maintenance

The solar facilities would require limited use of certain hazardous materials for routine daily operations and maintenance. Accidental release of such materials could include fuels, paints, coatings, lubricants, and transformer oil, which would result in water quality degradation, if the materials were to become entrained in stormwater. This would result in a potentially significant impact on water quality. However, implementation of the required Hazardous Materials Business Plan would minimize this impact by ensuring safe handling of hazardous materials on site, and providing for cleanup in the event of an accidental release. There would be no hazardous materials associated with operation of the gen-tie.

In addition to accidental releases of potential hazardous materials, water quality could also be degraded as a result of increases in pollutants washed from impervious surfaces. Briefly, during dry periods, impervious surfaces (i.e., hardscape surfaces such as proposed paved roads, paved parking areas, buildings, and other hardscape) can collect greases, oils, and other vehicle-related pollutants. During storm events, these pollutants can become entrained in surface waters, resulting in water quality degradation. However, during operation, the project would be required to adhere to the Stormwater Quality Management Plan (SWQMP) in accordance with the RWQCB's adopted Waste Discharge Requirements Order R5-2013-0080 (NPDES Permit No. CA0083500). The SWQMP requires site drainage plans be incorporated into development during the design stage in order to include development standards designed to protect water quality. Specifically, the Project proponent would be required to prepare and submit a drainage plan to the County for approval of post-construction structural and nonstructural BMPs that could include Low Impact Development features such as drainage swales for collection of runoff prior to offsite discharge. Routine structural BMPs are intended to address water quality impacts related to drainage that are inherent in development. Examples of routine structural BMPs include filtration, drainage swales, runoff-minimizing landscape for common areas, energy dissipaters, inlet trash racks, and water quality inlets. Adherence to these requirements would minimize potential for operation period water quality degradation. Apart from infrequent cleaning of panels with water, which is unlikely to result in offsite discharges due to the volume of water required, no other discharges would be necessary during operation of the Project.

For these reasons, the Project would have a less-than-significant impact relating to criterion a).

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b) Whether the Project would substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin.

Impact 3.11-2: The Project would not 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. (*Less Than Significant Impact*)

The Project area is located on mostly undeveloped land, with the exception of some sparse residential development in the vicinity. The area historically has been used for agricultural activities but, consistent with a non-irrigation covenant executed by Westlands Water District on

December 21, 2006, the site currently is not irrigated. The history of agricultural water use at the Project site is not available (Appendix J3). The existing well on the neighboring North Star Solar Project site would be used to provide the estimated 200 acre-feet of water that will be needed during the construction period.

Potential impacts of the use of groundwater relate to lowering the level of the groundwater table and may include, for example: a result where 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; subsidence; altering surface stream hydrology; and causing migration of contaminants. The North Star well was constructed in 2000 and consists of 16-inch diameter steel casing to a depth of 900 feet below ground surface. The well was previously used for the construction of the North Star Solar Project. During construction of that project with a relatively similar water demand, water was pumped at rates of 125 gallons per minute (gpm) with an observed drawdown that was consistent with estimated drawdowns based on the aquifer properties (Appendix J4). Once construction of that solar project was complete, groundwater levels returned to previous levels and no permanent deficit to the aquifer volume or lowering of the water table was observed (Appendix J4). The estimated pumping rates for this project would be approximately 110 to 130 gpm with durations that are relatively consistent with the North Star Solar Project. Therefore, the volume of groundwater extracted during construction of the Project would not cause substantial additional depletion of the groundwater basin.

Post-construction, the Project's operational water requirements would be approximately 5 acre feet per year (AFY), which is equivalent to an average flowrate of approximately 9 gpm[3] (Appendix J2). The operational demands would be satisfied using water either delivered by Westlands Water District (WWD) through a Municipal and Industrial (M&I) supply agreement or obtained from North Star pursuant to access agreement. WWD has committed to making up to 40 AFY of water available to the Project,[4] well beyond the anticipated operational demand. Average groundwater elevations for the WWD district are only available through 2015, but based on the trends observed, regional groundwater levels have likely recovered from earlier drought conditions. Water levels are approaching the long-term average groundwater elevation from 1956 to 2015, suggesting the aquifer is recovering from significant groundwater pumping between 2013 and 2016 during the drought.

Based on review of the *Regulations Regarding Application for and Use of M&I Water within WWD*, the quantity of water for M&I use may be reduced or temporary conservation measures may be imposed if WWD's water supply is insufficient to meet all water demands (Appendix J3). WWD delivers M&I water to government facilities, area businesses, and family homes and obtains water from groundwater sources as well as imported surface water sources. M&I water use within the WWD accounts for less than 6,500 AF, or less than 1 percent of annual water sales (Appendix J3). The anticipated annual water demand of 5 AFY represents a small fraction of the

3 Assumes a constant pumping rate of 12 hours per day, 5 days per week, 4.3 weeks per month (Appendix J2).
4 As stated in WWD's October 12, 2017 letter to the County regarding the Project, "The District will make available up to five (5) acre-feet per 160 acres annually for solar development operations" (Westlands Water District 2017). Because the Project site is approximately 1,288 acres, five acre-feet per 160 acres per year would be slightly more than 40 acre-feet per year.

total water use. Therefore, WWD M&I water deliveries are an available and reliable source to meet the operational water supply of 5 AFY for the Project.

The Project would result in an increase in impervious surfaces on the site from the equipment foundations, the substations, and also potentially the O&M building. The access roads would not be paved. The improved roads would be constructed of compacted earthen or gravel materials which are pervious. The panels are not considered impervious surfaces; stormwater falling on the panels would drip off and infiltrate into the ground below, or run off during larger storm events into constructed drainage basins. Therefore, the Project would leave large areas of pervious surfaces that would absorb stormwater runoff and would not result in a significant reduction of groundwater infiltration rates associated with precipitation. Operation of the Project would have a less-than-significant impact on groundwater supplies and groundwater recharge.

For these reasons, the Project would have a less-than-significant impact relating to criterion b).

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c) Whether the Project would 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 offsite or through the addition of impervious surfaces, in a manner which would: (i) result in substantial erosion or siltation on- or offsite; (ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; (iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (iv) impede or redirect flood flows.

Impact 3.11-3: The Project would not substantially alter the existing drainage pattern such that substantial erosion, siltation, flooding, an exceedance of stormwater system capacity, or impedance to flood flows would occur. (*Less Than Significant Impact*)

Substantial Erosion or Siltation

Under existing conditions, the Project region is characterized by low average annual rainfall of approximately 12 inches, and high rates of evapotranspiration, which means that precipitation is relatively quickly evaporated due to high temperatures. During small events, rainfall is quickly absorbed into sandy and silty soils on site, and does not run off or is soon evaporated. During larger events, runoff occurs as overland flow with runoff pools in low-lying areas or is collected and conveyed along shallow roadside depressions to the nearest ditch or drain. There are no distinct discharge points for run-on to the site nor distinct flow paths through the site (Appendix J1). Stormwater drainage infrastructure in the Project area is limited to pipe culverts that cross main roads. Surface flow generated from the Project area flows east-northeast through roadside swales which receive runoff from adjacent agricultural plots, and ultimately discharges into the Fresno Slough located approximately 3 miles east of the Project's eastern boundary (Appendix J1).

According to the hydrologic analysis for the site, the peak discharge from the 2,403-acre watershed, including the Project area, for the 5-, 10-, and 100-year rainfall events is 197.7 cubic feet per second (cfs), 233.8 cfs, and 379.2 cfs, respectively. Under the proposed conditions, the

peak runoff for the 5-, 10-, and 100-year events would be 201, 237.8, and 385.7 cfs, respectively. The Project, however, would be subject to County drainage standards as well as post-construction measures of the statewide Construction General Permit (SWRCB Order No. 2009-0009-DWQ, as amended), which is administered by the SWRCB. The post-construction measures require the development of a SWPPP, which would include BMPs to control erosion and siltation. The BMPs would include source control and low impact development measures that would be effective in minimizing erosion and siltation. The Project also could include the construction of detention basins designed to collect and treat runoff generated from the site prior to discharge offsite. However, discharge to the downstream conveyance system may be a possibility if the existing downstream features meet County criteria.

Therefore, the Project would increase the peak discharge volumes by approximately 1.7 percent. With implementation of the required post-construction BMPs and drainage standards consistent with County requirements, which could include construction of detention basins, the potential for erosion or siltation would be reduced to less than significant levels.

Substantial Increase in the Rate or Amount of Surface Runoff Causing Flooding

As discussed above, installation of Project facilities would alter existing on-site drainage patterns and flowpaths with the addition of new impervious surfaces. This could increase the rate of surface runoff and cause localized flooding during major events along the margins of the Project area, or within the Project area, depending upon how stormwater is managed under final Project design. Changes in drainage patterns on site that relate to the installation of new facilities, especially changes that result in flow concentration, could increase the occurrence of localized flooding on-site or downstream. Finally, proposed new impervious surfaces would generate additional stormwater runoff onsite. This could exacerbate potential increases in localized flooding onsite or downstream.

However, as mentioned above, the increase in peak flows would be 1.7 percent above existing conditions. In addition, the proposed facilities would include stormwater design measures, in accordance with County and state requirements. These requirements could include the design and implementation of detention basins unless existing facilities can be demonstrated to meet County criteria for peak flow capacity. Therefore, with adherence to County requirements, a final design of proposed stormwater management facilities, potentially including detention basins adequately sized to managed peak storm flows, would be sufficient to ensure that the relatively small increase in stormwater flows would not cause any localized flooding. The potential impacts related to the rate or amount of surface runoff would be less than significant.

Exceed Capacity of Drainage Systems

As described above, the hydrologic modeling for the Project has calculated a relatively minor increase in peak storm runoff volumes from the site. Project design would be required to meet County and MS4 stormwater drainage requirements, which could include the construction of detention basins if existing facilities cannot be demonstrated to meet County requirements. Therefore, with adherence to existing drainage control requirements, the minor increase in storm flows would be accommodated by the drainage infrastructure and the potential impacts related to stormwater system capacities would be less than significant.

Impedance or Redirection of Flood Flows

The entire Project area is outside of the 100-year and 500-year flood zones (FEMA 2018). Therefore, there would be no impact related to impedance or redirection of flood flows.

In conclusion, for the reasons stated above, although there would be changes to the existing drainage patterns, the Project would have a less than significant impact related to erosion, siltation, flooding, exceedance of stormwater system capacity, or impedance to flood flows (criterion c).

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d) If located in flood hazard, tsunami, or seiche zone, whether the Project would risk release of pollutants due to Project inundation. (*No Impact*)

The Project site is located outside of a 100-year or 500-year flood zone. The site also is located approximately 70 miles inland and well outside of any tsunami hazard zone. In addition, seiche waves are associated with enclosed or semi-enclosed bodies of water which are not present anywhere in the vicinity of the site. Therefore, based on the characteristics of the Project site location, there would be no potential impact related to a risk of releasing pollutants from a flood, tsunami, or seiche hazard. As a result, there would no impact related to criterion d.

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e) Whether the Project would conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Impact 3.11-4: The Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. (*Less Than Significant Impact*)

The Project site is located within the Tulare Lake Hydrologic Basin Planning Area, for which the Basin Plan was revised most recently in July 2016. As noted above, the Project would be required to adhere to NPDES drainage control requirements during construction and operation as well as to County drainage control requirements. The Project would not include any other waste discharges that could conflict with the Basin Plan.

According to the Water Supply Assessment (WSA) prepared for the Project (Appendix J2), an Urban Water Management Plan (UWMP) or sustainable groundwater management plan has not been prepared by the County or any other entity that accounts for the projected water demand. However, the WSA evaluated the water demands for the Project including construction and operation. The water supply for construction and operation of the Project would be satisfied using the North Star groundwater supply well and an M&I water supply contract with WWD, respectively[5]. Alternate water sources may be used on an as-needed basis. Pursuant to Water Code section 10910(c)(4), and based on the technical analysis contained in the WSA, the groundwater supply from the North Star Solar Project well and the WWD M&I water delivery

[5] Contingent water supply sources also include delivery from WWD or trucking water to the site from another offsite source.

would be sufficient to meet the projected water demand associated with the Project, in addition to existing and planned future uses.

Therefore, the Project would not conflict with or obstruct the water quality control plan or a sustainable groundwater management plan and the potential impacts related to criterion e) would be less than significant.

3.11.3.3 Direct and Indirect Effects of Alternatives

Increased Habitat/Reduced Acreage Alternative

Under the Increased Habitat/Reduced Acreage Alternative there would be a reduction (from approximately 0.94 to 0.82 percent) in the amount of new impervious surfaces by not constructing on the 161-acre parcel known as Little Bear 6. As a result, there would be no changes to existing drainage patterns on Little Bear 6 but the remainder of the Project site would be constructed similar to the Project as proposed. There would be reduced demand in water supply for both construction and operation; therefore, the potential impacts on groundwater supplies would be reduced relative to the Project as proposed. Otherwise, the Increased Habitat/Reduced Alternative would be required to adhere to the same regulatory requirements for drainage control as the Project and would have a less-than-significant impact with adherence to existing regulatory requirements.

No Project Alternative

If the No Project Alternative is implemented, the proposed demolition of structures would not occur; neither the solar facilities, the Little Bear gen-tie line, nor internal access roads would be constructed, operated, or maintained; and the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. No change to onsite drainage patterns would occur. Because there would be no change relative to baseline conditions, the No Project Alternative would cause no impact to Hydrology or Water Quality.

3.11.4 Cumulative Analysis

Multiple projects, many of which are solar energy production facilities, are proposed throughout the region. The geographic scope used for the cumulative analysis for Hydrology is the Westlands hydrologic region for surface water and the Westside Subbasin for groundwater. The Project or an alternative would cause impacts to hydrology, surface water, or groundwater that could combine with the impacts of other projects in the cumulative scenario from when surface activities first alter drainage patterns or require water to when hydrological conditions are returned to a substantially pre-Project condition (Appendix B1) and Project-related water needs cease.

With regard to water supply, these other cumulative scenario projects, including solar energy projects, would require water for construction and operation. Many of the other solar energy

projects in the cumulative list also have replaced agricultural land uses, including fallow or dry farming. Solar projects generally require more water during the construction phase and relatively small amounts for the operational phases. The incremental water use by the Project along with the other similar cumulative projects during construction would not result in a significant cumulative impact to the basin due to the range in timing of the water supply needs and requirements from the Fresno County Solar Guidelines. Hence, cumulative impacts related to water supplies would be less than significant.

During construction, other solar projects would be required to implement a SWPPP and associated BMPs similar to the Project to minimize potential for release of pollutants and sediment into surface water. These construction requirements are intended to protect water resources on a watershed basis and not just a site-specific basis. Therefore, cumulative impacts associated with water quality degradation would not be significant, and the Project's contribution would not be cumulatively considerable.

With respect to erosion, drainage, and flooding, the Project would implement drainage control measures in accordance with County drainage standards and post-construction measures of the statewide Construction General Permit (SWRCB Order No. 2009-0009-DWQ), which would minimize direct impacts on erosion, drainage and flooding. It is anticipated that other cumulative scenario projects would be required to implement similar measures, in order to minimize erosion and drainage related impacts. Flooding related impacts tend to be site specific hazards that do not combine provided that projects are not redirecting or impeding flood flows. The Project would not impede or redirect flood flows by being located outside of any mapped flood zone and therefore could not combine with other projects to become cumulatively considerable. Therefore, cumulative impacts on erosion, drainage, and flooding would not be significant, and the Project's contribution to cumulative flooding, erosion, or drainage conditions would not be cumulatively considerable.

Therefore, based on the Project characteristics and the characteristics of the cumulative projects, with adherence to existing regulatory requirements, the potential cumulative impacts related to Hydrology and Water Quality would be less than significant.

3.11.5 References

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Central Valley Regional Water Quality Control Board (Central Valley RWQCB), 2016. Water Quality Control Plan for the Tulare Lake Basin, Second Edition. https://www.waterboards.ca.gov/rwqcb5/water_issues/basin_plans/2016july_tlbp.pdf. revised July, 2016.

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Fresno County, 2000. *Fresno County General Plan, Open Space and Conservation Element.* October, 2000.

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3.12 Land Use and Planning

This section describes existing land uses and land use plans and policies relevant to the Project site, and the associated regulatory framework. The impact analysis presents the criteria used to evaluate the significance of impacts on land use and planning as a consequence of implementing the Project or alternatives, the methods used to evaluate these impacts, and the results of the impact assessment. The County received no scoping comments regarding land use or planning (Appendix A).

3.12.1 Setting

3.12.1.1 Environmental Setting

The Project site is located on approximately 1,288 acres in unincorporated western Fresno County that, in recent years, periodically have been dry-farmed for grain and forage crops or lain fallow. Incidents of agricultural use are present, including piping located throughout the Project site, and specifically within the Little Bear 3 site, and existing structures: an approximately 5,000 square-foot metal storage shed and approximately 2,500 square-feet of metal storage silos. The Project site lies within Fresno County's jurisdiction and land uses on the Project site are governed by the Fresno County General Plan and Zoning Ordinance. The Project site is bound by West California Avenue to the north and SR-33 to the east which are paved, two-lane roads. The Project site also is bound by West Jensen Avenue to the South, San Bernardino Avenue to the west and is bisected by West Adams Avenue and South Ohio Avenue all of which are dirt, single-lane, unimproved roads. Electric and phone lines exist around the perimeter of the Project site and also bisect the Project site.

The Project site is surrounded by primarily agricultural production and a few rural residences to the east, south, and west. To the north, the Project site is adjacent to and south of the existing North Star Solar Project; the site also is south of the Federal Correctional Institution, Mendota (FCI Mendota). The nearest community to the Project site is the City of Mendota, which is located approximately 2.5 miles northeast of the Project site. The next closest communities to the Project are Tranquillity, which is located approximately 8.3 miles southeast of the Project site, and the City of Firebaugh, which is located approximately 8 miles northwest of the Project site.

3.12.1.2 Regulatory Setting

Federal

No federal statutes, regulations, plans, or policies govern land use or planning on the Project site.

State

No state statutes, regulations, plans, or policies govern land use or planning on the Project site.

Local

Fresno County General Plan

The Fresno County General Plan is the County's long-range planning document. It consists of seven elements: Economic Development; Agriculture and Land Use; Transportation and Circulation; Public Facilities and Services; Open Space and Conservation; Health and Safety; and Housing. The Agriculture and Land Use Element describes the County's Land Use Diagram and related development standards for unincorporated land within the County, and sets out goals, policies, and implementation programs for Resource Lands (including agriculture), Rural Development (non-agriculture), Urban Development, and Administration (Fresno County 2000). The public Review Draft of a Background Report, Policy Document, and Zoning Ordinance Update were released for public review on January 26, 2018 (Fresno County 2018a). However, because the draft has not been approved, and no resulting revisions to the 2000 General Plan and the Zoning Ordinance have been made, the provisions of the 2000 General Plan and the Zoning Ordinance continue to govern use of the Project site.

The Project site is designated in the General Plan for "Agriculture," which provides for the production of crops and livestock, and for location of necessary agriculture commercial centers, agricultural processing facilities, and certain nonagricultural activities (see General Plan Table LU-3). No overlay designations, regional plans, community plans, or specific plans described in the General Plan apply to the Project site, and there are no lands under a Williamson Act contract within the Project site (Fresno County 2000). Section 3.3, *Agriculture and Forestry Resources*, contains specific information pertaining to Agriculture resources within and near the Project site.

The Project site is not located within the jurisdiction of a community plan, specific plan, or regional plan as identified by the Fresno County General Plan. General Plan policies that are relevant to the Project include:

> ***Policy LU-A.3:*** The County may allow by discretionary permit in areas designated Agriculture, special agricultural uses and agriculturally-related activities, including value added processing facilities, and certain non-agricultural uses listed in Table LU-3. Approval of these and similar uses in areas designated Agriculture shall be subject to the following applicable criteria:
>
> a. The use shall provide a needed service to the surrounding agricultural area which cannot be provided more efficiently within urban areas or which requires location in a non-urban area because of unusual site requirements or operational characteristics;
>
> b. The use should not be sited on productive agricultural lands if less productive land is available in the vicinity;
>
> c. The operational or physical characteristics of the use shall not have a detrimental impact on water resources or the use or management of surrounding properties within at least one-quarter (1/4) mile radius;
>
> d. A probable workforce should be located nearby or be readily available.

Policy LU-A.13: The County shall protect agricultural operations from conflicts with nonagricultural uses by requiring buffers between proposed non-agricultural uses and adjacent agricultural operations.

Policy LU-A.14: The County shall ensure that the review of discretionary permits includes an assessment of the conversion of productive agricultural land and that mitigation be required where appropriate.

Policy LU-A.16: The County should consider the use of agricultural land preservation programs that improve the competitive capabilities of farms and ranches, thereby ensuring long-term conservation of viable agricultural operations. Examples of programs to be considered should include: land trusts; conservation easements; dedication incentives; new and continued Williamson Act contracts; Farmland Security Act contracts; the California Farmland Conservancy Program Fund; agricultural education programs; zoning regulations; agricultural mitigation fee program; urban growth boundaries; transfer of development rights; purchase of development rights; and agricultural buffer policies.

General Plan programs that are relevant to the Project include:

Program LU-A.C: The County shall develop and implement guidelines for design and maintenance of buffers to be required when new non-agricultural uses are approved in agricultural areas. Buffer design and maintenance guidelines shall include, but not be limited to, the following:

a. Buffers shall be physically and biologically designed to avoid conflicts between agriculture and non-agricultural uses.

b. Buffers shall be located on the parcel for which a permit is sought and shall protect the maximum amount of farmable land.

c. Buffers generally shall consist of a physical separation between agricultural and non-agricultural uses. The appropriate width shall be determined on a site-by-site basis taking into account the type of existing agricultural uses, the nature of the proposed development, the natural features of the site, and any other factors that affect the specific situation.

d. Appropriate types of land uses for buffers include compatible agriculture, open space and recreational uses such as parks and golf courses, industrial uses, and cemeteries.

e. The County may condition its approval of a project on the ongoing maintenance of buffers.

f. A homeowners' association or other appropriate entity shall be required to maintain buffers to control litter, fire hazards, pests, and other maintenance problems.

g. Buffer restrictions may be removed if agricultural uses on all adjacent parcels have permanently ceased. (See Policy LU-A.16)

Program LU-A.E: The County shall continue to implement the County's Right-to-Farm Ordinance, and will provide information to the local real estate industry to help make the public aware of the right-to-farm provisions in their area. (See Policy LU-A.15)

Program LU-A.I: The County shall assess the approaches to determining agricultural land values in the 1981 Farmland Protection Policy Act land evaluation and site assessment (LESA) system, and the Tulare County Rural Valley Lands Plan, 1975 amendment, to determine the potential for developing a similar process for identifying and ranking the value of agricultural land in Fresno County. If appropriate, the County shall establish an agricultural quality scale system to assist the Planning Commission and Board of Supervisors in agricultural land use conversion decisions. (See Policy LU-A.16.) As of March 2018, the assessment of the land evaluation tools such as LESA had not been completed (Fresno County 2018b).

Fresno County Zoning Ordinance

According to the Fresno County Zoning Map, the Project site is zoned "*Exclusive Agricultural, 20-acre minimum parcel size (AE-20)*" (Fresno County 2011a). Fresno County Zoning Ordinance Code Section 816.2.D identifies electrical transmission substations and electric distribution substations as uses permitted subject to Director Review and Approval (DRA) (Fresno County 2011a). The County of Fresno processes PV Solar Facility projects through a separate use permit process (the Unclassified Conditional Use Permit (CUP) process) for public utility and public services, structures, uses and buildings, as described in Code Section 853.B.14 (Fresno County 2011b). Where, as here, a project is subject to two or more separate use permits, the County evaluates the entire project under the more-intensive process. Since the CUP process is more intensive than the DRA process, the County is reviewing the proposed substations as part of the CUP process for the larger facility. Thus, the substations proposed as part of the Project do not require a separate DRA.

Fresno County Solar Facility Guidelines

The Solar Facility Guidelines (Solar Guidelines), adopted by the Fresno County Board of Supervisors on May 21, 2013 and revised on December 12, 2017, provide general guidelines and policies, as well as an outline for the process of evaluating solar facilities within Fresno County (Fresno County 2017). A number of provisions applicable to the process for the review of applications for solar facilities are relevant to this analysis of potential impacts to Land Use and Planning, including the following:

1. Information shall be submitted regarding the historical agricultural operational/usage of the parcel, including specific crop type and crop yield, for the last 10 years (if no agricultural operation in the last 10 years, specify when land was last in agricultural use); and

3. Identify the current status of the parcel (Williamson Act Contract, Conservation Easement, retired land, etc.), the purpose of any easement, and limitations of the parcel. The applicant shall submit a Title Report or Lot Book Guarantee for verification.

5. List all proposed measures and improvements intended to create a buffer between the proposed solar facility and adjacent agricultural operations (detailed information must be shown on Site Plan) and provide factual/technical data supporting the effectiveness of said proposed buffering measure.

7. Provide information documenting efforts to locate the proposed solar facility on non-agricultural lands and non-contracted parcels and detailed information explaining why the subject site was selected.

9. The applicant must acknowledge the County's Right to Farm Ordinance and shall be required to record a Right to Farm Notice prior to issuance of any permits. This shall be included as a recommended Condition of Approval of the land use entitlement.

   Note: The life of the approved land use permit will expire upon expiration of the initial life of the solar lease. If the solar lease is to be extended, approval of a new land use permit will need to be obtained.

3.12.2 Significance Criteria

A project would result in significant impact to Land Use and Planning if it would:

a) Physically divide an established community; or

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

CEQA Guidelines Appendix G Section X, *Land Use and Planning*, asks whether a project would conflict with any applicable habitat conservation plan or natural community conservation plan. Since the impacts of any such conflict would be to vegetation, wildlife, and related habitat resources, the question is considered in Section 3.5, *Biological Resources*, and no impact was identified.

3.12.3 Direct and Indirect Effects

3.12.3.1 Direct and Indirect Effects of the Project

a) Whether the Project would physically divide an established community *(No Impact)*.

As described in Section 3.12.1.1, *Environmental Setting*, the Project site is located in rural, unincorporated western Fresno County approximately 2.5 miles southwest of the closest established community (the City of Mendota) and 8 miles or farther from the next closest communities (Tranquillity and Firebaugh). Typically, the division of an established community would result from the construction of a physical barrier to neighborhood access or the removal of a means of access. The Project would not physically divide an established community as the construction, operation, and decommissioning phases of the proposed Project do not propose any features that would create a physical barrier that would hinder existing community access. Additionally, the Project would not involve the removal of any existing publicly-used means of access. Project elements would not cross through any existing community. Although the gen-tie line would pass near residences located near West California and North San Diego Avenue, the gen-tie line would, when possible, share the existing gen-tie line that runs between the North Star Project and the PG&E Mendota Substation. Therefore, the Project would not physically divide an established community. No impact under this criterion would result.

b) Whether the Project would cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect *(No Impact)*.

The County of Fresno is processing the permit applications for the Project in accordance with the Unclassified Conditional Use Permit (CUP) process for public utility and public services, structures, uses, and buildings, as described in Section 853.B.14 of the Zoning Code. The Applicant has filed five separate Unclassified Conditional Use Permit applications to construct, operate, maintain, and decommission five PV electricity generating facilities (including ancillary facilities) within the Project boundary. Compliance with conditions of approval for each CUP would ensure that the Project would not conflict with applicable General Plan, Zoning, or other County land use plans, policies, or regulations that have been adopted for the purpose of avoiding or mitigating environmental effects. For example, the Project would be consistent with Policy LU-A.13 regarding the County's protection of agricultural operations from conflicts with nonagricultural uses because the Project would maintain a buffer between the Project and adjacent agricultural operations and would implement a reclamation plan to return the site to a state of readiness for agricultural use after Project decommissioning. The Project would be consistent with Policy LU-A.14 regarding County review of discretionary permits as including an assessment of the conversion of productive agricultural land because potential conversion-related impacts have been addressed in Section 3.3, *Agriculture and Forestry Resources*. The Project also would be consistent with Policy LU-A.16 because the Project site is not subject to a Williamson Act contract and would not interfere with the County's ability to establish agricultural preservation programs. Additional details of the Project's consistency with the Fresno County General Plan policies and programs are provided in Appendix K1.

Each CUP would be required to comply with the Fresno County Solar Facility Guidelines. As described in Section 3.12.1.2, *Regulatory Setting*, these guidelines would protect important farmlands and minimize the impacts of solar projects on adjacent agricultural operations. In order to meet these requirements, the Project would, for example, maintain a 50-foot buffer between the proposed solar facility and adjacent agricultural operations and would implement a reclamation plan to return the site to prior agricultural use after Project decommissioning. Details of consistency with the Fresno County Solar Facility Guidelines are provided in Appendix K2.

Because the Project would be consistent with applicable provisions of the General Plan, Zoning Code, and the County Solar Facility Guidelines, it would not cause a conflict with the provisions of any applicable County land use plan, policy, or regulation that would result in a significant environmental impact. No impact would be caused relative to this significance criterion.

3.12.3.2 Direct and Indirect Effects of Alternatives

Increased Habitat/Reduced Acreage Alternative

Under the Increased Habitat/Reduced Acreage Alternative, Little Bear 6 would not be constructed, reducing the area of the Project by approximately 161 acres. The other solar facility sites would be subject to conditions of approval specified in each CUP. For the same reasons described in Section 3.12.3.1, *Direct and Indirect Effects of the Project*, this Alternative would

not physically divide an established community and would not conflict with any applicable land use plan designed to mitigate environmental effects. Therefore, this Alternative would have no impact with regard to Land Use and Planning.

No Project Alternative

If the No Project Alternative is implemented, the proposed demolition of structures would not occur; neither the solar facilities nor the Little Bear gen-tie line would be constructed, operated, or maintained; and the Project site would continue to be used periodically for dry-farmed agriculture and/or disked and left fallow. No change to existing land uses, and no impact to land use and planning, would occur. There would be no effect on existing established communities, no impact on applicable planning documents.

3.12.4 Cumulative Analysis

Because neither the Project nor the alternatives would have any impact on land use and planning, neither the Project nor the alternatives could cause or contribute to any cumulative impact.

3.12.5 References

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3.13 Mineral Resources

This section describes the mineral resources in the vicinity of the Project site and the associated regulatory framework. The impact analysis presents the criteria used to evaluate the significance of potential impacts on mineral resources as a consequence of implementing the Project or alternatives, the methods used in evaluating these impacts, and the results of the impact assessment. The County did not receive any scoping comments regarding Mineral Resources (Appendix A).

3.13.1 Setting

3.13.1.1 Geologic Environment

As described more fully in Section 3.8, *Geology, Soils, and Paleontological Resources* the Project site is located on sedimentary deposits of the Great Valley geomorphic province.[1] Surface geology at the site consists of Quaternary alluvial deposits that may be up to 25 feet deep, which overlie very thick sediments deposited in the San Joaquin Valley over tens of millions of years.

Mineral resources extracted in Fresno County include aggregate products (sand and gravel), fossil fuels (oil and coal), metals (chromite, copper, gold, mercury, and tungsten), and other minerals used in construction or industrial applications. Aggregate and petroleum are the County's most significant extractive resources (Fresno County 2000).

Mineral Resources Potential

The Mineral Resources Data System (MRDS), administered by the U.S. Geological Survey (USGS), provides data to describe metallic and nonmetallic mineral resources, including deposit name, location, commodity, deposit description, production status, and references. To confirm the presence/ absence of existing surface mines, closed mines, occurrences/ prospects, and unknown/ undefined mineral resources within the study area, the MRDS online database was reviewed (USGS 2018). While the MRDS data indicates that there are several closed and current mineral resources and operations within 15 miles of the Project site, none of these operations or mining claims occurs within or immediately adjacent to the Project site boundary (USGS 2018).

Based on the geologic setting, the only mineral resources with the potential to occur near the Project site are aggregate resources. Alluvial geologic units in the region are potential sources of sand and gravel that could have value as a mineral resource commodity. Because sand and gravel are low-value, high-volume resources, the economic value and feasibility of developing them is predicated on the existence of high local demand from the construction industry (Fresno County 2000, USGS 2018).

[1] The California Geological Survey explains that "California's geomorphic provinces are naturally defined geologic regions that display a distinct landscape or landform. Earth scientists recognize eleven provinces in California. Each region displays unique, defining features based on geology, faults, topographic relief and climate" (California Department of Conservation, California Geological Survey 2002).

There are no active mining claims within 15 miles of the Project site, nor is there any locatable mineral activity within the Project site boundary (USGS 2018). Based on the geological environment and historical trends, the potential for occurrence of locatable minerals is low within the surrounding area.

The California Division of Oil, Gas, and Geothermal Resources (DOGGR) indicates that there are no oil, gas, or geothermal resources present within the Project site (DOGGR 2018). Six oil and gas wells did exist on the Project site but all have been plugged and abandoned, for the majority of these wells, closure and abandonment occurred nearly 30 years ago (DOGGR 2018).

Sand and gravel deposits are abundant throughout the Quaternary geologic deposits near the Project site and throughout the region (USGS 2018, California Department of Conservation (CDOC) 2000). There are several producers of sand and gravel approximately 10 miles west of the Project site, and many more within the Fresno Production-Consumption Region, approximately 30 miles to the east (USGS 2005, 2018). None of the past or current locations of sand and gravel production intersect the Project site. In addition, as described in Section 3.8, *Geology, Soils, and Paleontological Resources*, the majority of the soil at the Project site is clay and silt, with lesser amounts of sand. This soil type would not be used for aggregate.

Mineral Land Classification under the Surface Mining and Reclamation Act

The State Surface Mining and Reclamation Act of 1975 (SMARA), as amended, mandated the development of mineral land classifications to help identify and protect mineral resources in areas within the state that are subject to urban expansion or other irreversible land uses that would preclude mineral extraction. SMARA also provides for the designation of lands containing mineral deposits of regional or statewide significance. The statute and its implementing regulations set forth requirements for the proper reclamation of mineral lands. In compliance with SMARA, the State Mining and Geology Board (SMGB) established Mineral Resources Zones (MRZs) to classify lands that contain mineral deposits. According to maps of MRZs within Fresno County, the Project site is not located within an MRZ where there is adequate information showing regionally significant mineral deposits (referred to as MRZ-2 or MRZ-3) (Fresno County 2000).

3.13.1.2 Regulatory Setting

Federal

No federal statutes, regulations, plans, or policies govern mineral resources on or near the Project site.

State

State Surface Mining and Reclamation Act of 1975

The Surface Mining and Reclamation Act of 1975 (SMARA) (Pub. Res. Code §2710 et seq.) mandated the initiation by the State Geologist of mineral land classification in order to help identify and protect mineral resources in areas within the State subject to urban expansion or other irreversible land uses which would preclude mineral extraction. SMARA also allowed the

State Mining and Geology Board (SMGB) to designate lands containing mineral deposits of regional or statewide significance. Mineral lands are mapped according to jurisdictional boundaries (i.e., counties), mapping all mineral commodities at one time in the area, using the California Mineral Land Classification System (CDOC 2000).

The objective of classification and designation processes is to ensure, through appropriate lead agency policies and procedures, that mineral deposits of statewide or regional significance are available when needed.

The Project site is not classified by the SMGB as being located within a known mineral resource area (Fresno County 2000).

Local

Fresno County General Plan

The Fresno County General Plan Open Space and Conservation Element includes goals and policies intended to preserve the future availability of mineral resources in the County and to promote the orderly extraction of mineral resources in the County while minimizing the impact of these activities on surrounding land uses and the natural environment. Relevant policies from this planning document include:

> ***Policy OS-C.1:*** The County shall not permit incompatible land uses within the impact area of existing or potential surface mining areas.
>
> ***Policy OS-C.7:*** The County shall require that new non-mining land uses adjacent to existing mining operations be designed to provide a buffer between the new development and the mining operations. The buffer distance shall be based on an evaluation of noise, aesthetics, drainage, operating conditions, biological resources, topography, lighting, traffic, operating hours, and air quality.
>
> ***Policy OS-C.10:*** The County shall not permit land uses that threaten the future availability of mineral resource or prelude future extraction of those resources.
>
> ***Policy OS-C.12:*** The County shall ensure that new discretionary land use developments are compatible with existing and potential surface mining areas and operations as identified on the Mineral Resource Zone Maps prepared by the State Division of Mines and Geology and other mineral resource areas identified by the County.

3.13.2 Significance Criteria

A project would result in significant impacts to Mineral Resources if it would:

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; or

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.

3.13.3 Direct and Indirect Effects

3.13.3.1 Approach to Analysis

Mineral Resources impacts of the Project and alternatives are evaluated by identifying whether known mineral resources of statewide, regional, or local importance occur within the Project site and, if so, assessing the extent to which the Project would result in the loss of availability of these resources.

3.13.3.2 Direct and Indirect Effects of the Project

a) Whether the Project would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. (*No Impact*)

The project site is not located on lands classified as MRZs by the State, nor is it zoned for or immediately adjacent to lands designated as a mineral resource zone by the Fresno County General Plan. Additionally, no active mines or petroleum extraction facilities are located within 25 miles of the project. As a result, the project would not interfere with nearby mineral extraction operations, and would not result in the loss of land designated for mineral resources. Also, based on the absence of historical surface mining in the area, the potential for surface mining at the site is considered low. As such, the project would not result in the loss of availability of a known mineral resource and no impact related to this criterion would result.

---

b) Whether the Project would result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. (*No Impact*)

The Project site is not located on land designated for mineral resources by the Fresno County General Plan, Figure 7-7. Implementation of the Project would not conflict with any local general plan, specific plan, or other land use plan and thus there would be no impact. Therefore, the Project would result in no impact related to the loss of a locally important mineral resource recovery site.

3.13.3.3 Direct and Indirect Effects of Alternatives

Increased Habitat/Reduced Acreage Alternative

For the same reasons described in Section 3.13.3.3, *Direct and Indirect Effects of the Project*, the Increased Habitat/Reduced Acreage Alternative would have no impact to Mineral Resources.

No Project Alternative

If the No Project Alternative is implemented, the proposed demolition of structures would not occur; neither the solar facilities nor the Little Bear gen-tie line would be constructed, operated,

or maintained; and the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would cause no impact to Mineral Resources.

3.13.4 Cumulative Analysis

Because the Project and alternatives would have no impact to Mineral Resources, they could not cause or contribute to any cumulative impact to such resources.

3.13.5 References

California Department of Conservation (CDOC), 2000. California Surface Mining and Reclamation Policies and Procedures, Guidelines for Classification and Designation of Mineral Lands. http://www.conservation.ca.gov/smgb/Guidelines/Documents/ClassDesig.pdf.

California Department of Conservation, California Geological Survey, 2002. California Geomorphic Provinces: Note 36. http://www.conservation.ca.gov/cgs/Documents/Note_36.pdf. Accessed July 6, 2018.

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USGS, 2018. *Mineral Resources Data System*: U.S. Geological Survey, MRDS data for Fresno County. https://mrdata.usgs.gov/mineral-resources/mrds-us.html. Accessed March 21, 2018.

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3.14 Noise and Acoustics

This section describes the environmental and regulatory settings for Noise and Acoustics in the context of the Project and alternatives, the criteria used to assess the significance of related impacts, the methods used to evaluate these impacts, and the results of the impact assessment. The County received no scoping comments pertaining to Noise or Acoustics (Appendix A).

This analysis is based in part on a Noise and Acoustics report completed for the Project by Dudek in September 2017, a copy of which is provided in Appendix L. The preparers of this Draft EIR independently reviewed this and other materials prepared by or on behalf of the Applicants and determined it to be suitable for reliance on (in combination with other materials included in the formal record) in the preparation of this Draft EIR.

3.14.1 Setting

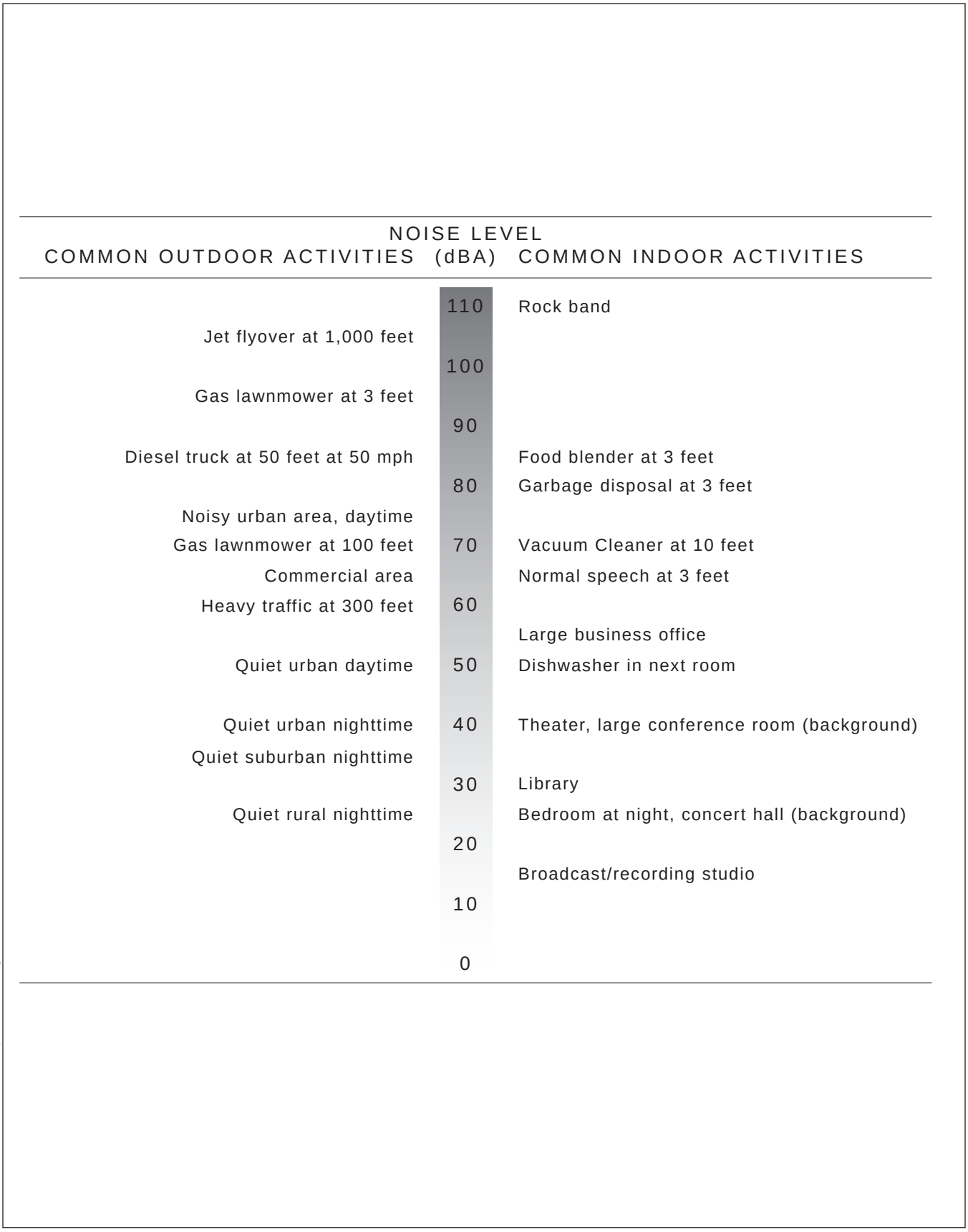
3.14.1.1 Environmental Setting

Noise and Acoustics Background

Sound is mechanical energy transmitted by pressure waves through a medium such as air. Acoustics is the field of science that deals with the production, propagation, reception, effects, and control of sound. Noise can be defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation (or the speed by which the wavefront of the soundwave passes through a medium), and the pressure level or energy content (amplitude). In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level. Sound pressure level is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequency spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential Noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to low and extremely high frequencies instead of the frequency mid-range. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). See **Figure 3.14-1** for examples.



D160635.00 - First Solar Little Bear\05 Graphics-GIS-Modeling\Illustrator

SOURCE: Caltrans, 2013

First Solar Little Bear

Figure 3.14-1
Typical A-Weighted Sound Levels

Noise Exposure and Community Noise

An individual's noise exposure is a measure of the noise experienced by the individual over a period of time. A noise level is a measure of noise at a given instant in time. However, noise levels rarely persist consistently over a long period of time. In fact, community noise varies continuously with time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. Background noise levels change throughout a typical day, but do so gradually, corresponding with the addition and subtraction of distant noise sources and atmospheric conditions. The addition of short duration single event noise sources (e.g., aircraft flyovers, horns, sirens) makes community noise constantly variable throughout a day.

These successive additions of sound to the community noise environment vary the community noise level from instant to instant requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. Noise descriptors discussed in this analysis are summarized below:

L_{eq}: The equivalent sound level is used to describe noise over a specified period of time, in terms of a single numerical value. The L_{eq} is the constant sound level which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

DNL: The Day-night Noise Level (DNL; also referred to as L_{dn}) or the energy average of the A-weighted sound levels occurring during a 24-hour period and which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night ("penalizing" nighttime noises). Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance of nighttime noises.

CNEL: Similar to the DNL, the Community Noise Equivalent Level (CNEL) adds a 5-dBA *penalty* for the evening hours between 7:00 p.m. and 10:00 p.m. in addition to the 10-dBA penalty between the hours of 10:00 p.m. and 7:00 a.m.

L_x: The sound level that is equaled or exceeded x percent of a specified time period. The L_{50} represents the median sound level (i.e., the noise level exceeded 50 percent of the time, or 30 minutes out of an hour).

L_{max}: The instantaneous maximum noise level measured during the measurement period of interest.

Effects of Noise on People

There is no universally acceptable way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation exists in the individual thresholds of annoyance and different tolerances to noise tend to develop based on an individual's past experiences with noise. Thus, an important way of predicting a human reaction to a new noise environment is the way the new noise compares to the existing noise levels to which one has adapted: the so called "ambient noise" level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise would be

judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur (Caltrans 2013):

- Except in carefully controlled laboratory experiments, a change of 1-dBA cannot be perceived;
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference when the change in noise is perceived but does not cause a human response (such as annoyance or nuisance);
- A change in level of at least 5-dBA is required before any noticeable change in human response would be expected; and
- A 10-dBA change is subjectively heard as approximately a doubling in loudness and can cause an adverse response (such as hearing damage or psychological effects).

These relationships occur in part because of the logarithmic nature of sound and the decibel system. For example, a ruler is a linear scale: it has marks on it corresponding to equal quantities of distance. One way of expressing this is to say that the ratio of successive intervals is equal to one. A logarithmic scale is different in that the ratio of successive intervals is not equal to one. Each interval on a logarithmic scale is some common factor larger than the previous interval. A typical ratio is 10, so that the marks on the scale read: 1, 10, 100, 1,000, 10,000, etc., doubling the variable plotted on the x-axis. The human ear perceives sound in a non-linear fashion; hence, the decibel scale was developed. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, rather they combine logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Noise Attenuation

Sound level naturally decreases with more distance from the source. This basic attenuation rate is referred to as the *geometric spreading loss*. The basic rate of geometric spreading loss depends on whether a given noise source can be characterized as a point source or a line source. Point sources of noise, including stationary mobile sources such as idling vehicles or on-site construction equipment, attenuate (lessen) at a rate of 6.0 dBA per doubling of distance from the source. In many cases, noise attenuation from a point source increases by 1.5 dBA from 6.0 dBA for a total attenuation rate of 7.5 dBA for each doubling of distance due to ground absorption and reflective wave canceling. These factors are collectively referred to as *excess ground attenuation*. The basic geometric spreading loss rate is used where the ground surface between a noise source and a receiver is reflective, such as parking lots or a smooth body of water. The excess ground attenuation rate (7.5 dBA per doubling of distance) is used where the ground surface is absorptive, such as soft dirt, grass, or scattered bushes and trees.

Widely distributed noises such as a street with moving vehicles (a “line” source) typically would attenuate at a lower rate of approximately 3.0 dBA for each doubling of distance between the source and the receiver. If the ground surface between source and receiver is absorptive rather than reflective, the nominal rate increases by 1.5 dBA to 4.5 dBA for each doubling of distance. Atmospheric effects, such as wind and temperature gradients, can also influence noise attenuation rates from both line and point sources of noise. However, unlike ground attenuation, atmospheric

effects are constantly changing and difficult to predict. In general, the greater the distance the receiver is from the source, the greater the potential for variation in sound levels due to atmospheric effects.

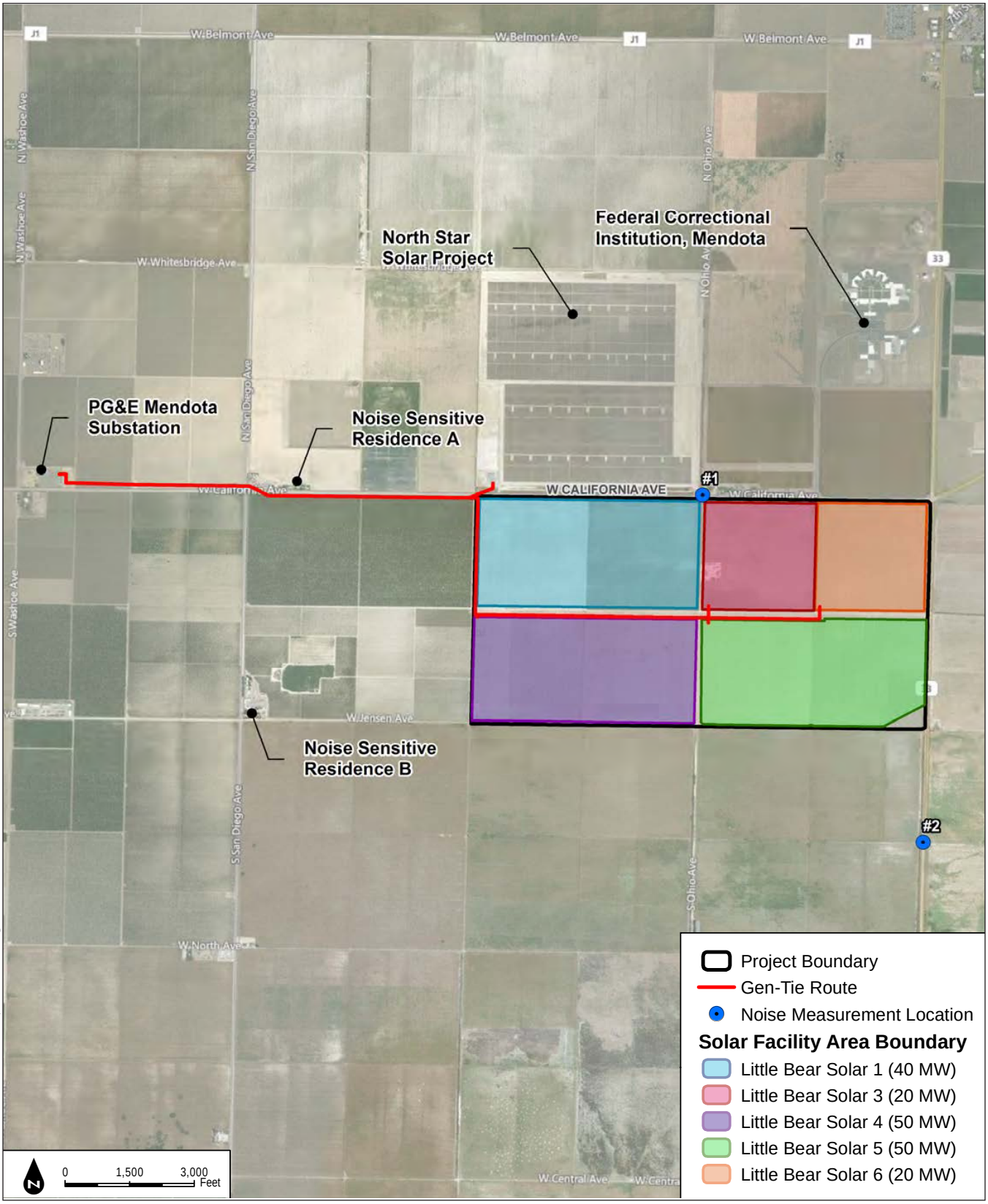
Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. Although PPV is appropriate for evaluating building damage, it is less suitable for evaluating human response. Human response is better related to the average vibration amplitude. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to express RMS. The decibel notation acts to compress the range of numbers required to describe vibration, as numbers can differ over several orders of magnitude. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration (FTA 2006).

Sensitive Receptors

Human response to noise varies considerably from one individual to another. Effects of noise at various levels can include interference with sleep, concentration, and communication, and can cause physiological and psychological stress and hearing loss. Given these effects, some land uses are considered more sensitive to ambient noise levels than others. In general, residences, schools, hotels, hospitals, and nursing homes are considered to be the most sensitive to noise. Places such as churches, libraries, and cemeteries, where people tend to pray, study, and/or contemplate also are sensitive to noise. Commercial and industrial uses are considered the least noise-sensitive.

The nearest sensitive receptors to the Project site are the homes approximately 3,900 feet west of the Project boundary. About 12 residential buildings are located at this distance extending to the corner of North San Diego Avenue and West California Avenue. These homes are approximately 9,400 feet from the center of the Project site and are defined as Noise Sensitive Residence A on **Figure 3.14-2**. Some of these buildings are located as close as 100 feet from West California Avenue with the closest approximately 80 feet from the road. Another group of sensitive receptors are the homes near the corner of South San Diego Avenue and West Jensen Avenue, over 4,700 feet from the Project boundary and approximately 10,200 feet from the center of the Project site. These homes are defined as Noise Sensitive Residence B on Figure 3.14-2. These noise sensitive land uses could be affected by Project noise. The existing North Star Solar project site may be used for Project staging areas and parking purposes during construction. These areas would not be meaningfully closer to the sensitive receptors than the areas on the Project site that may be used, and impacts to sensitive receptors surrounding the North Star Solar site already were evaluated in the Mitigated Negative Declaration prepared for that project. No mitigation measures for noise impacts were required (Fresno County 2013). Noise impacts from the North Star Solar project are included in the cumulative analysis in Section 3.14.4, *Cumulative Analysis*, below.



D160835.00 - First Solar Little Bear\05 Graphics-GIS-Modeling\Illustrator

SOURCE: Dudek

First Solar Little Bear

Figure 3.14-2
Noise Monitoring and Sensitive Receptor Locations

A federal correctional facility, Federal Correctional Institution, Mendota (FCI Mendota), also is located north of the site approximately 3,150 feet north of the site boundary, and 6,670 feet from the center of the site. FCI Mendota is not considered to be a sensitive receptor due to the institutional nature of its use. Correctional facilities generally contain greater sound proofing and noise reduction in the design of the facility that reduces interior noise due to the concrete structure, laminated or bullet resistant glazing, and steel doors (BOP 1993). Additionally, FCI Mendota is closer in distance to the existing North Star Solar project.

Noise Sources and Ambient Noise Levels

The Project site is located in an area of relatively flat agricultural land with scattered rural residences. The main contributor to the existing noise environment in the vicinity of the Project site is traffic along State Route 33, which borders the eastern boundary of the Project site (adjacent to Little Bear 5 and Little Bear 6) in a north-south orientation. Additional noise sources include local roadways, natural noise such as wind and birds, and man-made noise sources including occasional aircraft overflights and farming equipment. There are no public airports within 2 miles of the Project site (FCOG 2018).

To provide the basis for evaluating potential impacts of the Project on the nearest sensitive receptors, short-term noise measurements were conducted on Tuesday, December 19, 2016, by Dudek to document existing ambient noise levels during typical daytime hours (Appendix L). The noise monitoring locations are illustrated in Figure 3.14-2. As shown in **Table 3.14-1** below, the results of the 30-minute noise measurements indicate that current daytime ambient noise levels on and immediately adjacent to the Project site range from approximately 67.7 dBA L_{eq} to 69.9 dBA L_{eq}. The L_{eq} is strongly influenced by the traffic events, and the general ambient noise levels in the area is expected to be substantially lower in the absence of traffic.

TABLE 3.14-1
EXISTING NOISE LEVELS (DBA)

Monitoring Locations[a]	Start Time	Duration (minutes)	dBA L_{eq}[b]	Primary Noise Sources
Site ST1 – Location north of Project site across West California Avenue	12/19/2016 9:29 a.m.	30	67.7	Vehicle traffic
Site ST2 – Location south-southeast of Project site next to State Route 33	12/19/2016 11:24 a.m.	30	69.9	Vehicle traffic

NOTES:
[a] Monitoring locations correspond to those illustrated in Figure 3.14-2.
[b] Equivalent continuous sound level (time-average sound level).

SOURCE: Appendix L, Table 7

3.14.1.2 Regulatory Setting

Federal, state, and local agencies regulate different aspects of environmental noise. Federal and State agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies. Local regulation of noise involves implementation of general plan policies and noise ordinance standards. Local general plans tend to

identify general principles intended to guide and influence development plans; local noise ordinances and codes establish standards and procedures for addressing specific noise sources and activities.

Federal

Federal Transit Administration Standards and Federal Railroad Administration Standards

Although the Federal Transit Administration (FTA) standards are intended for federally funded mass transit projects, the impact assessment procedures and criteria included in the FTA (2006) Transit Noise and Vibration Impact Assessment Manual routinely are used for projects under review by local jurisdictions that have not adopted their own vibration impact standards. The FTA and Federal Railroad Administration have published guidelines for assessing the impacts of groundborne vibration associated with rail projects, which have been applied by other jurisdictions to other types of projects. The FTA's threshold of architectural damage for conventional sensitive structures from groundborne vibration is measured as 0.2 inches/second PPV or 94 VdB (decibel units of 1micro –inch/second). The FTA measure of human annoyance at residential uses is 80 VdB for "Frequent Events," or fewer than 70 vibration events of the same kind per day.

Occupational Safety and Health Act

Under the Occupational Safety and Health Act of 1970 (29 U.S.C. §651 et seq.), the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) adopted regulations (29 CFR §1910.95) designed to protect workers against the effects of occupational noise exposure. These regulations list limits on noise exposure levels as a function of the amount of time during which the worker is exposed, as shown in **Table 3.14-2**. The regulations further specify requirements for a hearing conservation program (§1910.95(c)), a monitoring program (§1910.95(d)), an audiometric testing program (§1910.95(g)), and hearing protection (§1910.95(i)). There are no federal laws governing community noise.

TABLE 3.14-2
OSHA-PERMISSIBLE NOISE EXPOSURE STANDARDS

Duration of Noise (hours/day)	A-Weighted Noise Level (dBA)
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25 or less	115

SOURCE: USEPA 1974. 29 CFR §1910.95, Table G-16.

Although no federal noise regulations exist, the U.S. Environmental Protection Agency (USEPA) has published noise guidelines (USEPA 1974). The USEPA guideline recommends a DNL of 55 dBA to protect the public from the effect of broadband environmental noise outdoors in

residential areas and farms, and other outdoor areas where people spend widely varying amounts of time, and other places in which quiet is a basis for use (USEPA 1974).

State of California

Government Code Section 65302 encourages counties and cities to implement a noise element as part of the general plan. In addition, the California Governor's Office of Planning and Research has developed guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure.

The California Occupational Safety and Health Administration (Cal-OSHA) has published Occupational Noise Exposure Regulations (9 CCR §§5095-5099) that set employee noise exposure limits. These standards are equivalent to the federal OSHA standards described above.

Fresno County

Fresno County General Plan Health and Safety Element

The Fresno County General Plan Health and Safety Element establishes Countywide land use compatibility guidelines that are applicable to the Project. For example, the maximum allowable noise exposure level for residential land use is 60 dBA CNEL (Fresno County 2000). The following Fresno County General Plan policies also are relevant to the Project:

> ***Policy HS-G.1:*** The County shall require that all proposed development incorporate design elements necessary to minimize adverse noise impacts on surrounding land uses.
>
> ***Policy HS-G.4:*** So that noise mitigation may be considered in the design of new projects, the County shall require an acoustical analysis as part of the environmental review process where:
>
> a. Noise sensitive land uses are proposed in areas exposed to existing or projected noise levels that are "generally unacceptable" or higher according to the Chart HS-1: "Land Use Compatibility for Community Noise Environments;"
>
> b. Proposed projects are likely to produce noise levels exceeding the levels shown in the County's Noise Control Ordinance at existing or planned noise-sensitive uses.
>
> ***Policy HS-G.5:*** Where noise mitigation measures are required to achieve acceptable levels according to land use compatibility or the Noise Control Ordinance, the County shall place emphasis of such measures upon site planning and project design. These measures may include, but are not limited to, building orientation, setbacks, earthen berms, and building construction practices. The County shall consider the use of noise barriers, such as soundwalls, as a means of achieving the noise standards after other design-related noise mitigation measures have been evaluated or integrated into the project.
>
> ***Policy HS-G.6:*** The County shall regulate construction-related noise to reduce impacts on adjacent uses in accordance with the County's Noise Control Ordinance.
>
> ***Policy HS-G.8:*** The County shall evaluate the compatibility of proposed projects with existing and future noise levels through a comparison to Chart HS-1, "Land Use Compatibility for Community Noise Environments." [Chart HS-1 is presented above as Figure 3.14-3.]

Fresno County Noise Ordinance

The Fresno County Noise Ordinance (Chapter 8.40 of the Fresno County Development Code) applies to noise sources that can be regulated by Fresno County (such as equipment related to commercial and industrial land uses). **Table 3.14-3** summarizes the County's exterior noise standards that would be applicable to the Project. As indicated in the table, it would be unlawful for Project-related on-site operation and/or maintenance noise levels to exceed an L_{50} of 50 dBA during daytime hours at the nearby residences.

TABLE 3.14-3
FRESNO COUNTY EXTERIOR NOISE LEVEL STANDARDS

Cumulative min/hr (Lx)	Daytime 7 a.m. to 10 p.m.	Nighttime 10 p.m. to 7 a.m.
30 (L_{50})	50	45
15 (L_{25})	55	50
5 ($L_{8.3}$)	60	55
1 ($L_{1.7}$)	65	60
0 (L_{max})	70	65

NOTE:
In the event the measured ambient noise level exceeds the applicable noise level standard in any category above, the applicable standard shall be adjusted so as to equal the ambient noise level.

SOURCE: Fresno County 1978.

As indicated in Section 8.40.060 of the Fresno County Noise Ordinance, noise sources associated with construction activities are exempt from the standards provided they take place after 6:00 a.m. and before 9:00 p.m. on Monday through Friday, or after 7:00 a.m. and before 5:00 p.m. on weekends. In addition to the exterior noise standards, the Fresno County Noise Ordinance identifies a noise level limit of 50 dBA for electrical substations when measured 50 feet from an affected residence (Fresno County 1978).

3.14.2 Significance Criteria

A project would result in significant impacts related to Noise if it would result in:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies; or

b) Generation of excessive groundborne vibration or groundborne noise levels.

3.14.3 Direct and Indirect Effects

3.14.3.1 Approach to Analysis

This analysis evaluates potential noise impacts of the Project and alternatives based on review of sensitive receptors, ambient noise levels, and projected noise levels that would be associated with construction, operation, maintenance, and decommissioning of the Project and alternatives. Impact discussions are based, in part, on the modeled noise and vibration levels of the Project as

presented in the noise impact analysis provided by the Applicant (Appendix L). This and other documents prepared by or on behalf of the Applicant were reviewed by the Preparers of this Draft EIR and determined to be suitable for reliance on (in combination with other materials included in the formal record) in the preparation of this Draft EIR.

Short-Term Construction and Decommissioning Impacts

Short-term noise level increases from construction and decommissioning activities would cause significant impacts if the activities would conflict with local policies or standards. Project-related construction activities taking place between 6:00 a.m. and 9:00 p.m. Monday through Friday and between 7:00 a.m. and 5:00 p.m. on weekends would be exempt from standards in the Fresno County Noise Ordinance. During nighttime hours, construction would be required to adhere to the Fresno County exterior noise standards: 45 L_{eq} during the nighttime.

Long-Term Operation and Maintenance Impacts

Long-term operation and maintenance noise impacts would be considered significant if Project-related noise would exceed the Fresno County exterior noise standards of 45 dBA L_{50} during nighttime hours (i.e., 10:00 p.m. to 7:00 a.m.) or 50 dBA L_{50} during daytime hours (i.e., 7:00 a.m. to 10:00 p.m.). For most common noise sources, L_{50} can be interpreted as close to the L_{eq} metric. Therefore, if a project would generate noise levels in excess of 50 dBA L_{eq} during the daytime or 45 L_{eq} during the nighttime, such noise generation would constitute a significant noise impact.

The Fresno County General Plan DNL- or CNEL-based community noise exposure levels, which are based on the difference between daytime and nighttime noise levels, were not considered applicable as there would be virtually no nighttime noise associated with the Project that would be audible at the nearby receptors; therefore, there is no nighttime noise level data to use to estimate Project-related DNL or CNEL noise exposure levels.

As described in Section 3.14.1, *Setting*, a change in noise of at least 5 dBA is required before a readily perceptible human response would be expected; therefore, increases in ambient noise levels associated with long-term operation and maintenance activities would be considered substantial and would result in a significant impact if ambient noise levels at sensitive receptor locations would be increased 5 dBA or more.

Vibration Impacts

A numerical threshold to identify the point at which a vibration impact occurs has not been identified by County standards or codes. Therefore, this analysis assumes that the Project would result in a significant construction vibration impact if buildings or sensitive individuals would be exposed vibration levels equivalent to or higher than FTA PPV vibration threshold level of 0.2 inches per second (in/sec). The FTA measure of the threshold of architectural damage for conventional sensitive structures from groundborne vibration is 0.2 in/sec PPV. The FTA measure of human annoyance at residential uses is 72 VdB for “Frequent Events”, or more than 70 vibration events of the same source per day (FTA 2006). The FTA impact assessment procedures and criteria are routinely used for projects under review by local jurisdictions that have not adopted their own vibration impact standards.

3.14.3.2 Direct and Indirect Effects of the Project

a) Whether the Project would generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Impact 3.14-1: The Project could generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. (*Less than Significant with Mitigation*)

Initial Demolition and Construction; Decommissioning and Site Restoration

The Fresno County Noise Ordinance states that 50 dBA is the standard for daytime (7 a.m. to 10 p.m.) and 45 dBA is the standard for nighttime (10 p.m. to 7 a.m.). Therefore, if a proposed project would generate noise levels from non-construction noise sources in excess of 50 dBA L_{eq} during the daytime or 45 L_{eq} during the nighttime, such noise generation would constitute a significant noise impact. As discussed above, noise from construction or decommissioning activities would be exempt from the Fresno County General Plan noise policies and the Fresno County Noise Ordinance standards if the activities would occur between the hours of 6:00 a.m. and 9:00 p.m. on weekdays, or 7:00 a.m. and 9:00 p.m. on Saturdays and Sundays.

For construction noise, peak unmitigated levels have the potential to exceed the Fresno County Exterior Noise Level Standards. However, the Project operations most likely to cause these peak activities will occur during typical, daytime hours when construction noise sources are exempt under Fresno County's Noise Ordinance (between 6:00 a.m. and 9:00 p.m. on weekdays and between 7:00 a.m. and 5:00 p.m. on weekends). Project-related construction activities that may occur outside these exempt hours include testing, inspection and electrical interconnection work that does not have the same potential for generating offsite noise and therefore would not be considered a significant source of noise.

Construction Noise

Project construction would consist of several phases, including site grading where necessary, development of a staging area and site access roads, solar photovoltaic (PV) system assembly and installation, and construction of other onsite structures including fencing. Construction would primarily occur during the County's exempt hours of construction activities. Occasional construction activities may occur outside of these hours. Most deliveries are expected to also occur during the exempt hours of construction.

Construction equipment would include standard equipment such as post drivers, graders, scrapers, backhoes, loaders, cranes, dozers, water trucks, portable generators and air compressors, and miscellaneous trucks. The maximum noise levels at 50 feet f would range up to 90 dBA for the type of equipment typically used for this type of project. The construction equipment is expected to be spread out over the entire site, with some equipment operating along the perimeter of the site while the rest of the equipment may be located several hundred feet further away from the noise sensitive receptors.

Table 3.14-4 shows the calculated noise levels at the property line of the closest noise-sensitive receptor (Noise Sensitive Residence A). The noise levels shown in Table 3.14-4 take into account operation of multiple pieces of construction equipment simultaneously for the L_{eq} results. Also because of stringent air quality emissions standards, newer, cleaner, and quieter heavy equipment is used on most construction projects in California. Thus, construction phase noise levels indicated in Table 3.14-4 represent worst-case conditions. L_{max} levels are focused on the single piece of equipment with the highest L_{max}. These L_{max} results do not account for multiple pieces of equipment producing maximum levels at the same time, since this is an unlikely occurrence. For this reason, and because some phases of construction include more than 20 pieces of equipment expected to be operating, the calculated L_{eq} levels are higher than the L_{max}.

TABLE 3.14-4
OUTDOOR CONSTRUCTION NOISE LEVELS BY PHASE AT CLOSEST NOISE-SENSITIVE RECEPTOR

Construction Phase	Instantaneous L_{max} (dBA) for Single Piece of Equipment	Hourly L_{eq} (dBA) for Multiple Equipment Types
Shared Facilities		
Move On Phase	47	57
Substation Construction	47	53
Gen-Tie Line Installation	47	52
Little Bear 1-6		
Site Preparation and Grading	47	56
Underground Work (Trenching)	47	54
System Installation	47	60
Post Driving[a]	47	40
Cleanup/Testing/Restoration	47	50

NOTES:
[a] Post driving noise estimates were calculated off-model by using published reference noise level cited on page 28 of Appendix L.

SOURCE: Appendix L, Table 10.

Pile or post driving is a construction activity that is not accounted for in the results shown in Table 3.14-4. Default data for pile drivers is for large equipment intended to set piles for highway tunneling purposes. No foundation piles of this type are included in the Project, instead substantially shorter posts would be installed to support the rack system for the solar arrays. The post driving activities for the Project would be expected to use smaller equipment, drive the posts only a few feet into the ground, and thus produce lower noise levels. Based on noise levels of smaller post drivers, Project post-driving activities are expected to produce approximately 84 dBA at 50 feet (Appendix L). This equipment use would be expected to increase the construction noise levels presented in Table 3.14-4 by 1 dB or less.

As shown in Table 3.14-4, construction-related noise levels could reach up to 60 dBA L_{eq} at residential property lines to the west of the Project site along West California Avenue during construction activities. The greatest estimated hourly L_{eq} is not the result of any particular equipment or activity, but rather the cumulative noise of widespread activity on the Project site. The County of Fresno Noise Ordinance exempts construction activity noise from standard

exterior noise exposure limits, if conducted during specific hours. Most Project-related construction activity is expected to occur within the window of time covered by the Noise Ordinance exemption.

The nighttime L_{eq} limit is 45 dBA based on the Fresno County Exterior Noise Level Standard. Some low-intensity construction-related activities could occur outside the hours of the Noise Ordinance exemption; however, these activities typically include testing or inspection work that would not require the use of heavy-duty off-road equipment and, therefore, would not be a noteworthy source of noise. Thus, construction-related activity associated with the Project is not expected to generate noise in excess of any locally established standard.

Traffic Noise

West California Avenue and State Route 33 are the two major roads in the Project vicinity. Traffic noise modelling estimated the existing traffic noise levels at the residences along California Avenue west of the Project to be approximately 61 dBA CNEL, which would be increased to 65 dBA CNEL with Project construction traffic (Appendix L). A less than 5 dBA CNEL increase would not be considered significant. In addition, construction traffic is anticipated to occur only during the day, which would cause the least disruption to sleep or relaxation patterns. Due to the temporary nature of the traffic noise increase and the construction exemption in the County Noise Ordinance, impacts related to construction traffic noise would be less than significant.

Operation and Maintenance

The primary noise sources from Operation and Maintenance (O&M) would be associated with trackers, power conversion stations (PCS) transformers, inverters, medium and high voltage transformers, each energy storage system (ESS), and onsite vehicle traffic.

Onsite Vehicles

Operation and maintenance of the Project would require on-site personnel. On a typical day, the number of staff on site may range from none (it is not necessary for staff to be present during plant operations) up to 20 during periodic, routine maintenance events. Non-routine (emergency) maintenance could require additional workers. Most O&M-related activities would occur during typical, daytime hours although nighttime work may be required on occasion. Due to the infrequent degree of O&M-related traffic, Project O&M would not cause a perceptible increase in ambient noise levels at the nearest residence locations. Therefore, long-term traffic noise impacts would be less than significant.

Solar Panel Single-Axis Trackers

Tracker motors which would make incremental adjustments to the angle of the PV panels throughout the day, creating noise levels that would be very low (approximately 40 dBA at a distance of 10 feet) and brief, as they would operate for a few seconds at a time at most. Therefore, the noise level from the tracker motors would be negligible.

Power Conversion Station Transformers

Based on the National Electrical Manufacturers Association 2014 transformer ratings, a worst case noise scenario would be 67 dBA at 1 foot from the transformers. Therefore, the expected noise level from the PCS transformers are expected to be less than 5 dBA L_{eq} at the nearest residence. This would be below the nighttime County noise standard of 45 dBA $L_{50.}$

DC to AC Inverters

The Project intends to only use enclosed inverters. Using a conservative assumption that these inverter units are distributed similar to the PCS, noise levels due to the inverters from all of the individual sites, would be less than 39 dBA at the nearest residence. This would be below the nighttime County noise standard of 45 dBA L_{50}.

Medium and High Voltage Transformers

The Project is expected to include three-phase transformers mounted on concrete pads that convert the output of each inverter. Assuming one main transformer for each individual facility substation located in the vicinity of the ESS for each site, noise levels at the nearest residence due to these transformers would be less than 5 dBA. This would be below the nighttime County noise standard of 45 dBA L_{50}.

Energy Storage Systems

The Project would include as many as five ESSs that could provide up to 4 hours of electrical storage. Each ESS would be sited on an approximately 1-acre area within each of the five facilities, and would consist of self-contained battery storage modules placed in racks, converters, switchboards, integrated heating, ventilation, and air conditioning (HVAC) units, inverters, transformers, and controls in prefabricated metal containers or buildings.

HVAC units supplied as standard equipment for similar energy storage projects produce 68 dBA at a distance of 50 feet during full operation. Taking into account site layout information and a conservative assumption that 10 HVAC units will be utilized for each ESS, noise levels at the nearest residences would be approximately 44 dBA due to the HVAC operations alone.

A typical step-up transformer that could be used for the ESS(s) has a sound rating of 60 dB at 5 feet. Using a conservative assumption that 30 transformers are used in each ESS, and they are all located within the ESS site, noise levels at the nearest residences would be less than 23 dBA.

Using a typical power inverter with a noise level rating of 77 dB at about 6 feet and accounting for 15 power inverters per ESS, noise levels from the inverters at the nearest residence would be approximately 38 dBA.

Combined Operational Equipment

A summary of operational noise is located in **Table 3.14-5**, below, provides total expected operational noise levels for daytime and nighttime. Daytime includes the ESS HVAC noise, while nighttime does not. Since HVAC is expected to be used primarily during the daytime, the calculated noise level is not expected to exceed the Fresno County Exterior Noise Level Standards of 50 dBA for 30 minutes in an hour during daytime.

TABLE 3.14-5
UNMITIGATED OPERATIONAL NOISE SUMMARY (DBA L_{EQ})

Component	Unmitigated Noise Level at Nearest Sensitive Receptor	Total Daytime	Total Nighttime[a]
PCS Transformers	<5	45	41
PCS Inverters	39		
Medium/High Voltage Transformers	<5		
ESS Inverters	38		
ESS Transformers	23		
ESS HVAC[a]	44		

NOTES:
[a] ESS HVAC noise is not included in the total nighttime calculation, as HVAC is expected to be used primarily during the daytime.

SOURCE: Appendix L, Table 14.

As shown in Table 3.14-5, the operational noise is expected to be less than the Fresno County noise standards at the nearest noise sensitive receptor (50 dBA is the standard for daytime and 45 dBA is the standard for nighttime). In addition, ambient noise levels are not expected to increase more than 5 dB above the existing ambient noise levels on and immediately adjacent to the Project site that range from approximately 67.7 dBA L_{eq} to 69.9 dBA L_{eq}.

In the event the ESS HVAC is required to operate in the nighttime hours (10:00 p.m. to 7:00 a.m.) noise levels may exceed County standards depending on final equipment selection and design. As a result, significant noise impacts could result from the ESS HVAC equipment operations. Implementation of **Mitigation Measure 3.14-1** would reduce the noise impact to a less-than-significant level.

> **Mitigation Measure 3.14-1: Noise Reduction for Energy Storage System HVAC Units**
>
> Prior to issuance of building permits for the energy storage system (ESS) facility, the Project Applicant shall provide to the County evidence demonstrating that each ESS facility HVAC system will comply with the County noise standards through equipment selection and incorporation of design measures (if applicable). Design measures may include the selection of quieter HVAC units and use of enclosures or otherwise configuring the units in a location that provides an acoustical barrier.
>
> **Significance after Mitigation:** Less than Significant.

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b) Whether the Project would generate excessive groundborne vibration or groundborne noise levels.

Impact 3.14-2: The Project could expose people and/or structures to vibration levels. (*Less than Significant Impact*)

Initial Demolition and Construction; Decommissioning and Site Restoration

Temporary sources of groundborne vibration and noise during land grading, trenching, and other initial demolition and construction activities for the Project would be produced by the operation

of heavy construction equipment. The construction equipment most likely to create vibration include large and small bulldozers, pile drivers, loaded trucks, and jackhammers.

The use of heavy equipment (e.g., a large bulldozer) generates vibration levels of 0.089 inches per second PPV at a distance of 25 feet and the upper range for pile driving is 1.518 inches per second PPV at 25 feet. Based on the distance to the closest sensitive receptors (approximately 3,900 feet), the resulting PPV would be less than 33 VdB for the bulldozer. The resulting PPV for the upper range of pile driving is less than 58 VdB. These vibration levels are below the FTA measure of human annoyance at residential uses of 72 VdB. Furthermore, vibration levels at these receptors would not exceed the FTA building damage threshold of 0.2 inches per second PPV or 94 VdB (Appendix L). As such, construction-related vibration associated with the Project would result in a less-than-significant impact.

The Project construction would not have the potential to generate significant short-term groundborne vibration or noise at the noise sensitive receptors due to distance attenuation. Decommissioning activities would include the use of similar equipment as for construction and would similarly not impact nearby sensitive receptors. Therefore, groundborne vibration impacts would be less than significant for Project decommissioning and site restoration.

Operation and Maintenance

The Project does not propose the use of large, rotating equipment during Project operation that would introduce any new sources of perceivable groundborne vibration. In addition, operation and maintenance would not require the use of heavy equipment. Therefore, there is no potential for significant impact resulting from vibration.

3.14.3.3 Direct and Indirect Effects of Alternatives

Increased Habitat/Reduced Acreage Alternative

Under the Increased Habitat/Reduced Acreage Alternative, Little Bear 6 would not be constructed, reducing the Project impact acreage by approximately 161 acres. Compared to the Project, the Increased Habitat/Reduced Acreage Alternative would result in less surface disturbance and reduced construction and decommissioning activities which would result in an overall reduction in Project-related noise and vibration. The closest noise receptor to Little Bear 6 would be FCI Mendota. As described above, correctional facilities generally contain greater sound proofing and noise reduction in the design of the facility. Additionally, FCI Mendota is closer in distance to the existing North Star Solar Project, for which noise impacts were found to be less than significant in the MND prepared for the project (Fresno County, 2013); thus the Project and Increased Habitat/ Reduced Acreage Alternative would not be expected to have a significant impact on FCI Mendota.

In the event the ESS HVAC is required to operate in the nighttime hours (10:00 p.m. to 7:00 a.m.) as part of the Increased Habitat/Reduced Acreage Alternative, noise levels may exceed County standards depending on final equipment selection and design. As a result, significant noise impacts could result from the ESS HVAC equipment operations. Therefore, **Mitigation**

Measure 3.14-1 is recommended as a way to reduce the potential significant noise impact to a less-than-significant level.

Similar to the Project, the Increased Habitat/Reduced Acreage Alternative would have less-than-significant vibration and construction noise impacts. Similar mitigation would be required for operational noise impacts which would reduce potential impacts on sensitive receptors to a less-than-significant level.

No Project Alternative

If the No Project Alternative is implemented, the proposed demolition of structures would not occur; neither the solar facilities nor the Little Bear gen-tie line would be constructed, operated, or maintained; and the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Therefore, the No Project Alternative would have no impact associated with Noise.

3.14.4 Cumulative Analysis

Any continuing noise impacts of past projects are reflected in the environmental conditions described in Section 3.14.1, *Setting*. The primary source of existing noise at the Project site is traffic on State Route 33, which has been measured to produce a daytime 30-minute L_{eq} of 67.7 dBA near the residences on West California Avenue and 69.9 dBA L_{eq} southeast of Project site next to State Route 33. This noise level does not indicate an adverse cumulative effect at these residences related to ambient traffic noise.

The geographic scope considered for potential cumulative impacts related to noise is the area within 0.5 mile of the Project site because sounds naturally attenuate with distance and intervening vegetation. The temporal scope for cumulative noise impacts is during the construction and operation/maintenance and decommissioning phases of the Project. Among the projects identified in Section 3.1.3.1, *Projects Considered in the Cumulative Impact Analysis,* there are no pending projects that could be constructed and/or in operation at the same time and within 0.5 mile of the Solar Facility. As described above, noise impacts from the North Star Solar project and Citizen Solar B project located adjacent to the Project site are reflected in the existing environmental conditions, which were used as a baseline to measure the Project's impacts and thus, are included in the analysis for the Project. Therefore, there is no possibility that noise from construction, operation, or decommissioning of the Project could combine with noise from any other project to cause additional increases in maximum project-generated noise levels. The Project's incremental less-than-significant contribution to cumulative noise conditions would not cause or contribute to any significant impact.

3.14.5 References

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U.S. Department of Justice Federal Bureau of Prisons (BOP), 1993. King County, Washington Federal Detention Center Final Environmental Impact Statement. November 1993.

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3.15 Population and Housing

This section identifies and evaluates issues related to Population and Housing in the context of the Project and alternatives. It describes the physical and regulatory setting, the criteria used for determining the significance of environmental impacts, and the results of the impact assessment. The County received no scoping comments pertaining to Population and Housing (Appendix A).

3.15.1 Setting

3.15.1.1 Environmental Setting

Population

The Project site is located in unincorporated Fresno County approximately 2.5 miles southwest of the City of Mendota. The mean commute time in Fresno County is 22.3 minutes (US Census 2016). However, consistent with the air quality and greenhouse gas modeling for the project, it is reasonable to assume that construction workers may drive 80 miles to the Project site during construction, operation, or decommissioning. Therefore, towns and cities within 80 miles of the Project site were included in this evaluation of potential impacts to population and housing. The cities of Fresno (27 miles east of the Project), Clovis (38 miles northeast), Reedley (52 miles), Sanger (45.4 miles), Selma (43.5 miles southeast), Kerman (17 miles east), San Joaquin (12.2 miles southeast), Firebaugh (8.5 miles north), and Mendota (2.5 miles north) all are within Fresno County and within an 80–mile radius from the Project site.

A number of cities in surrounding counties such as Turlock (56 miles northwest in Stanislaus County), Newman (65 miles northwest, Stanislaus County), Patterson (76 miles northwest, Stanislaus County), Livingston (60 miles northwest, Merced County). Madera (23 miles northeast, Madera County), Chowchilla (approximately 27.5 miles northeast, Madera County), Atwater (approximately 43 miles northwest, Merced County), Merced (approximately 40 miles north, Merced County), Los Banos (approximately 32 miles northwest, Merced County), Dinuba (56 miles southeast, Tulare County), Visalia (76 miles southeast, Tulare County), Tulare (79 miles southeast, Tulare County)and Hanford (45 miles southeast, Kings County) also are located within 80 miles of the Project site. Smaller unincorporated communities such as Tranquillity (8.3 miles southeast, Fresno County), Helm (20 miles southeast, Fresno County), and Five Points (24.6 miles southeast, Fresno County) also are within the study area.

Population characteristics for cities in the study area are included in **Table 3.15-1**. Population estimates and projections are not available for unincorporated communities; therefore, unincorporated communities are not included in the table below. As demonstrated by Table 3.15-1, most of the cities within the study area have experienced moderate amounts of growth between 2000-2017. Some cities such as the City of San Joaquin and Chowchilla have grown relatively slowly in recent years. Since 2010, the population of Fresno County has steadily increased each year. In 2017, Fresno County had an estimated population of 995,975 representing an approximate 7 percent increase from the 2010 population of 930,450. It is expected that the population of Fresno County will grow an additional 20 percent between 2017 and 2035, reaching

an estimated 1,201,416 residents in 2035 (California Department of Finance 2017b). The City of Mendota experienced a period of large population growth, approximately 16.3 percent from 2000-2010 and, in 2017, had an estimated population of 11,828. The population of the City of Fresno grew slightly faster than the County as a whole between 2005 and 2010 and slightly slower than the County between 2010 and 2015. In 2017, the population of the City of Fresno was 525,832. Population projections through 2035 are not available for the cities of Mendota and Fresno. From 2010-2050, the San Joaquin Valley as a whole is expected to have an annual growth rate of 1.33 percent. Fresno County is expected to grow at a slightly slower rate (1.2 percent annually) than the region while Kings County, Madera County, and Merced County are anticipated to grow at a slightly faster rate than the region as a whole (Fresno COG 2012).

TABLE 3.15-1
HISTORIC AND PROJECTED POPULATION GROWTH, 2000–2035

Area	2000[a]	2005[a]	2010[b]	2015[b]	2017d	2020[c]
Fresno County	799,407	866,058	930,450	975,324	995,975	1,071,728
City of Fresno	427,719	457,786	494,665	517,800	525,832	675,981
City of Mendota	7,890	9,179	11,014	11,543	11,828	11,838
City of Clovis	68,516	84,552	95,631	105,224	110,762	111,534
City of Reedley	20,756	21,447	24,194	25,876	26,152	27,715
City of Sanger	18,931	21,297	24,270	25,387	26,412	26,880
City of Selma	19,444	22,160	23,219	24,417	25,156	29,038
City of Kerman	8,548	10,985	13,544	14,326	14,614	11,015
City of San Joaquin	3,270	3,569	4,001	4,048	4,070	6,291
City of Firebaugh	5,743	6,953	7,549	8,047	8,202	7,757
City of Turlock	55,811	65,301	68,549	71,394	72,879	Not Available
City of Newman	7,092	8,798	10,224	10,713	11,165	Not Available
City of Patterson	11,606	15,677	20,413	21,935	22,730	Not Available
City of Madera	43,205	51,735	61,416	64,534	66,082	98,914 e
City of Chowchilla	14,416	16,052	18,720	18,740	18,840	19,384 e
City of Atwater	23,113	26,829	28,168	29,621	30,406	31,300 f
City of Merced	63,893	72,402	78,958	82,909	84,464	98,500 f
City of Los Banos	25,869	32,061	35,972	38,403	39,993	44,000 f
City of Livingston	10,473	11,818	13,058	13,811	13,947	18,200 f
City of Dinuba	16,844	18,989	21,453	24,228	24,861	Not Available
City of Visalia	91,891	106,054	124,442	129,140	133,151	Not Available
City of Tulare	43,994	48,974	59,278	62,685	64,661	Not Available
City of Hanford	41,687	48,016	53,967	55,437	55,645	Not Available

SOURCES:
a California Department of Finance 2012
b California Department of Finance 2017a
c Fresno County, 2000
d California Department of Finance 2017c
e City of Madera, 2015
f Merced County Association of Governments 2015

Housing

At the beginning of 2017, Fresno County had an estimated total of 329,736 housing units with a vacancy rate of 7.5 percent, the City of Fresno had an estimated 178,819 housing units and a vacancy rate of 7.6 percent, and Mendota had an estimated 2,669 housing units and a vacancy rate of 2.5 percent. **Table 3.15-2** outlines housing data for Fresno County and the cities in the study area from the beginning of 2017. In general, in 2017 vacancy rates for cities in the study area ranged from 2.4 percent (City of Reedley) to 9.6 percent (City of Chowchilla).

TABLE 3.15-2
2017 HOUSING DATA ESTIMATES

	Total Housing Units	Occupied Housing Units	Vacant Housing Units	Vacancy Rate (percent)
Fresno County	329,736	304,946	24,790	7.5
City of Fresno	178,819	165,296	13,523	7.6
City of Mendota	2,669	2,602	67	2.5
City of Clovis	39,698	38,010	1,688	4.3
City of Reedley	7,143	6,971	172	2.4
City of Sanger	7,497	7,116	381	5.1
City of Selma	7,048	6,824	224	3.2
City of Kerman	4,144	3,909	235	5.7
City of San Joaquin	932	880	52	5.6
City of Firebaugh	2,135	2,047	88	4.1
City of Turlock	24,896	23,165	1,731	7.0
City of Newman	3,527	3,147	380	10.8
City of Patterson	6,465	6,006	459	7.1
City of Madera	17,649	16,903	746	4.2
City of Chowchilla	4,360	3,941	419	9.6
City of Atwater	9,992	9,441	551	5.5
City of Merced	27,718	26,349	1,369	4.9
City of Los Banos	11,750	11,289	461	3.9
City of Livingston	3,447	3,335	112	3.2
City of Dinuba	6,602	6,330	272	4.1
City of Visalia	46,812	43,180	3,632	7.8
City of Tulare	20,087	18,865	1,222	6.1
City of Hanford	19,298	18,049	1,249	6.5

SOURCE: California Department of Finance 2017c

In Fresno County, from 2013-2023, the number of households is expected to increase by 20 percent. In the City of Fresno and City of Mendota, the number of households are expected to increase by 16.5 percent in each city over the 10-year time period (COG 2014).

Temporary Housing

Fresno County currently has over 65 full-service hotels and motels, including six motels in western Fresno County. Numerous tent and RV campgrounds are available for temporary housing accommodations (Fresno County Office of Tourism 2018).

3.15.1.2 Regulatory Setting

Regional

Fresno Council of Governments

The Fresno Council of Governments (COG) is a regional planning organization comprised of representatives from Fresno County and its 15 incorporated cities. COG's primary responsibilities include transportation and housing planning. COG is the state-designated Regional Transportation Planning Agency and federally-designated Metropolitan Planning Organization for Fresno County (COG 2014). COG is responsible for preparing the Regional Housing Needs Allocation Plan (RHNA), a state-mandated document that determines the number of housing units each city and county are responsible for accommodating in the housing element section of their general plan. The Fresno County RHNA Plan was last updated in 2013 and approved in July, 2014 (COG 2014). The planning period for the 2013 RHNA extends for 11 years from January 2013 to December 2023. The plan, which relies on Census data from 2010, State Department of Finance Data, California Department of Housing and Community Development data, and Fresno COG calculations, determined how best to allocate regional housing needs to Fresno County jurisdictions (COG 2014).

Local

Fresno County General Plan

The Fresno County General Plan was last updated in 2000 and does not contain any goals, policies, or implementation measures related to Population and Housing as these topics are addressed under CEQA (Fresno County 2000). However, in February of 2013, the Fresno COG assembled a Regional Housing Needs Allocation Technical Committee with representatives from all Fresno County local governments. This committee prepared a Fresno County Multi-Jurisdictional Housing Element for Fresno County governments with the goal of creating regional coordination to address countywide housing issues and needs (Fresno County 2016). This regional housing element update covers the planning period of December 2015 through December, 2023, representing the 2015-2023 Housing Element for 13 jurisdictions in Fresno County, including the County of Fresno and the City of Mendota. The Housing Element Update was adopted in April of 2016 (COG 2016).

Multijurisdictional Housing Element policies that are relevant to the Project include:

> ***Policy 1.9:*** Encourage development around employment centers that provides the opportunity for local residents to live and work in the same community by balancing job opportunities with housing types.
>
> ***Policy 3.1:*** Preserve the character, scale, and quality of established residential neighborhoods by protecting them from the encroachment of incompatible or potentially disruptive land uses and/or activities.

Fresno County Solar Facility Guidelines

In December 2017, the Fresno County Board of Supervisors revised the County of Fresno Solar Facility Guidelines. As a part of this revision process, the Board of Supervisors added Guideline

Number 12, which states, "If the project is approved, the applicant shall make all reasonable efforts to conduct local recruitment efforts and/or coordinate with employment agencies in an attempt to hire from the local workforce" And Guideline Number 14, which states, " If the project is approved, the applicant shall make all reasonable efforts to purchase products and equipment from local (Fresno County) manufacturing facilities and/or vendors."

3.15.2 Significance Criteria

A project would result in significant effects related to Population and Housing if it would:

a) Induce substantial unplanned[1] population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure); or

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

3.15.3 Direct and Indirect Effects

3.15.3.1 Direct and Indirect Effects of the Project

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

Impact 3.15-1: The Project would not induce substantial unplanned population growth in an area, either directly or indirectly. (*Less than Significant Impact*)

The Project would not include any new homes or businesses, and so would not directly induce population growth. The Project would not indirectly induce population growth as a result of the construction of the perimeter, access, and internal roads, or from other Project infrastructure interior to the Project site because these improvements would not be accessible to the public.

Construction of the Project is anticipated to employ a maximum of 750 on-site personnel. The duration of construction requiring the peak workforce is expected to be approximately 120 days out of the 10-14-month period of construction. As described in Section 2.5.4.5, *Construction Schedule and Workforce*, based on the demographic profile of western Fresno County and experience with the North Star Solar Project, it is anticipated that a majority of the construction workforce would be hired from the existing workforce in the Fresno regional area. Once operational, the proposed Project would require on-site personnel. On a typical day, the number of staff on site may range from none (it is not necessary for staff to be present during plant operations) up to 20 during periodic, routine maintenance events. Non-routine (emergency) maintenance could require additional workers. Decommissioning and site restoration activities are expected to require a smaller workforce than construction, and to take approximately 14 months to complete.

[1] The Governor's Office of Planning and Research has clarified that "Growth that is planned, and the environmental effects of which have been analyzed in connection with a land use plan or a regional plan, should not by itself be considered an impact." Accordingly, this analysis focuses on whether the Project could result in unplanned growth.

The California Employment Development Department estimated that the annual average unemployment rate in Fresno County in 2016 was approximately 9.4 percent (not seasonally adjusted) compared to the statewide unemployment rate of 5.4 percent (CEDD 2017). In 2012, the construction industry employed an average of 12,200 individuals in Fresno County. Since 2012, the number of individuals employed in the construction industry has gradually increased annually to a peak of 17,600 individuals employed in the construction industry in July 2017 (CEDD 2016, CEDD 2018). Consistent with the County of Fresno Solar Facility Guidelines, the Applicants have committed to recruiting and hiring from the local workforce. Industry and unemployment data suggests that the number of jobs created by the Project's construction, operation, and decommissioning could be served by the existing labor pool in Fresno County. Any increase in local economic activity due to the Applicant's commitment to purchase local products and equipment in compliance with Guideline 14 is not anticipated to be significant and would not result in in-migration of workers to the study area.

As a result, workers would be expected to commute to the site from local and regional towns and cities, rather than relocate. Therefore, construction, operation, and decommissioning of the Project is not expected to require substantial numbers of new housing units, the construction of which could cause environmental impacts. Additionally, even if all of the Project's construction, operation and maintenance, and decommissioning workforce moved into the County, the County's housing market would have the capacity to absorb the increase in residents without requiring the construction of new housing units. California Department of Finance housing estimates from January 2017 estimated that the County had approximately 24,790 vacant housing units (California Department of Finance 2017c).

As a result, the Project is not expected to induce population growth directly or indirectly. Additionally, despite the fact that the Project would increase the availability of electrical capacity, this factor alone is not expected to induce substantial population growth. Many factors such as economic conditions, land availability, the availability of water supply and sewer services, and local planning efforts have a more direct impact on population growth. Therefore, the energy produced by the Project would not directly or indirectly encourage new development or induce population growth.

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b) Whether the Project would displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere (*No Impact)*.

For the reasons discussed in the analysis of criterion a), construction, operation, and decommissioning of the Project would not result in the displacement of residences or people. Therefore, the proposed Project would have no impact with regard to the displacement of people and construction of replacement housing.

3.15.3.2 Direct and Indirect Effects of Alternatives

Increased Habitat/Reduced Acreage Alternative

Under the Increased Habitat/Reduced Acreage Alternative, Little Bear 6 would not be constructed. This alternative would reduce the acreage of disturbance by approximately 161 acres relative to the Project. The Increased Habitat/Reduced Acreage Alternative may require a slightly smaller workforce during construction, operation, and decommissioning in comparison to the Project. This Alternative would result in no impacts to population and housing, similar to the proposed Project. No mitigation would be required.

No Project Alternative

If the No Project Alternative is implemented, the proposed demolition of structures would not occur; neither the solar facilities nor the Little Bear gen-tie line would be constructed, operated, or maintained; and the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Therefore, the No Project Alternative would have no impact on population and housing.

3.15.4 Cumulative Analysis

The geographic context for the cumulative impacts associated with Population and Housing includes cities and unincorporated communities within 80 miles of the Project site. This area includes cities and communities within Fresno County, Merced County, Madera County, Kings County, and Stanislaus County. temporal scope of impacts would include construction, operation and maintenance, and decommissioning phases of the Project. Cumulative effects could result from the combination of the incremental impacts of the Project or an alternative with ongoing impacts of past project as well as the other present and reasonably foreseeable future projects developed within the geographic scope (see Table 3.1-1, Little Bear Solar Generating Facility Project Cumulative Impact Analysis Projects List). Fresno County is expected to continue to experience moderate growth. The population of Fresno County is anticipated to increase approximately 11.2 percent from 2015 - 2025 to 1,088,963 persons and to continue to grow 15.4 percent from 2025 - 2040 to 1,256,572 persons (California Department of Finance 2017b).

The projects summarized in Table 3.1-1, include several solar photovoltaic projects within Fresno County. In general, solar photovoltaic projects do not induce substantial population growth or displace substantial numbers of people or housing as they do not create substantial numbers of permanent jobs. Additionally, the Project would not alter land use planning policies or natural resources which are important for development, such as water resources. Therefore, the Project would not be likely to induce migration or population growth. Additionally, the County's General Plan governs growth, development, and land use decisions within the County's jurisdiction and all development proposed within the County must occur consistent with its provisions. The same is true for the various cities: development in each jurisdiction must occur consistent with each jurisdiction's General Plan. Therefore, construction of the cumulative projects and other development within the geographic area of cumulative concern would not result in substantial

direct or indirect unplanned population growth. Neither the Project nor an alternative would cause any significant impact related to population growth or housing. Therefore, neither the Project nor the alternatives would cause or contribute to a cumulatively considerable impact related to Population or Housing.

3.15.5 References

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3.16 Public Services

This section describes Public Services in the vicinity of the Project site, and the associated regulatory framework. The impact analysis presents the criteria used to evaluate the significance of impacts on Public Services, the methods used in evaluating these impacts, and the results of the impact assessment. No input was received regarding Public Services during the scoping period (Appendix A). However, the Fresno County Fire Protection District (FCFPD) subsequently requested consideration of the Project's compliance with State and County-level fire and building codes and any potential impacts that the Project would have on FCFPD services.

3.16.1 Setting

3.16.1.1 Environmental Setting

Fire Protection

Fire protection services in the area surrounding the Project site are provided by the FCFPD. The Fire District serves an area of approximately 2,655 acres and provides fire protection for over 220,000 citizens. The FCFPD provides fire suppression and prevention, emergency medical services, rescue, and educational services in cooperation with the California Department of Forestry and Fire Protection (CAL FIRE). The FCFPD has 13 staffed fire departments and 5 paid call fire departments which serve over 50 percent of land within Fresno County. The FCFPD operates its fire engine companies with a minimum of 2-3 career firefighters with 48 firefighters on duty daily (FCFPD 2018).

In 2017, from the months of January through October, the FCFPD responded to a total of 15,797 total incidents 2,599 of which were fire-related. The greatest number of calls that the fire department responded to were categorized as Medical Aid/Rescue followed by Others/Auto-Aid and Motor Vehicle Accidents (FCFPD 2017). The closest station to the Project site is Station 96, approximately 2.8 miles north of Project site, at 101 McCabe Avenue in the City of Mendota.

Law Enforcement

Law enforcement services for the Project vicinity are provided by the Fresno County Sheriff's Department (FCSD) which provides law enforcement services for unincorporated areas of western Fresno County. The City of Mendota and other incorporated cities as well as a number of unincorporated communities and areas are included in the Fresno County Sheriff's Department Patrol Area 1, which covers an area of more than 2,400 square miles in western Fresno County. The Patrol Area 1 substation in San Joaquin is located approximately 13.3 miles southeast of the Project site (FCSD 2018).

Schools

The Project site is located in the Mendota Unified School District (Fresno County Office of Education 2006). There are six schools within the district including three elementary schools, one junior high school, one high school, and one alternative education school (MUSD 2018).

Mendota High School and Mendota Junior High School are the two schools closest to the Project site, each is located approximately 1.8 miles north of the Project site.

Parks

Within Fresno County, there is a wide variety of recreational resources ranging from national parks, state parks, and regional parks and city parks to wilderness areas. See Section 3.17, *Recreation*, for details.

Other Public Facilities

The Mendota Branch of the Fresno County Library is located at 1246 Belmont Avenue, approximately 2 miles north of the Project site. The closest health care facility is the United Health Centers of the San Joaquin Valley's Mendota location, approximately 3.15 miles north of the Project site. The closest public hospital is the Community Regional Medical Center, located approximately 33.4 miles east of the Project site.

3.16.1.2 Regulatory Setting

Fresno County

General Plan

The Public Facilities and Services Element of the Fresno County General Plan contains goals, policies, and implementation program measures to ensure public facilities and services are adequately available and accessible in a timely fashion to serve new development (Fresno County 2000).

The following goals and policies within Section G, Law Enforcement, apply County-wide and are relevant to the Project:

> **Goal PF-G.** To protect life and property by deterring crime and ensuring the prompt an efficient provision of law enforcement service and facility needs to meet the growing demand for police services associated with an increasing population.
>
> > ***Policy PF-G.2:*** The County shall strive to maintain a staffing ratio of two (2) sworn officers serving unincorporated residents per 1,000 residents served. (This count of officers includes all ranks of deputy sheriff personnel and excludes all support positions and all sworn officers serving county wide population interests such as bailiffs, and sworn officers serving contract cities and grant-specific populations).
> >
> > ***Policy PF-G.4*** The County shall require development to pay its fair share of the costs for providing law enforcement facilities and equipment to maintain service standards.
> >
> > ***Policy PF-G.6:*** The County shall promote the incorporation of safe design features (e.g., lighting, adequate view from streets into parks) into new development by providing Sheriff Department review of development proposals.

The following goals, policies and implementation programs within Section H, Fire Protection and Medical Services. They apply County-wide and are relevant to the Project:

Goal PF-H. To ensure the prompt and efficient provision of fire and emergency medical facility and service needs, to protect residents of and visitors to Fresno County from injury and loss of life, and to protect property from fire.

Policy PF-H.1: The County shall work cooperatively with local fire protection districts to ensure the provision of effective fire and emergency medical services to unincorporated areas within the county.

Policy PF-H.2: Prior to the approval of development projects, the County shall determine the need for fire protection services. New development in unincorporated areas of the County shall not be approved unless adequate fire protection facilities are provided.

Policy PF-H.5: The County shall require that new development be designed to maximize safety and minimize fire hazard risks to life and property.

Policy PF-H.8: The County shall encourage local fire protection agencies in the county to maintain the following as minimum standards for average first alarm response times to emergency calls:

a. 5 minutes in urban areas;

b. 15 minutes in suburban areas; and

c. 20 minutes in rural areas.

Policy PF-H.9: The County shall require new development to develop or to pay its fair share of the costs to fund fire protection facilities that, at a minimum, maintain the service level standards in the preceding policies.

Policy PF-H.10: The County shall ensure that all proposed developments are reviewed for compliance with fire safety standards by responsible local fire agencies per the Uniform Fire Code and other State and local ordinances.

Policy PF-H.11: The County shall encourage local fire protection agencies to provide and maintain advanced levels of emergency medical services (EMS) to the public, consistent with current practice.

The following goals, policies and implementation programs within Section I, Schools and Library Facilities, apply County-wide and are relevant to the Project:

Goal PF-I. To provide for the educational needs of Fresno County and provide libraries for the educational, recreational, and literary needs of Fresno County residents.

3.16.2 Significance Criteria

A project would result in significant effects related to Public Services if it would:

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

i) Fire protection

ii) Police protection

iii) Schools

iv) Parks

v) Other public facilities

3.16.3 Direct and Indirect Effects

3.16.3.1 Direct and Indirect Effects of the Project

a.i) Whether the Project would result in a substantial adverse physical impact associated with the provision of new or physically altered fire protection facilities in order to maintain acceptable service ratios, response times or other performance objectives. (*No Impact*)

Project construction and decommissioning activities would temporarily increase traffic in the Project vicinity due to construction worker vehicle trips. Increased traffic in the Project vicinity could temporarily affect the demand for fire protection and emergency response services if motor vehicle accidents were to occur that required an emergency response. It is anticipated that a peak work force of up to 750 on-site personnel would be expected during Project construction. The duration of the peak workforce estimated to up to 120 days. However, temporary construction- or decommission-related increases in demand on fire protection services would not affect the FCFPD's ability to respond to incidents within the recommended time periods described in General Plan Policy PF-H.8, as construction and decommissioning activities would be expected to result in a temporary incremental increase in the number of emergency calls at the Project site. Therefore, the Project would not require or result in the construction of a new fire station or the modification of an existing fire station in order to maintain acceptable response times.

Increases in long-term demand for fire protection services typically are associated with substantial increases in population. Operation and maintenance of the Project would require on-site personnel who would typically work during regular business hours Monday through Friday. On a typical day, the number of staff on site may range from none (it is not necessary for staff to be present during plant operations) up to 20 during periodic, routine maintenance events. Non-routine (emergency) maintenance could require additional workers. The projected number of operation and maintenance personnel would not contribute to a significant population increase, resulting in an increase to the demand for fire protection services, or require new or altered facilities.

The Project would be subject to the requirements of the current Fire Code and Building Code, and Project plans would be reviewed by the FCFPD prior to the issuance of building permits. The Project would also be required to annex to Community Facilities District No. 2010-01 of the FCFPD. Additionally, initial demolition and construction, operation and maintenance, and decommissioning of the Project would not result in physical or operational changes that would interfere with response times or performance objectives of public service departments. Therefore, no impact to fire protection services would result from the Project.

a.ii) Whether the Project would result in a substantial adverse physical impact associated with the provision of new or physically altered police protection facilities in order to maintain acceptable service ratios, response times or other performance objectives. (*No Impact*)

Temporary police services could be necessary during Project construction and decommissioning for incidents such as the theft of construction equipment and/or vandalism of the Project site. As noted above, Project construction and decommissioning activities could temporarily affect the demand for police protection services, but would not result in the need for construction of new or alteration of existing police protection facilities to accommodate the hiring of additional police officers to meet acceptable service ratios, response times or other performance objectives.

During Project operation, appropriate security measures would be implemented to ensure control of site access and minimize security risks. Security at the Project site would be maintained by a combination of perimeter security fencing and controlled access gates secured by physical locks. The Project may include electronic security systems that use remote monitoring. Perimeter fencing would be approximately 6-foot-high chain-link topped with three strands, measuring 1 foot, of barbed wire. Motion-activated security lighting also would be used on the on-site storage and operations structures and adjacent parking area and Facility substations.

Temporary construction, operation, or decommission demands for police protection services would not require new or the physical alteration of existing Sheriff's Department facilities to accommodate the hiring of additional officers to meet acceptable service ratios, response times or other performance objectives. Therefore, the Project would cause no impact with respect to this criterion.

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a.iii) Whether the Project would result in a substantial adverse physical impact associated with the provision of new or physically altered school facilities in order to maintain acceptable service ratios, response times or other performance objectives. (*No Impact*)

As discussed in Section 3.15, *Population and Housing*, and due to the small number of personnel during Project operation and the temporary nature of the Project's initial phase (demolition and construction) and final phase (decommissioning and site restoration), the Project would not result in a substantial increase in population. Based on demographics and experience with the adjacent North Star Solar Project, a majority of the construction workforce for the Project would be expected to come from the Fresno regional area, which would not require relocation for workers and their families. Therefore, the Project would not generate a demand for new school facilities, nor require the alteration of existing school facilities. No impact would result relating to this criterion.

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a.iv) Whether the Project would result in a substantial adverse physical impact associated with the provision of new or physically altered park facilities in order to maintain acceptable service ratios, response times or other performance objectives. (*No Impact*)

As discussed in Section 3.17, *Recreation*, the Project would not result in the construction or alteration of park facilities, and would not result in population increases that would affect Fresno County's ability to meet or maintain its parkland provision goals. The temporary workforce necessary for the Project's initial demolition and construction or its decommissioning and site restoration would be expected to come from the Fresno regional area, which would not result in the need for additional park facilities. Operation and maintenance of the Project would require on-site personnel. On a typical day, the number of staff on site may range from none (it is not necessary for staff to be present during plant operations) up to 20 during periodic, routine maintenance events. Non-routine (emergency) maintenance could require additional workers. The projected level of employment would not increase the population in a manner that would result in additional demand for park facilities. Therefore, the Project would not require or result in the provision of new park facilities or alterations to existing park facilities. No impact would result relating to this criterion.

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a.v) Whether the Project would result in a substantial adverse physical impact associated with the provision of any other public facilities in order to maintain acceptable service ratios, response times or other performance objectives. (*No Impact*)

Other public facilities, such as libraries and health care services are accessible in the City of Mendota, within 3.5 miles of the Project site. No residences or public facilities are proposed as part of the Project and it is anticipated that the labor force to serve the Project during all its phases would come from the Fresno regional area and already reside locally. As a result, there would be no significant increase in the demand for library or health care services such that new facilities would need to be constructed or existing facilities modified to maintain acceptable service ratios or performance objectives. Therefore, the Project would not require or result in the provision of new library or health care facilities or alterations to existing such facilities. No impact would result relating to this criterion.

3.16.3.2 Direct and Indirect Effects of Alternatives

Increased Habitat/Reduced Acreage Alternative

Under the Increased Habitat/Reduced Acreage Alternative, Little Bear 6 would not be constructed, reducing the Project impact acreage by approximately 161 acres. Compared to the Project, the Increased Habitat/Reduced Acreage Alternative would result in incrementally lower demand for fire and emergency services, police, schools, parks, and other public services due to reduced construction and decommissioning activities and, like the Project, would result in no impacts to Public Services.

No Project Alternative

If the No Project Alternative is implemented, the proposed demolition of structures would not occur; neither the solar facilities nor the Little Bear gen-tie line would be constructed, operated, or maintained; and the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would cause no impact to Public Services.

3.16.4 Cumulative Analysis

Because neither the Project nor an alternative would cause any impact related to new or physically altered police protection, school, medical, or other public service facilities, neither the Project nor any of the alternatives would cause or contribute to any cumulative impact related to these services.

3.16.5 References

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3.17 Recreation

This section describes Recreation in the vicinity of the Project site, and the associated regulatory framework. The impact analysis presents the criteria used to evaluate the significance of impacts on Recreation as a consequence of implementing the Project or an alternative, the methods used to evaluate these impacts, and the results of the impact assessment. The County did not receive any scoping comments regarding Recreation (Appendix A).

3.17.1 Setting

3.17.1.1 Environmental Setting

Fresno County has a variety of recreational opportunities ranging from local and regional parks to state and national parks, national forests, wilderness areas, scientific research areas, and other recreational facilities. There are no recreational resources within the Project site or within 1 mile. The Mendota Wildlife Area is the closest recreational area to the Project site, located approximately 1.5 miles east of the Project site. The wildlife area consists of approximately 11,800 acres of flatlands and floodplain and offers fishing, wildlife viewing, and hunting opportunities (CDFW 2017). The City of Mendota is approximately 2.5 miles northeast of the Project site. In the City, there are 2.29 acres of parks per 1,000 people: 12.37 acres of parks for 5,401 people (California State Parks 2017). **Table 3.17-1** provides a list of recreational facilities nearest to the Project site. The majority of the County's recreational resources are located within the eastern portion of the County (Fresno County 2000).

TABLE 3.17-1
RECREATION FACILITIES NEAREST TO THE PROJECT SITE

Recreational Facility	Managing Agency	Approximate Distance From Project Site
Mendota Wildlife Area	California Dept. of Fish and Wildlife	1.5 miles
Rojas Pierce Park	City of Mendota	2.5 miles
Veterans Park	City of Mendota	2.8 miles
Lindgren-Lozand Park	City of Mendota	3. miles
Mendota Pool Park	Fresno County	4.0 miles

SOURCES: California Protected Areas Data Portal 2017; CDFW 2016

Two ecological reserves also are located nearby. The Alkali Sink Ecological Reserve is approximately 935.9 acres, located approximately 4.6 miles northeast of the Project site, and managed by CDFW. The Kerman Ecological Reserve consists of approximately 1,784.4 acres located approximately 10.6 miles east of the Project site, and also is managed by CDFW. Public access to both reserves is restricted.

3.17.1.2 Regulatory Setting

Federal

No federal statutes, regulations, plans, or policies govern recreation resources on or near the Project site.

State

No State statutes, regulations, plans, or policies govern recreation resources on or near the Project site.

Local

Fresno County General Plan

The Fresno County General Plan Open Space and Conservation Element discusses policies to enhance recreational opportunities in the County by encouraging further development of public and private recreational opportunities. One policy within Section H, Parks and Recreation, provides a quantitative goal for the provision of parkland:

> **Goal PF-H.** To designate land for and promote the development and expansion of public and private recreational facilities to serve the needs of residents and visitors.
>
> > ***Policy OS-H.2*:** The County shall strive to maintain a standard of five (5) to eight (8) acres of County-owned improved parkland per one thousand (1,000) residents in the unincorporated areas (Fresno County 2000).

Fresno County Regional Bicycle & Recreational Trails Master Plan

Approved September 24, 2013, this plan provides a comprehensive long-range planning effort for the creation of an extensive regional bikeway and recreational trail network that connects the cities of Fresno County to unincorporated areas. The plan area includes all of the unincorporated areas of the County.

Fresno County Regional Active Transportation Plan

Approved in February 2018, the Fresno Regional Active Transportation Plan (ATP) is a comprehensive, regional document that identifies key bicycle and pedestrian projects in Fresno County. This document also assists agencies with acquiring funding and implementing the projects. The ultimate goal of the plan is to add 1,909 miles of bike paths, lanes, and routes, 89 miles of sidewalks, and to improve 80 intersections and street crossing and pedestrians (Fresno County Council of Governments 2018).

3.17.2 Significance Criteria

A project would result in significant effects related to Recreation if it would:

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

b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

3.17.3 Direct and Indirect Effects

3.17.3.1 Direct and Indirect Effects of the Project

a) Whether the Project would increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. *(No Impact)*

Increases in the use of recreational facilities typically are associated with either substantial increases in population or a substantial reduction in the availability of existing parks or recreational facilities. The Project site is located 2.5 miles southwest of the City of Mendota and is not located within or adjacent to a residential area. The Project is not located within the immediate vicinity of any parks or recreational facilities, and no parks or existing recreational facilities are located on the site. The closest recreational facility to the Project site is located approximately 1.5 miles to the east. Project activities would not involve the removal of any existing parks or recreational facilities. Construction, operation, and decommissioning of the Project are not likely to cause an increase in local population. As described in Section 3.15, *Population and Housing*, it is anticipated that most of the Project workforce would be hired locally. Further, as described in Section 3.1.4, *Growth Inducement*, the Project is not anticipated to cause growth inducement. Therefore, the Project would not result in a substantial increase in the existing demand for recreational facilities and would not result in or accelerate the substantial physical deterioration of existing facilities.

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b) Whether the Project would include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment. *(No Impact)*

The Project does not include the construction of any recreational facilities. As described in Section 3.15, *Population and Housing,* and Section 3.1.4, *Growth Inducement*, the Project would not result in local population growth and would not affect the County's ability to provide recreational facilities at the ratio described in General Plan Policy OS-H.2. Therefore, the Project would not require the construction or expansion of recreational facilities.

3.17.3.2 Direct and Indirect Effects of Alternatives

Increased Habitat/Reduced Acreage Alternative

Under the Increased Habitat/Reduced Acreage Alternative, Little Bear 6 would not be constructed. This Alternative would reduce the acreage of disturbance by approximately 161 acres relative to the Project. For the same reasons discussed in Section 3.17.3.1, this alternative would result in no impact to Recreation.

No Project Alternative

If the No Project Alternative is implemented, the proposed demolition of structures would not occur; neither the solar facilities nor the Little Bear gen-tie line would be constructed, operated, or maintained; and the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would cause no impact to Recreation.

3.17.4 Cumulative Analysis

As described above, the Project and alternatives would result in no impact to Recreation. Therefore, neither the Project nor an alternative could cause or contribute to a significant cumulative impact to Recreation.

3.17.5 References

California Department of Fish and Wildlife (CDFW), 2016. Wildlife Areas Region 4, San Joaquin Valley. Updated 2016. https://www.wildlife.ca.gov/Lands/Places-to-VisitAccessed. January 10, 2017.

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3.18 Transportation and Traffic

This section describes Transportation and Traffic along travel routes that would be used by the Project or an alternative in the vicinity of the Project site, and the associated regulatory framework. The impact analysis presents the criteria used to evaluate the significance of potential impacts to Transportation and Traffic as a consequence of implementing the Project or alternatives, the methods used in evaluating these impacts, and the results of the impact assessment.

The County received no scoping comments relating to transportation and traffic (Appendix A). Although no input was received during the scoping period, the Fresno County Fire Protection District (FCFPD) sent a letter to the County after the scoping period to request Project compliance with road access requirements for fire response equipment (FCFPD 2017). FCFPD's request has been taken into consideration in this analysis of potential impacts.

The analysis is informed in part by the Project-specific traffic report prepared in December 2017 by VRPA Technologies, Inc., a copy of which is provided in Appendix M. The preparers of this Draft EIR independently reviewed this and other materials prepared by or on behalf of the Applicants and determined them to be suitable for reliance on (in combination with other materials included in the formal record) in the preparation of this Draft EIR.

3.18.1 Setting

3.18.1.1 Environmental Setting

The Project site is located in unincorporated Fresno County, on the west side of State Route (SR) 33 (South Derrick Avenue), and approximately 13 miles east and 20 miles north of Interstate 5 (I-5). Access to the Project site provided by the existing roadway network is described below.

Major Highways

SR-33 is an undivided conventional state highway that extends north/south through the Central Valley, generally running parallel to I-5. In the area closest to the Project site, this highway has two 12-foot-wide travel lanes and gravel shoulders. According to the most recent data published by the California Department of Transportation (Caltrans), the average daily traffic volume on SR-33 in the vicinity of the Project site is approximately 2,000 vehicles, with up to approximately 290 vehicles during the peak traffic hour (Caltrans 2017). This volume is approximately 10 percent of the roadway capacity, which is considered Level of Service (LOS) A. LOS is a qualitative measure of traffic operating conditions. LOS A through F are assigned to an intersection or roadway segment, with LOS A indicating very good operations with little congestion and LOS F indicating poor operations with heavy congestion (see Section 3.18.3.1, *Approach to Analysis*, for a more detailed definition of LOS). SR-33 provides the most direct regional access to the Project site (see Figure 2-1 in Chapter 2, *Description of Project and Alternatives*).

SR-180, which is about 2 miles to the east and extends east/west from Mendota to Kings Canyon National Park via Fresno, also provides access to the Project site. The average daily traffic volume on SR-180 in the vicinity of the Project site is approximately 7,700 vehicles, with up to approximately 760 vehicles during the peak traffic hour (Caltrans 2017), or LOS A operations.

Local Roads

The Project site is bounded by West California Avenue to the north, SR 33 to the east, West Jensen Avenue to the south, and San Bernardino Avenue to the west, and is bisected by two dirt roads: West Adams Avenue, which runs east-west, and South Ohio Avenue, which runs north-south. West California Avenue and SR-33 both are paved, two-lane roads. The other roads are unimproved, single-lane dirt roads. Local access to the Project site is provided from multiple driveways along West California Avenue, South Ohio Avenue, and San Bernardino Avenue. These local roads primarily serve agriculturally-related traffic, with corresponding low existing traffic volumes. The Project proposes to have private perimeter roads and interior access ways for construction and operation. The final design for internal access roads and driveways would be subject to FCFPD review prior to construction. Additional Project access and circulation details are provided in Section 2.5.1.4, *Other Infrastructure*, under the heading *Access and Circulation*.

This traffic impact analysis evaluates the following side-street stop-controlled intersection in the vicinity of the Project site:

1. SR-33/West California Avenue/West Panoche Road

The analysis also evaluates the following two roadway segments that would provide access for the Project site:

1. SR-33 between West California Avenue and West Jensen Avenue
2. West California Avenue between Washoe Avenue and SR-33

Existing Intersection Level of Service

AM and PM peak period (7:00-9:00 AM and 4:00-6:00 PM) turning movements were collected at the study intersection on Tuesday, November 29, 2016. The traffic counts were conducted during fair weather conditions, while schools in the Project study area were in session. The traffic counts represent typical volumes experienced in the study area. All intersection LOS analyses were calculated using Synchro 9 Software. Various roadway geometrics, traffic volumes, and properties (peak hour factors, storage pocket length, etc.) were input into the Synchro 9 Software program in order to accurately determine the travel delay for the study intersection. Results of the analysis are shown below in **Table 3.18-1**, and indicate that the SR-33/West California Avenue/ West Panoche Road intersection currently operates at acceptable levels of service (LOS B) during the AM and PM peak hours.

TABLE 3.18-1
EXISTING INTERSECTION LEVEL OF SERVICE

Intersection	Control	Target LOS	Peak Hour	Existing	
				Delay	LOS
SR-33/W California Ave/W Panoche Rd	Two-Way Stop Sign	C	AM	10.5 seconds	B
			PM	12.2 seconds	B

SOURCE: Appendix M

Existing Roadway Segment Level of Service

Peak hour roadway segment volumes for the two study roadway segments were determined from the intersection turning movement counts discussed above. The roadway segment analysis was based on the Florida Department of Transportation, Generalized Peak Hour Directional Volumes for Florida's Urbanized Areas (Non-State Roadways, Major City/County Roadways), which commonly are utilized in the Central Valley. The tables generated by the Florida Department of Transportation are based on the 2010 Highway Capacity Manual (HCM). Results of the analysis are shown below in **Table 3.18-2**, and indicate that both study roadway segments currently operate at acceptable levels of service during both the AM and PM peak hours. SR-33 between West California Avenue and West Jensen Avenue operates at LOS B during both the AM and PM peak hours, while West California Avenue between Washoe Avenue and SR-33 operates at LOS C.

TABLE 3.18-2
EXISTING ROADWAY SEGMENT LEVEL OF SERVICE

Segment	# of Lanes	Direction	Target LOS	Peak Hour	Existing	
					Volume	LOS
SR 33 W California Ave to W Jensen Ave	1	NB	C	AM	25	B
				PM	129	B
	1	SB		AM	37	B
				PM	43	B
W California Ave Washoe Ave to SR-33	1	EB	C	AM	17	C
				PM	157	C
	1	SB		AM	80	C
				PM	17	C

SOURCE: Appendix M

Airports

The nearest public airport to the Project site is the William Robert Johnston Municipal Airport, which is located approximately 3.5 miles northeast of the Project site in Mendota. The William Robert Johnston Municipal Airport currently hosts an average of 77 general aviation aircraft operations per week (AirNav 2018). Other airports in the region include the Fresno Yosemite International Airport, which is located approximately 38 miles east of the Project site, and the privately-owned Harris Ranch Airport, which is located approximately 33 miles south of the Project site.

Public Transportation Services

Public transportation in the Project site vicinity is provided by the Fresno County Rural Transit Agency (FCRTA). The nearest FCRTA bus stop offering access to the FCRTA system is located on Oller Street in Mendota, approximately 2.5 miles northeast of the Project site. One line, the Westside Line, operates two trips per weekday and connects riders to Kerman and Fresno to the east and Firebaugh to the north (FCRTA 2017).

Non-Motorized Transportation

There are no dedicated pedestrian or bicycle facilities in the immediate vicinity of the Project site or along the surrounding roadways or highways, and SR-33 in the Project area is not listed within the Fresno County General Plan's Transportation and Circulation Element as an existing or planned bikeway (Fresno County 2000).

3.18.1.2 Regulatory Setting

State

California Department of Transportation (Caltrans)

Caltrans has jurisdiction over state highways and sets maximum load limits for trucks and safety requirements for oversized vehicles that operate on highways. Fresno County is under the jurisdiction of Caltrans District 6. The following Caltrans regulations apply to potential Transportation and Traffic impacts of the Project:

California Vehicle Code (CVC), Division 15, Chapters 1 through 5 (Size, Weight, and Load). Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways.

California Street and Highway Code, Sections 660-711, 670-695. Requires permits from Caltrans for any roadway encroachment during truck transportation and delivery, includes regulations for the care and protection of state and county highways and provisions for the issuance of written permits, and requires permits for any load that exceeds Caltrans weight, length, or width standards for public roadways.

Local

Fresno County General Plan

The Transportation and Circulation Element of the County General Plan provides the framework for Fresno County decisions concerning the Countywide transportation system, which includes various transportation modes and related facilities. It also provides for coordination with the cities and unincorporated communities within the County, with the Regional Transportation Plan adopted by the Fresno Council of Governments (COG), and with state and federal agencies that fund and manage transportation facilities within the County. This element of the General Plan sets out goals, policies, and programs related to transportation and circulation. The following transportation-related policies are applicable to the Project:

Policy TR-A.3: The County shall require that new or modified access to property abutting a roadway and to intersecting roads conform to access specifications in the Circulation Diagram and Standards section. Exceptions to the access standards may be permitted in the manner and form prescribed in the Fresno County Zoning and Subdivision Ordinances, provided that the designed safety and operational characteristics of the existing and planned roadway facility will not be substantially diminished.

Policy TR-A.5: The County shall require dedication of right-of-way or dedication and construction of planned road facilities as a condition of land development, and require an analysis of impacts of traffic from all land development projects including impacts from

truck traffic. Each such project shall construct or fund improvements necessary to mitigate the effects of traffic from the project. The County may allow a project to fund a fair share of improvements that provide significant benefit to others through traffic impact fees.

Policy TR-A.7: The County shall assess fees on new development sufficient to cover the fair share portion of that development's impacts on the local and regional transportation system.

Policy TR-A.8: The County shall ensure that land development that affects roadway use or operation or requires roadway access to plan, dedicate, and construct required improvements consistent with the criteria in the Circulation Diagram and Standards section of this element.

Fresno County Bicycle and Regional Trails Master Plan

The Fresno County Department of Public Works and Planning adopted the Regional Bicycle Recreational Trails Master Plan to establish a framework for future development of the County's bicycle and recreational trail network and makes the County eligible for local, State, and federal funding (Fresno County 2013). The Bicycle and Regional Trails Master Plan provides a comprehensive, long-term planning horizon for development of an extensive regional bikeway and recreational trails network that connects cities and unincorporated areas Countywide. The Plan implements various policies contained in the Transportation and Circulation and Open Space and Conservation Elements of the County's General Plan (Fresno County 2000).

The Plan was amended in 2013 to meet the requirements of the 2006 Measure "C" Transportation Sales Tax Extension, Local Transportation Program by adding recreational trails to the plan. The Plan coordinates the Regional Bikeway System with existing local bikeway plans that ties into a comprehensive bikeway system; coordinates the Fresno County Regional non-motorized transportation system with adjoining counties; and identifies barriers that inhibit safe and convenient non-motorized travel and develop a list of corrective measures to remove the barriers. The Plan contains Policy BP-A.5, which requires development projects adjacent to designated bikeways to provide adequate rights-of-way or easements.

Fresno County Regional Active Transportation Plan

The Fresno COG adopted the Fresno County Regional Active Transportation Plan on February 22, 2018. The Active Transportation Plan is a comprehensive guide outlining the vision for biking, walking, and other human-powered transportation in Fresno County and a roadmap for achieving that vision. The Active Transportation Plan proposes a comprehensive network of citywide bikeways trails, and sidewalks; crossing improvements at key intersections; and locations for recommended bicycle parking. At build out, the recommended network would add 248 miles of Class I Bikeways (bike paths), 1,591 miles of Class II Bikeways (bike lanes), 59 miles of Class III Bikeways (bike routes), 11 miles of Class IV Separated Bikeways, and 89 miles of sidewalks. Build-out of the plan would also improve 80 intersections and street crossings for pedestrians and add 175 bicycle parking locations.

This plan meets all requirements for active transportation plans as specified by the California Transportation Commission's 2017 Active Transportation Plan Guidelines.

Council of Fresno County Governments Congestion Management Process

All urbanized areas with a population larger than 200,000 people are required to have a Congestion Management System, Program, or Process. The Council of Fresno County Governments (COG) refers to its congestion management activities as the Congestion Management Process (CMP). The 2009 Fresno County CMP was designed to meet the federal requirement under 23 CFR Sections 500.109 and 450.320. The 2017 CMP is an update to the 2009 CMP based on emerging transportation planning practices such as the transportation performance measurement required under the Moving Ahead for Progress in the 21st Century Act and the Fixing America's Surface Transportation (Fresno COG 2017).

The CMP is a systematic process for managing congestion that provides information on: (1) transportation system performance, and (2) alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet state and local needs. The purpose of the CMP is to help ensure that a balanced transportation system is developed that relates population growth, traffic growth and land use decisions to transportation system LOS performance standards and air quality improvement. The CMP is an effort to more directly link land use, air quality, transportation and the use of new advanced transportation technologies as an integral and complementary part of this region's plans and programs. The purpose of defining the CMP network is to establish a system of roadways that will be monitored in relation to established LOS standards. At a minimum, all state highways (e.g., SR-33, SR-180) and principal arterials must be designated as part of the Congestion Management System of Highways and Roadways.

Fresno Council of Governments Regional Transportation Plan

The latest Regional Transportation Plan (RTP) was prepared by the Fresno COG, and was adopted in June 2014. An update to the RTP is currently underway; it is expected to be completed before the end of 2018. The RTP is a blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Fresno County. It was developed through a continuing, comprehensive, and cooperative planning process, and provides for effective coordination between local, regional, state, and federal agencies. Additionally, the RTP establishes a basis on which funding applications are evaluated. Use of any state or federal transportation funds by local governments must conform to the RTP, the State Implementation Plan for air quality improvements, and the Federal Transportation Improvement Programs. Fresno COG prepared the 2014 RTP to include, for the first time, a Sustainable Communities Strategy, which is intended to show how integrated land use and transportation planning can lead to lower greenhouse gas (GHG) emissions from autos and light trucks. The Sustainable Communities Strategy is required by Senate Bill 375 (SB 375), which went into effect in 2009 (Fresno COG 2014).

3.18.2 Significance Criteria

A project would result in significant impact to Transportation/Traffic if it would:

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards 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 would result 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 regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

The Fresno County General Plan Transportation Element has established the following LOS standards, which apply to significance criteria “a” and “b”, above:

- The County shall plan and design its roadway system in a manner that strives to meet LOS C on all roadways, except on urban roadways within the spheres of influence of the cities of Fresno and Clovis, where LOS D will be the minimum acceptable level of service.

3.18.3 Direct and Indirect Effects

3.18.3.1 Approach to Analysis

Roadway operating conditions are judged with respect to LOS, which is a qualitative measurement of operational characteristics of traffic flow on a roadway, based on traffic volumes and road type. LOS is defined by six grades (from A to F), with LOS A representing the best (freely-flowing) traffic conditions, and LOS F representing the worst (substantially-congested) traffic conditions. **Table 3.18-3** provides the LOS characteristics for roadways.

Roadway conditions were analyzed based on peak-hour traffic, volume-to-capacity (v/c) ratio, and LOS. The evaluation of traffic impacts from implementation of the Project was undertaken by assessing trip generation (workers and trucks) for both the construction and operational phases of the Project against existing traffic conditions.

TABLE 3.18-3
LEVEL OF SERVICE DESCRIPTIONS

Level of Service (LOS)	Traffic Flow Characteristics
A	Free-flow operations, Little, if any, delays.
B	Reasonably free-flow operations; ability to maneuver within the traffic stream is only slightly restricted. Minimal delays.
C	Travel speeds are at or near free-flow, but the ability to maneuver within the traffic stream is noticeably restricted. Acceptable delays.
D	Travel speeds begin to decline with increasing flows. The ability to maneuver within the traffic stream is more-noticeably limited, and minor incidents can be expected to create queuing. Queues dissipate rapidly, without excessive delays.
E	Operation is at or near capacity, and therefore is volatile because there are virtually no useable gaps in the traffic stream. Maneuverability is extremely limited. Any disruption to the traffic stream, such as vehicles entering from ramps or side streets, can cause disruptions. Substantial delays.
F	Breakdown in traffic flow, with queues forming behind major breakdown points, such as traffic incidents or recurring points of congestion. Delay may block upstream intersections.

SOURCE: Transportation Research Board, 2000.

3.18.3.2 Direct and Indirect Effects of the Project

a) Whether the Project would conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

Impact 3.18-1: Construction of the Project would generate a temporary increase in traffic volumes on area roadways, but would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system. (*Less than Significant with Mitigation Incorporated*)

This impact discussion provides an assessment of traffic that would be generated during construction of the Project, and the impact of that traffic on the surrounding street system. The traffic analysis for a project typically evaluates the trips generated by project operations. However, since the Project would not generate a substantial amount trips during its operation, and would generate a higher number of trips during construction activities, the construction phase of the Project was assessed for impacts as opposed to the operational phase of the Project.

Construction Trip Generation

To assess the impacts that Project construction-related trips may have on the surrounding street and highway segments and intersections, the first step is to determine Project construction trip generation. Project trip generation was estimated as shown in **Table 3.18-4**, and is based on information that was provided by the Applicant and independently reviewed by ESA on behalf of the County. Total AM and PM peak hour trips were estimated to reflect 40 percent of the daily trip generation.

TABLE 3.18-4
PEAK PROJECT CONSTRUCTION TRIP GENERATION

Phase	Duration	Vehicle Description	Vehicle Trip Generation						
			Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Peak Activity	90 days	Workers Passenger Vehicles	1,122	404	45	449	45	404	449
		Deliveries/Hauling Material Trucks	112	41	4	45	4	41	45

SOURCE: Appendix M

Considering the trip generation process described above, the Project's construction activities are estimated to generate 1,234 daily trips (1,122 construction worker vehicle trips and 112 haul trips, with 494 trips (449 construction worker vehicle trips and 45 haul trips) during the AM peak hour, and 494 trips (449 construction worker vehicle trips and 45 haul trips) during the PM peak hour. The trips reflected above represent the worst-case traffic conditions at any point of the Project's construction phase. Although carpooling would be encouraged, for purposes of this analysis, and to ensure that potential impacts are not underestimated, construction workers are assumed to commute in their own vehicle (i.e., no carpooling). The capacity analysis was performed utilizing appropriate passenger car equivalents (PCE) for the large trucks associated with construction activities. PCEs account for differences between trucks and passenger vehicles (i.e., trucks utilize more roadway capacity than passenger vehicles due to their larger size, slower start-up times, and reduced maneuverability).

Construction Trip Distribution

Most construction workers are expected to arrive at the Project site in the morning and leave during the afternoon each weekday. Most workers are expected to use SR-180 to commute from the Fresno area, although some commutes from the north and south using SR-33 are also expected. Deliveries of equipment and material would occur throughout the day and it is expected that most such deliveries would use SR-33 to reach West California Avenue, mostly arriving from the south. Some deliveries, particularly locally-sourced equipment, material or supplies may come from the Fresno area by way of SR-180. Access to the Project would be provided at driveways along West California Avenue, South Ohio Avenue and San Bernardino Avenue, each of which would be constructed to meet applicable County standards. The Project also would provide private perimeter roads and interior access ways for construction and operation. Based on these factors, the following construction trip distribution percentages were assumed:

- 10 percent traveling to/from the south via SR-33
- 10 percent traveling to/from the north via SR-33
- 80 percent traveling to/from the east via SR-180 and West Panoche Road

Existing plus Project Construction Traffic Conditions

An Existing plus Project scenario was analyzed to represent existing traffic conditions with the addition of construction traffic generated by the Project. Results of the analysis indicate that the SR-33 and West California Avenue-West Panoche Road intersection is projected to operate at an

unacceptable level of service during the AM and PM peak hour during peak construction conditions. As such, Project-generated construction traffic would result in a significant impact on intersection operations. **Table 3.18-5** shows the intersection level of service for Existing plus Project conditions.

TABLE 3.18-5
EXISTING PLUS PROJECT INTERSECTION LEVEL OF SERVICE

Intersection	Control	Target LOS	Peak Hour	Existing plus Project	
				Delay	LOS
SR-33/W California Ave/W Panoche Rd	Two-Way Stop Sign	C	AM	**>300 seconds**	**F**
			PM	**140.7 seconds**	**F**

NOTES:
BOLD denotes LOS standard has been exceeded
Delay results for two-way stop-controlled intersections is shown for the worst movement

SOURCE: Appendix M

It should be noted that although Project-generated construction traffic would cause the intersection to operate at an unacceptable level of service (LOS F), overall traffic volumes would not meet peak hour traffic signal warrants. Further, only the westbound movement during the AM peak hour and the eastbound movement during the PM peak hour would contribute to the level of service deficiency. All other movements would operate at acceptable levels of service.

Results of the AM and PM peak hour LOS segment analysis for the two study roadway segments are reflected in **Table 3.18-6**. Results of the analysis indicate that both study roadway segments are projected to operate at acceptable levels of service during the AM and PM peak hours during peak construction operations for Existing plus Project conditions. As such, the impact of Project-generated construction trips would be less than significant on roadway segment operations.

Currently, the SR-33/West California Avenue/West Panoche Road intersection operates as a two-way stop controlled intersection. The addition of Project construction traffic will cause unacceptable levels of service in the westbound movement during the AM peak hour and the eastbound movement during the PM peak hour. As delay incurred along the westbound and eastbound approach increases, there is a natural tendency for drivers to accept shorter and shorter gaps in the major road traffic stream to complete their crossing or turning maneuver. As a result, the potential for a traffic collision increases.

As a first step, the traffic analysis evaluated the potential effectiveness of installing a temporary four-way stop at this intersection during peak construction activities. Although the four-way stop would substantially reduce the delay experienced by the westbound movement during the AM peak hour and the eastbound movement during the PM peak hour, it would have the secondary effect of increasing delay for traffic traveling north and south along SR-33, since those vehicles would be forced to stop at the intersection whereas with a two-way stop (current condition), north and southbound vehicles on SR-33 do not stop. This would result in overall intersection operations that would remain deficient (LOS E) when compared against the County's established target level of service at this intersection (LOS C). A four-way stop was found to result in significant secondary impacts and was deemed infeasible.

TABLE 3.18-6
EXISTING PLUS PROJECT ROADWAY SEGMENT LEVEL OF SERVICE

Segment	# of Lanes	Direction	Target LOS	Peak Hour	Existing plus Project	
					Volume	LOS
SR 33 W California Ave to W Jensen Ave	1	NB	C	AM	73	B
				PM	134	B
	1	SB		AM	42	B
				PM	91	B
W California Ave Washoe Ave to SR-33	1	EB	C	AM	70	C
				PM	639	C
	1	SB		AM	562	C
				PM	70	C

SOURCE: Appendix M

As a second step, the traffic analysis evaluated the potential effectiveness of installing a temporary traffic signal at this intersection during peak construction activities. A temporary traffic signal was found to substantially reduce the delay experienced by the westbound movement during the AM peak hour and the eastbound movement during the PM peak hour; at the same time, it would not substantially affect northbound and southbound traffic on SR-33. The average delay of all approaches at the intersection would fall within the parameters of LOS A operating conditions.

Mitigation Measure 3.18-1a: Construction and Decommissioning Traffic Management Plan

Prior to the issuance of construction or building permits, an Encroachment Permit from Caltrans for the installation of a temporary traffic control and the issuance of decommissioning authorizations, the Applicant and/or its construction contractor shall:

- Prepare and submit a Traffic Management Plan to Fresno County Divisions of Public Works and Planning and the Caltrans District 6 office for approval. The Traffic Management Plan must be prepared in accordance with both the California's Manual on Uniform Traffic Control Devices (MUTCD) and Work Area Traffic Control Handbook and must include, but not be limited to, the following issues:
  - Temporary Traffic Control (TTC) plan that addresses traffic safety and control through the work zone;
  - Timing of deliveries of heavy equipment and building materials;
  - Directing construction traffic with a flagger;
  - Placing temporary signage, lighting, and traffic control devices if required, including, but not limited to, appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic;
  - Ensuring access for emergency vehicles to the project sites;
  - Temporarily closing travel lanes or delaying traffic during materials delivery, transmission line stringing activities, or any other utility connections;

  - Maintaining access to adjacent property;
  - Specifying both construction/decommissioning-related vehicle travel and oversize load haul routes, minimizing construction/decommissioning traffic during the a.m. and p.m. peak hour, distributing construction/decommissioning traffic flow across alternative routes to access the project sites, and avoiding residential neighborhoods to the maximum extent feasible.

- Obtain all necessary permits for the work within the road right of way or use of oversized/ overweight vehicles that would utilize County-maintained roads, which may require California Highway Patrol or a pilot car escort. Copies of the approved traffic plan and issued permits shall be submitted to the Fresno County Divisions of Public Works and Planning.

- Overlay (2" Hot Mix Asphalt) California Avenue from Derrick Avenue to the Ohio Street alignment (1 mile) due to roadway impacts resulting from Project-generated construction truck traffic. Maintain the roadway (2-miles) along the frontage of the Project site throughout the construction duration.

- Enter into a secured agreement with Fresno County to ensure that any County roads that are demonstrably damaged by project-related activities are promptly repaired and, if necessary, paved, slurry-sealed, or reconstructed as per requirements of the state and/or Fresno County.

Mitigation Measure 3.18-1b: Temporary Traffic Signal

The Applicant shall coordinate with Caltrans and Fresno County to pay for and install a temporary traffic signal at the SR-33/West California Avenue/West Panoche Road intersection prior to the commencement of construction activities. Appropriate warning signs and plaques, as well as advance warning signs, shall be installed along SR-33 to alert drivers of the modified traffic control at West California Avenue. The installation of a temporary traffic control device on a State facility (SR-33) will require an Encroachment Permit from Caltrans, which will be issued upon Caltrans' approval of the Traffic Management Plan (see Mitigation Measure 3.18-1a).

Significance after Mitigation: Less than significant.

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b) Whether the Project would conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.

Impact 3.18-2: Construction of the Project would generate increased traffic volumes on area roadways, and would conflict with an applicable congestion management program, or other standards established for Fresno County or state roads. (*Less than Significant with Mitigation Incorporated*)

As discussed above for Impact 3.18-1, the Project would result in a temporary increase in traffic during construction that would adversely affect the existing level of service at the SR-33/West California Avenue/ West Panoche Road intersection. Mitigation Measures 3.18-1 and 3.18-2,

described above, would reduce the construction impact at this intersection to a less-than-significant level. The roadway segments expected to be used by the Project construction traffic would maintain their existing LOS throughout peak periods of construction, which are well within the County and Caltrans' acceptable capacities and performance standards.

With implementation of Mitigation Measures 3.18-1 and 3.18-2, construction and operation of the Project would not cause an exceedance of Fresno County LOS thresholds, and the Project would be in compliance with established Fresno County General Plan LOS standards. Impacts related to this criterion would be less than significant.

Mitigation Measure 3.18-2a: Traffic Management Plan

Implement Mitigation Measure 3.18-1a.

Mitigation Measure 3.18-2b: Temporary Traffic Signal

Implement Mitigation Measure 3.18-1b.

Significance after Mitigation: Less than significant.

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c) Whether the Project would result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that would result in substantial safety risks. (*No Impact*)

The Project would not result in a change to air traffic patterns. The nearest public airport to the Project site is the William Robert Johnston Municipal Airport, which is located approximately 3.5 miles northeast of the Project site. The Project would not 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. No impact would result.

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d) Whether the Project would substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Impact 3.18-3: The Project would not substantially increase traffic hazards. (*Less Than Significant Impact*)

Construction of the Project would require the delivery of heavy construction equipment and facility materials, some of which may require transport by oversize vehicles. The use of oversize vehicles during construction can create a hazard to the public by limiting motorist views on roadways and by the obstruction of space.

Construction-related oversize vehicle loads must comply with permit-related and other requirements of the California Vehicle Code and California Streets and Highway Code (see Mitigation Measure 3.18-1a and 3.18-1b, above). California Highway Patrol escorts may be required at the discretion of Caltrans and Fresno County, and would be detailed in respective

oversize load permits. Due to the rural nature of the area roads, construction vehicles are not anticipated to incur hazards traveling to and from the Project site. Furthermore, the Project would not include a design feature or utilize vehicles with incompatible uses that would create a hazard on the roadways surrounding the Project site.

Access to the Project site would be provided from driveways located at up to 10 access points. Construction access to the Project site is proposed to occur primarily from West California Avenue. No driveways onto SR-33 are proposed. All access points are shown on Figure 2-2. Design and construction of Project access road intersections would be required to conform with Fresno County standards (per General Plan Policies TR-A.3, TR-A.5, and TR-A.8). Among the applicable requirements are corner sight distance (though the flat terrain is assumed to alleviate concerns with sight distance), and vertical and horizontal clearance for the proposed overhead wiring across West California Avenue and the existing PG&E distribution lines. Impacts associated with hazards resulting from a project design feature would be less than significant.

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e) Whether the Project would result in inadequate emergency access.

Impact 3.18-4: The Project would not result in inadequate emergency access. (*Less Than Significant Impact*)

The Project would be located in a rural area with multiple access roads allowing adequate egress/ ingress to each of the five PV electricity generating facilities in the event of an emergency. Additionally, as part of the Project, internal access roadway improvements would occur. Therefore, the Project would allow for adequate emergency access.

As described in Impact 3.18-1, increased Project-related operational traffic would not cause a significant increase in congestion and would not significantly affect the existing LOS on area roads. Furthermore, the Project would not require closures of public roads, which could inhibit access by emergency vehicles. During construction of the Project, heavy construction-related vehicles could interfere with emergency response to the site or emergency evacuation procedures in the event of an emergency (e.g., slowing vehicles traveling behind the truck). However, given that there are no businesses or emergency response stations and only a limited number of residences in the immediate vicinity of the Project site, it is not likely that heavy construction-related traffic would result in inadequate emergency access.

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f) Whether the Project would conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. (*No Impact*)

The Project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Fresno County's General Plan includes policies regarding access and safety standards of roadway facilities, bike facilities, and public transit. Although the General Plan seeks to coordinate

multiple forms of transportation, including cars, commercial vehicles, buses, transit, bicycles, and pedestrian traffic, the General Plan does not contain specific policies governing pedestrian traffic. In addition, the following two plans have been adopted to address non-motorized transportation systems and identify barriers to trails and bikeways: the Regional Bicycle and Recreational Trails Master Plan (Fresno County 2013), and the Fresno County Regional Active Transportation Plan (Fresno COG, 2018).

The Project is consistent with the General Plan policies, the Regional Bicycle and Trails Master Plan, and the Fresno County Regional Active Transportation Plan because there is no public transportation service or dedicated pedestrian or bicycle facilities on roads that access the Project site, and because neither SR 33, SR 180, nor other roadways that would be traveled by Project traffic are listed within the Fresno County General Plan Transportation and Circulation Element as an "existing or planned bikeway." Similarly, the Project site would not introduce a barrier to non-motorized travel due to the proposed lack of roadway improvements. Therefore, the Project would not conflict with adopted policies, plans, or programs supporting alternative transportation. The Project also would not decrease the performance or safety of public transit, bicycle, or pedestrian facilities because there are no facilities in the affected area. Therefore, the Project would cause no impact related to this criterion.

3.18.3.3 Direct and Indirect Effects of Alternatives

Increased Habitat/Reduced Acreage Alternative

Under the Increased Habitat/Reduced Acreage Alternative, all aspects of the Project would remain as described in Chapter 2, *Description of Project and Alternatives*, except that Little Bear 6 would not be constructed. This would decrease the overall development of solar equipment and infrastructure on the Project site by approximately 161 acres, resulting in a total development acreage of 1,127 acres versus 1,288 acres developed with the Project. Due to the reduced size of this alternative, traffic volumes generated by its construction would be smaller than the traffic generated by the Project. Impacts associated with the Increased Habitat/Reduced Acreage Alternative would be similar but slightly less than those associated with the Project and the same mitigation would be required.

No Project Alternative

If the No Project Alternative is implemented, the proposed demolition of structures would not occur; neither the solar facilities nor the Little Bear gen-tie line would be constructed, operated, or maintained; no Project-related construction, operations or maintenance, or decommissioning traffic would accrue to the site; and the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would cause no impact to Transportation and Traffic.

3.18.4 Cumulative Analysis

Impact 3.18-5: Construction-generated traffic of the Project could, when combined with traffic generated by other projects anticipated to use SR-33, combine to cause a significant adverse cumulative impact relating to traffic flow (LOS) conditions on SR-33. (*Less Than Significant with Mitigation Incorporated*)

The potential for cumulative transportation impacts exists where there are multiple projects proposed in an area that have overlapping construction schedules and/or project operations that could result in a substantial contribution to increased traffic levels throughout the surrounding roadway network.

For the purposes of the cumulative analysis of transportation impacts, only other projects that do, or could contribute traffic to the same roadway segments (e.g., within the SR-33 corridor) as the Project and the Increased Habitat/Reduced Acreage Alternative are included. Because the volume of traffic generated would not be particularly large during construction and decommissioning and would be substantially less during operation and maintenance activities, only segments of SR-33 in proximity to the Project site would experience any appreciable increase in traffic. Therefore, the geographic scope for cumulative impacts consists of SR-33 between I-5 and Mendota.

Similar to the Project analysis above, which focused on the construction phase of the project, the temporal scope for cumulative transportation impacts is limited to the construction and decommissioning phases, because activities during these times would contribute the most traffic to roadways within the geographic scope.

Past, present, and reasonably foreseeable future actions making up the cumulative scenario are identified in Figure 3.1-1 and Table 3.1-1 in Chapter 3, *Environmental Analysis*. Past projects have been implemented and so would contribute ongoing operational traffic to area roadways during the Project's construction phase. The ongoing impacts associated with past projects are accounted for as part of baseline conditions for the Project, and are described in Section 3.18.1, *Setting*, above. That evaluation indicates that vehicular circulation would continue to operate acceptably under Project conditions with the implementation of Mitigation Measures 3.18-1 and 3.18-2, and would not conflict with established standards of performance.

Direct and indirect effects of the Project, and the Increased Habitat/Reduced Acreage Alternative on transportation are described in Sections 3.18.3.2, *Direct and Indirect Effects of the Project*, and 3.18.3.3, *Direct and Indirect Effects of Alternatives*. As stated above, based on temporary (construction and decommissioning) and long-term (operation and maintenance) impacts of the Project or the Habitat/Reduced Acreage Alternative on traffic conditions, SR-33 near the Project site would operate at LOS B. Given the very low volume-to-capacity ratio on SR-33, it is possible (although not likely) that construction-generated traffic, when combined with traffic generated by other projects anticipated to use SR-33, could combine to cause a significant adverse cumulative impact relating to traffic flow (LOS) conditions on SR-33. To avoid this possibility, **Mitigation Measure 3.18-1a** (see discussion above) would require the Applicant to prepare a Construction and Decommissioning Traffic Control Plan that assures that the necessary permitting of any oversize vehicles used on public roadways during these phases of the Project would occur, and

that the County has sufficient information about anticipated delivery times and vehicle travel routes in advance to work with other project owners to minimize construction and decommissioning traffic during peak a.m. and p.m. hours and to coordinate as necessary with emergency services provides to assure adequate access on shared roads.

With the implementation of Mitigation Measure 3.18-1a, no significant cumulative transportation impact would result from the cumulative scenario during construction or decommissioning, and the Project's incremental less-than-significant impact would not be cumulatively considerable.

Operational traffic associated with the Project or the Increased Habitat/Reduced Acreage Alternative would not substantially increase daily trips on SR-33. Neither the Project nor the Increased Habitat/Reduced Acreage Alternative would cause or contribute to a significant adverse cumulative impact relating to operational traffic.

3.18.5 References

AirNav.com, 2018. FAA William Robert Johnston Municipal Airport Operational Statistics, February 1, 2018.

California Department of Transportation (Caltrans), 2017. *2016 Traffic Volumes on California Highways*, 2017.

Fresno Council of Governments (COG), 2018. *Fresno County Regional Active Transportation Plan*, January 2018.

Fresno Council of Governments (COG), 2017. *Fresno County Congestion Management Process Update*, September 2017.

Fresno Council of Governments (COG), 2014. *2014 Regional Transportation Plan and Sustainable Communities Strategy*, adopted June 24, 2014.

Fresno County, 2013. *Fresno County Regional Bicycle & Recreational Trails Master Plan*, adopted September 24, 2013.

Fresno County, 2000. *Fresno County General Plan – Transportation and Circulation Element*. October 2000.

Fresno County Fire Protection District (FCFPD), 2017. NOP Response Letter, October 27, 2017.

Fresno County Rural Transit Agency (FCRTA), 2017. Westside Route Guide, updated on December 19, 2017.

Transportation Research Board, 2000. Highway Capacity Manual.

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3.19 Tribal Cultural Resources

Fresno County initiated consultation early in the CEQA process with California Native American tribes traditionally and culturally affiliated with the Project area to invite input from tribal governments regarding the level of environmental review and regarding the identification of and preferences for how to address potential adverse impacts to Tribal Cultural Resources. This section describes Tribal Cultural Resources in the vicinity of the Project site and the associated regulatory framework. The impact analysis presents the criteria used to evaluate the significance of potential impacts that could result as a consequence of implementing the Project or alternatives, the methods used in evaluating these impacts, and the results of the impact assessment.

The County received scoping comments from the Table Mountain Rancheria Tribal Government Office expressing interest in consulting with the County regarding the Project, which is proposed in the Tribe's cultural area of interest (Appendix A). Additional input subsequently was received from the Dumna Wo Wah Tribal Government (Dumna Wo Wah 2017) and the Picayune Rancheria of the Chukchansi Indians (Picayune Rancheria 2017). All input received from each of these Tribes has been considered in this analysis. A Memorandum summarizing Fresno County's tribal consultation process, confirming that all comments from the Tribes have been addressed, and documenting the conclusion of the consultation process is provided in Appendix N.

3.19.1 Setting

3.19.1.1 Environmental Setting

Tribal Cultural Resources are site features, places, cultural landscapes, sacred places or objects, which are of cultural value to a Tribe or Tribes. These resources may also be on, or eligible for, listing in the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHP), or be determined by the lead agency to be considered Tribal Cultural Resources. Tribal Cultural Resources also include prehistoric archaeological sites and human remains as discussed in Section 3.6, *Cultural Resources*, ethnographic sites, and historic-era landscapes and sites occupied, used, or spiritually and culturally valued by Native Americans.

Section 3.6, *Cultural Resources*, contains a description of prehistoric, ethnographic, and historical settings in the Project area.

Native American Contact

Fresno County maintains a list for Assembly Bill (AB) 52 consultation that includes four tribes: Table Mountain Rancheria, Santa Rosa Rancheria, Dumna Wo Wah, and Picayune Rancheria of Chukchansi Indians. Letters to Table Mountain Rancheria, Santa Rosa Rancheria, and Dumna Wo Wah were mailed on October 10, 2017. Table Mountain Rancheria requested consultation with the County on October 2, 2017 (Table Mountain Rancheria 2017). Dumna Wo Wah requested consultation on October 17, 2017, stating that the Project site lies within its area of cultural interest. This Project was referenced on a response to Dumna Wo Wah that covered its requests for consultation on several projects with the County. The Picayune Rancheria requested

inclusion on the AB 52 list on October 19, 2017, and was mailed notice of this Project on October 27, 2017. Picayune Rancheria requested consultation on October 31, 2017, noting that the site is within a sensitive area in proximity to prehistoric/historic period sites.

Fresno County staff sent copies of the cultural report to all the tribes: Table Mountain Rancheria on October 12, 2017, and then to the Santa Rosa Rancheria on October 27, 2017, Dumna Wo Wah on October 26, 2017, and Picayune Rancheria on November 1, 2017 (Fresno County 2017). As of June 19, 2018, the County had received no responses from the Tribes following the transmittal of the report, the County's invitation to meet and discuss the results, and additional follow-up. Accordingly, the County concluded the tribal consultation process (Appendix N).

Additionally, the Native American Heritage Commission (NAHC) was contacted by Dudek on November 7, 2016 to request a search of the Sacred Lands File. The NAHC responded on November 10, 2016 that the search failed to identify any Native American resources in or near the Project site and provided a list of individuals and organizations to contact that may have additional information. Letters and emails were sent to each of the contacts to request information on resources in the Project area on December 7, 2016. The NAHC-listed Tribal representatives also were contacted by phone on December 12, 2016 as a follow-up to the initial outreach efforts.

3.19.1.2 Regulatory Setting

Federal

American Indian Religious Freedom Act

The American Indian Religious Freedom Act of 1978 protects the rights of Native Americans to freedom of expression of traditional religions (24 U.S.C. §1996). This act established "the policy of the United States to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions… including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites."

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act provides for increased involvement of Native Americans in archaeology and historic preservation. The Native American Graves Protection and Repatriation Act addresses the rights of lineal descendants and Indian tribes to recover Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony that are held by the federal government (25 U.S.C. §3001). These parties are to be consulted when such items are inadvertently discovered or intentionally excavated on federal or tribal lands.

State

California Environmental Quality Act Statute and Guidelines

CEQA and the CEQA Guidelines include special procedures for identifying, analyzing, and disclosing significant impacts on Tribal Cultural Resources, which include all resources listed in or formally determined eligible for listing in the NRHP, the California CRHR, or local registers.

California Register of Historical Resources

As with TCPs in the NRHP, identification of Tribal Cultural Resources for the CRHR emphasizes a place or feature's value and significance to living communities. AB 52, summarized in Section 3.6.1.2, *Regulatory Setting*, and discussed in more detail below, further clarified this designation process.

Native American Heritage Commission

The Native American Heritage Commission (NAHC) identifies and manages a catalog of places of special religious or social significance to Native Americans. This database, known as the Sacred Lands File, is a compilation of information on known graves and cemeteries of Native Americans on private lands and other places of cultural or religious significance to the Native American community. The NAHC also performs other duties regarding the preservation and accessibility of sacred sites and burials and the disposition of Native American human remains and burial items.

Public Resources Code sections 5097.9 through 5097.991 describe the duties and role of the NAHC and requires the cooperation of State and local agencies in carrying out their duties with respect to Native American resources.

California Public Resources Code and California Health and Safety Code Provisions Regarding Human Remains

California Health and Safety Code section 7050.5 protects human remains by prohibiting the disinterring, disturbing, or removing of human remains from any location other than a dedicated cemetery. Public Resources Code section 5097.98 and CEQA Guidelines Section 15064.5(e) also identify steps to follow in the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery. Health and Safety Code section 7052 states that the disturbance of Native American, or any other, human remains is a felony, unless the disturbance has been lawfully authorized.

Assembly Bill 52

AB 52, enacted in September 2014, recognizes that California Native American tribes have expertise with regard to their tribal history and practices. AB 52 established a new category of cultural resources known as Tribal Cultural Resources in order to consider tribal cultural values when determining impacts on cultural resources. Public Resources Code section 21074(a) defines a tribal cultural resource as any of the following:

- Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

  - included or determined to be eligible for inclusion in the California Register; or
  - included in a local register of historical resources, as defined in Public Resources Code section 5020.1(k).[1]

- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Public Resources Code section 5024.1(c).[2] In applying these criteria, the lead agency would consider the significance of the resource to a California Native American tribe.

- A cultural landscape that meets the criteria of Public Resources Code section 21074(a)[3] also is a tribal cultural resource if the landscape is geographically defined in terms of the size and scope.

- An historical resource as described in Public Resources Code section 21084.1,[4] a unique archaeological resource as defined in Public Resources Code section 21083.2,[5] or a non-unique archaeological resource as defined in Public Resources Code section 21083.2[6] may also be a tribal cultural resource if it meets the criteria of Public Resources Code section 21074(a).

AB 52 requires lead agencies to analyze project impacts on "Tribal Cultural Resources," separately from archaeological resources (Pub. Res. Code §§21074, 21083.09), in recognition that archaeological resources have cultural values beyond their ability to yield data important to prehistory or history. AB 52 also defines "Tribal Cultural Resources" in Public Resources Code Section 21074 (see above), and requires lead agencies to engage in additional consultation procedures with respect to California Native American tribes (Pub. Res. Code §§21080.3.1, 21080.3.2, 21082.3).

Local

Tribal cultural resources were introduced as a CEQA consideration in 2015 with the adoption of AB 52. Since that time, the Fresno County General Plan has not been updated to include specific

1 Public Resources Code section 5020.1(k) defines "local register of historical resources" as "a list of properties officially designated or recognized as historically significant by a local government pursuant to a local ordinance or resolution."

2 The criteria set forth in Public Resources Code section 5024.1(c) include whether a resource: "(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage. (2) Is associated with the lives of persons important in our past. (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values. (4) Has yielded, or may be likely to yield, information important in prehistory or history."

3 A cultural landscape meets the criteria of Public Resources Code section 21074(a) if it either is "included or determined to be eligible for inclusion in the California Register of Historical Resources" or is "included in a local register of historical resources" pursuant to Public Resources Code section 5020.1(k).

4 Public Resources Code section 21084.1 defines an "historical resource" as "a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources."

5 Public Resources Code section 21083.2(g) defines "unique archaeological resource" as "an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria: (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information. (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type. (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person."

6 Public Resources Code section 21083.2(h) defines "nonunique archaeological resource" as "an archaeological artifact, object, or site which does not meet the criteria in subdivision (g)."

goals and policies addressing Tribal Cultural Resources as distinct from non-Tribal Cultural Resources. Goals and policies addressing prehistoric archaeological resources, including human remains, can be considered regulatory guidance for Tribal Cultural Resources. Those goals and objectives are described in detail in Section 3.6, *Cultural Resources*.

3.19.1.3 Tribal Cultural Resources Identified within the Project Site and Surrounding Area

Identification of Known Cultural Resources

The results of the records search undertaken at the South San Joaquin Valley Information Center (SSJVIC), the archaeological field surveys conducted for LSA and Dudek's analysis in February 2015 and November/December 2016, respectively, and the Project site's potential for unknown buried Tribal Cultural Resources, are detailed in Section 3.6, *Cultural Resources*. No prehistoric archaeological resources were identified through either the SSJVIC records search or the field surveys conducted by LSA and Dudek. Additionally, Fresno County also engaged in consultation with local tribes (described above) to solicit input on potential Tribal Cultural Resources within, or in proximity to, the Project site.

3.19.2 Significance Criteria

CEQA Guidelines Appendix G was supplemented in August 2016 to include considerations related to Tribal Cultural Resources.

A project would result in significant impact to Tribal Cultural resources if it would:

a. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code §21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that: (i) is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code §5020.1(k), or (ii) is determined at the discretion of the lead agency to be significant pursuant to criteria set forth Public Resources Code §5024.1(c).

3.19.3 Direct and Indirect Effects

3.19.3.1 Approach to Analysis

To evaluate the Project's potential effects on significant Tribal Cultural Resources, including prehistoric archaeological sites, a cultural resources characterization and evaluation of the Project site was undertaken by Dudek (2017) and LSA (2015). This included a literature review, a Native American contact program, geoarchaeological review, and field surveys for areas of potential permanent and temporary impacts where facilities would be installed. The purpose of the evaluations was to identify any cultural resources that may be present within the Project site. Additionally, Fresno County also engaged in consultation with local tribes (described above) to solicit input on potential Tribal Cultural Resources within, or in proximity to, the Project site.

Impacts on Tribal Cultural Resources could result from Project-related ground-disturbing activities, including excavation, grading, trenching, vegetation clearance, the operation of heavy equipment, or other surface and sub-surface disturbance that could damage or destroy surficial or buried archaeological resources, including prehistoric materials or human burials.

3.19.3.2 Direct and Indirect Effects of the Project

a) Whether the Project could cause a substantial adverse change in the significance of a tribal cultural resource that: (i) is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources, or (ii) is determined at the discretion of the lead agency to be significant.

Impact 3.19-1: Ground disturbing activities associated with the Project could cause a substantial adverse change to previously unknown archaeological resources that are also Tribal Cultural Resources, as defined in Public Resources Code Section 21074(a). ***(Less than Significant with Mitigation Incorporated)***

Letters from the Table Mountain Rancheria noted that the Project site is within the cultural area of interest for Table Mountain Rancheria, and correspondence from the Picayune Rancheria to Fresno County noted the area as sensitive for Tribal Cultural Resources and in proximity to sites known to the Picayune Rancheria. The results of the records search conducted at the SSJVIC identified no prehistoric archaeological resources within 1-mile of the Project site, although two historic period trash scatters were noted within 1-mile of the Project site. A letter from the NAHC stated that a review of the Sacred Lands File failed to identify any Native American resources in the vicinity of the Project. Finally, field surveys conducted by LSA and Dudek both returned negative findings for archaeological resources.

The potential for Tribal Cultural Resources has been identified through consultation with the Picayune Rancheria, which noted a heightened sensitivity for archaeological resources in the area. In light of the nature of the Project and the disturbed character of the site, types of Tribal Cultural Resources, if any, are anticipated to be subsurface prehistoric archaeological resources (discussed in Impact 3.6-1 in Section 3.6, *Cultural Resources*), including human remains (discussed in Impact 3.6-2 in Section 3.6). As further described in Section 3.6, no such prehistoric resources have been documented within, or in the immediate vicinity of, the Project site. If not discovered prior to development, such resources could be damaged or destroyed through earthwork, ground disturbance, or other subsurface construction activities. Damage to or loss of Tribal Cultural Resources would be a potentially significant impact.

Mitigation Measure 3.19-1: Implement Mitigation Measures 3.6-1 and 3.6-2

Significance after Mitigation: Less than Significant.

3.19.3.3 Direct and Indirect Effects of Alternatives

Increased Habitat/Reduced Acreage Alternative

Compared to the Project, the Increased Habitat/Reduced Acreage Alternative would entail less construction and associated ground-disturbing activities. The lessening of the disturbance footprint would result in lessened potential for disturbance of previously unknown Tribal Cultural Resources, including prehistoric archaeological resources and human remains. Nonetheless, because ground disturbing activities anywhere within the Project boundary could cause a substantial adverse change to previously unknown archaeological resources that are also Tribal Cultural Resources, Mitigation Measure 3.19-1 is recommended also for the Increased Habitat/ Reduced Acreage Alternative.

No Project Alternative

If the No Project Alternative is implemented, the proposed demolition of structures would not occur; neither the solar facilities nor the Little Bear gen-tie line would be constructed, operated, or maintained; no Project-related disturbance would occur. The Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would cause no impact to Tribal Cultural Resources.

3.19.4 Cumulative Analysis

The geographic scope for cumulative impacts to Tribal Cultural Resources comprises a 5-mile radius from the Project site. This geographic scope of analysis is appropriate because the archaeological and appropriate biological resources within this radius are expected to be similar to those that occur on the Project site because their proximity, similar environments, landforms, and hydrology are expected to have resulted in similar land-uses over time. Based on input from the Tribes, the professional experience of the Draft EIR Preparers, research, and the prehistoric context, the area within this 5-mile radius of the Project site may contain a significant archaeological and historical record that has not been well-documented or recorded. Therefore, this analysis conservatively assumes that the land within this area contains Tribal Cultural Resources that are not yet known.

The temporal scope for cumulative impacts to cultural resources would be the duration of the Project when ground-disturbing activities occur. In this context, the incremental impacts of the Project could combine with similar incremental impacts of other projects in the cumulative scenario to cause or contribute to a significant cumulative impact if any of the criteria in Section 3.19.2, *Significance Criteria*, were exceeded.

There is no indication of any existing significant adverse condition relating to Tribal Cultural Resources in the geographic area of cumulative consideration to which the Project or Increased Habitat/Reduced Acreage Alternative could contribute. The Project and alternative would contribute a negligible less-than-significant incremental impact after the implementation of

mitigation measures, which would require the cessation of activities and buffering of finds. As a result, the less-than-significant incremental impact would not be cumulatively significant, and would not combine with the incremental impact of other projects in the cumulative scenario to cause a significant cumulative effect.

3.19.5 References

Dudek, 2017. Cultural Resources Inventory Report for the Little Bear Solar Project, Fresno County, California. Prepared for Little Bear Solar, LLC. August 2017.

Dumna Wo Wah Tribal Government, 2017. Letter to Fresno County Department as a Formal Request for Tribal Consultation for Little Bear Solar EIR. Received October 19, 2017.

Fresno County, 2017. E-mail correspondence from Christina Monfette RE: AB 52 Summary - Little Bear Solar. November 2, 2017.

LSA, 2015. Cultural Resources Inventory Study for the Little Bear Solar Project and Related Facilities, Fresno County, California. Prepared for Little Bear Solar, LLC. April 2015.

Picayune Rancheria, 2017. Email to Christina Monfette at Fresno County from Tara Estes-Harter, THPO Picayune Rancheria of the Chukchansi Indians. October 31, 2017.

Table Mountain Rancheria, 2017. Letter to Fresno County Department of Public Works and Planning, from Tribal Government Office regarding the Little Big Bear Solar Project. Received October 5, 2017.

3.20 Utilities and Service Systems

This section identifies and evaluates issues related to Utilities and Service Systems in the context of the Project and alternatives. Discussed are the physical and regulatory setting; the criteria used to determine the significance of environmental impacts; and potential impacts associated with construction, operation, maintenance, and decommissioning of the Project. The County received one comment during the scoping period from a property owner adjacent to the Project site regarding the supply source and the amount of water that would be needed to operate and maintain the Project (Appendix A). The Westlands Water District (WWD) also provided input on the Project after the comment period, and indicated that the Project site is served by a water delivery system operated and maintained by WWD and would be able to receive water through the WWD's Municipal and Industrial (M&I) supply and the land would continue to have access to WWD's distribution system (WWD 2017).[1]

This analysis is based in part on a Project-specific and site-specific Hydrology and Water Quality Technical Report prepared by Dudek in September 2017 (Appendix J1), a Water Supply Assessment prepared by West Yost Associates in January 2018 (Appendix J2), an Identification of Sources of Water for the Little Bear Solar Project Pursuant to Requirements of Fresno County Solar Facility Guidelines also prepared by West Yost Associates in January 2018 (Appendix J3), and a letter report regarding water supply that was prepared by URS Corporation in October 2015 (Appendix J4). The preparers of this Draft EIR independently reviewed these and other materials prepared by or on behalf of the Applicants and determined them to be suitable for reliance on (in combination with other materials included in the formal record) in the preparation of this Draft EIR.

3.20.1 Setting

3.20.1.1 Environmental Setting

Water Supply

The Project site is located in the Westside Subbasin of the San Joaquin Valley Groundwater Basin (Department of Water Resources [DWR] subbasin number 5-22.09). The Westside Subbasin is located in the west-central portion of the San Joaquin Valley Groundwater Basin, within Fresno and Kings Counties, east of the Coast Range foothills and west of the San Joaquin River drainage and the Fresno Slough. The Westside Subbasin was identified by DWR as being subject to critical conditions of overdraft pursuant to Water Code section 12924 (Appendix J2).

The Westside Subbasin includes the Westlands Water District (WWD). WWD is the largest agricultural water district in the U.S., and serves over 700 family-owned farms. WWD also provides limited quantities of untreated, non-potable Central Valley Project (CVP) water which is ultimately used for M&I purposes in the WWD's service area (WWD 2018). WWD's water mainly is supplied via the Delta-Mendota Canal, the San Luis Dam and Reservoir, the San Luis

[1] WWD's letter also advised that WWD Regulations make up to 5 acre-feet per 160 acres annually for solar development operations from WWD's Central Valley Project contract supply. The Project must also comply with the District's Backflow Prevention guidelines for connection to the WWD water system (WWD 2017).

Canal, and the Coalinga Canal, and WWD's water delivery system utilizes approximately 1,034 miles of fully-enclosed buried pipes (WWD 2013).

An existing water supply well exists on the adjacent North Star Solar project site, approximately 920 feet north of the Little Bear 1 northern boundary, that could be used as part of the Project. Water levels are approaching the long-term average groundwater elevation from 1956 to 2015, suggesting the aquifer has recovered from significant groundwater pumping between 2013 and 2016 during an extended drought. Average groundwater elevations for WWD are only available through 2015, but based on the trend observed in the well on the adjacent North Star Solar Project site, regional groundwater levels have likely recovered relative to 2015 levels (Appendix J3).

Although the WWD is not a public water system, as it does not deliver potable water, it does provide water for agricultural, agricultural-related, and some non-agricultural uses through a piped water system to a service area which totals approximately 614,700 acres in Fresno and Kings counties on the west side of the San Joaquin Valley. The Project site is located within the WWD service area (WWD 2014) and receives water from the WWD supply, but this water is not potable as delivered. There are no public water systems near the Project site (Appendix J2).

Solid Waste Management

The County of Fresno Resources Division is responsible for County solid waste coordination and solid waste disposal activities, and has a number of facilities that could accept solid waste from the Project site. The American Avenue Disposal Site is the County's regional landfill located near the city of San Joaquin. This facility is able to accept all types of solid waste and recycling. In addition, the County of Fresno's Regional Household Hazardous Waste Facility is located here to drop off various chemicals and substances for safe disposal. The Shaver Lake Transfer Station is operated in partnership with the County of Fresno, Granite Solid Waste, and the U.S. Forest Service (Fresno County 2018).

American Avenue Landfill, approximately 14.5 miles southeast of the Project site, is owned and operated by the County and began operation in 1992 for public and commercial solid waste haulers. The American Avenue Landfill is permitted to receive 2,200 tons of waste per day; it has a remaining capacity of approximately 29,358,535 cubic yards and is expected to reach its permitted capacity in 2031 (CalRecycle 2018a). The next nearest landfill is the Billy Wright Disposal Site, located approximately 36.3 miles northwest of the Project site, which is permitted to receive 1,500 tons of waste per day; it has a remaining capacity of approximately 11,370,000 cubic yards and is expected to reach its permitted capacity in 2054 (CalRecycle 2018b).

Wastewater

No existing municipal sewage or wastewater disposal system serves the Project site. In the area, wastewater generally is disposed of via on-site septic systems.

Stormwater

As described in Section 3.11, *Hydrology and Water Quality,* stormwater drainage infrastructure in the Project vicinity is limited to pipe culverts that cross main roads. The majority of stormwater

runoff currently generated at the Project site is contained and/or directed onto adjacent cultivated fields. Surface flow generated from the Project site flows east-northeast through roadside swales which receive runoff from adjacent agricultural plots, and ultimately discharges into the Fresno Slough located approximately 3 miles east of the Project site's eastern boundary (Appendix J1). See Section 3.11, *Hydrology and Water Quality*, for further discussion of drainage.

Pacific Gas & Electric

Pacific Gas and Electric Company (PG&E) is an investor-owned utility company that provides electricity and natural gas supplies and services throughout a 70,000 square-mile service area that includes western Fresno County and the Project site (PG&E 2018).

Telecommunications

The Project site is located in AT&T California's incumbent local exchange carrier territory, and carrier of last resort territory (CPUC 2014, 2017a). Comcast Xfinity provides cable internet and phone service for much of Fresno County, and its availability area borders the Project site (Cable Coverage and Availability Maps 2018).

3.20.1.2 Regulatory Setting

Federal

No federal statutes, regulations, plans, or policies govern utilities or service systems on or near the Project site.

State

California Integrated Waste Management Act

The Project would generate solid waste during construction, operation, maintenance, and decommissioning activities. The California Integrated Waste Management Act of 1989 (AB 939, Pub. Res. Code §40000 et seq.) was enacted to reduce, recycle, and reuse solid waste generated in the State to the maximum extent feasible. Specifically, AB 939 requires local governments to identify an implementation schedule to divert 50 percent of the total waste stream from landfill disposal by 2000. AB 939 also requires local governments to promote source reduction, recycling, and safe disposal or transformation. Cities and counties are required to maintain the 50 percent diversion specified by AB 939 past 2000.

In 2011, AB 341 amended AB 939 to include a provision declaring that it is the policy goal of the State that not less than 75 percent of solid waste generated be source reduced, recycled, or composted by the year 2020, and maintained annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the State's policy goal. CalRecycle recommends strategies that address the 75 percent goal and also serve other critical objectives: protecting public health and safety, reducing GHG, expanding manufacturing infrastructure and bringing green jobs to California, reducing reliance on unstable export markets, reducing local government costs for hard-to-manage wastes, and increasing production of renewable energy and fuel.

Water Supply Assessment and Verification

California Water Code section 10910 requires a county to identify any water system whose service area includes the project site and any water system adjacent to the project site that is, or may become as a result of supplying water to the project, a "public water system" that may supply water for the project. Water Code section 10912(c) defines "public water system" in relevant part as "a system for the provision of piped water to the public for human consumption that has 3,000 or more service connections." If the county is not able to identify any public water system that may supply water for the project, then it is obligated to prepare a water assessment. A water supply assessment for the Project is provided in Appendix J2.

Storage and Transportation of Hazardous Materials (22 Cal. Code Regs. Div. 4.5)

The Project may involve the storage and transport of hazardous materials. Title 22 of the California Code of Regulations discusses an array of requirements with respect to the disposal and recycling of hazardous and universal wastes. Applicable requirements related to the disposal of hazardous materials are described in Section 3.10, *Hazards and Hazardous Materials*. -Division 4.5 of Title 22 also provides restrictions and standards relevant to waste destination facilities, and provides authorization requirements for various waste handlers. Title 22 includes California's Universal Waste Rule, as well as other additional waste handling and disposal requirements.

Underground Utility Notification Requirements

California Government Code Section 4216 et seq. requires owners and operators of underground utilities to become members of, participate in, and share the costs of a regional notification center. Underground Service Alert North (USA North) is the notification center for the Project location. USA North receives planned excavation reports and transmits the information to all participating members that may have underground facilities at the location of excavation. The USA North members will then mark or stake their facility, provide information, or give clearance to dig (USA North 2018).

Septic System Requirements of the California Plumbing Code

Title 24, Part 5 of the California Code of Regulations regulates plumbing systems. Based on the American National Standard 2015 Uniform Plumbing Code, the California Plumbing Code attempts to minimize public risk by specifying technical standards of design, materials, workmanship and maintenance for plumbing systems, including septic systems.

Local

Fresno County Solar Facility Guidelines

The Fresno County Solar Guidelines require an EIR to address the following issues related to Utilities and Service Systems:

2. Information shall be submitted that identifies the source of water for the subject parcel (surface water from irrigation district, individual well(s), conjunctive system). If the source of water is via district delivery, the applicant shall submit information documenting the allocations received from the irrigation district and the actual disposition of the water (i.e. utilized on-site or moved to other locations) for the last ten years. If an individual well

system is used, provide production capacity of each well, water quality data and data regarding the existing water table depth (Fresno County, 2017a).

A Water Supply Evaluation (Appendix J3) was prepared to identify sources of water for the Project pursuant to the requirements of the Fresno County Solar Facility Guidelines.

Fresno County Code of Ordinances Section 17.64

Section 17.64 of the Fresno County Code of Ordinances (Drainage of Land) provides Fresno County the authority to impose conditions on development related to drainage. Agricultural uses are subject to certain exemptions, but developers not within an area subject to a local drainage fee, including the Project, must provide for drainage facilities and improvements on site as necessary to ensure the safe disposal of surface and stormwater. See Section 3.11, *Hydrology and Water Quality*, for provisions related to stormwater quality and management.

1966 Fresno County Improvement Standards

The 1966 Fresno County Improvement Standards outline how projects outside of the Fresno Metropolitan Flood Control District manage hydrologic impacts either through retention, or by discharging to existing drainage facilities.

Fresno County Code of Ordinances Section 15

The installation of individual septic systems in the unincorporated areas of the County is regulated under Fresno County Ordinance Title 15, which adopts the provisions of the Uniform Plumbing Code for septic systems. Applicants for septic system permits also must comply with the United States Public Health Service Manual of Septic Tank Practice and the Local Area Management Plan (LAMP) codified in Chapter 15.20 of the Fresno County General Ordinance Code. These requirements are intended to preclude the creation of health hazards and nuisance conditions and to protect surface and groundwater quality. The County of Fresno County Public Works and Planning Department regulates septic systems within the unincorporated areas of the County, and Fresno County Building and Safety Services also reviews sewage disposal systems.

Fresno County Construction and Demolition Debris Recycling Program

Project construction waste materials such as metal and wood would be separated from the waste stream and recycled whenever feasible. The Fresno County Construction and Demolition Debris Recycling Program is intended to assist the County in compliance with the AB 939 (discussed above) and to provide builders with a way to document waste reduction requirements included in the California Green Building Standards Code (CALGreen) (24 Cal. Code Regs. Part 11). The Construction and Demolition Debris Recycling Program would require the Applicant to submit a Waste Management Plan and generate a waste log during construction and demolition (Fresno County 2017b).

Fresno County General Plan

The Fresno County General Plan Public Facilities and Services and Open Space and Conservation Elements (2000) contain policies related to Utilities and Service Systems that were discussed in Section 3.11, *Hydrology and Water Quality*. The following additional policies related to Utilities and Service Systems are relevant to the Project:

Policy PF-A.1: The County shall ensure through the development review process that public facilities and services will be developed, operational, and available to serve new development. The County shall not approve new development where existing facilities are inadequate unless the applicant can demonstrate that all necessary public facilities will be installed or adequately financed and maintained (through fees or other means).

Policy PF-B.1: The County shall require that new development pays its fair share of the cost of developing new facilities and services and upgrading existing public facilities and services; exceptions may be made when new development generates significant public benefits (e.g., low income housing) and when alternative sources of funding can be identified to offset foregone revenues.

Policy PF-B.3: The County shall require that new development pays the costs of mitigating impacts on existing County facilities to the extent capacity is provided through existing infrastructure networks.

Policy PF-C.25: The County shall require that all new development within the County use water conservation technologies, methods, and practices as established by the County.

Policy PF-D.6: The County shall permit individual on-site sewage disposal systems on parcels that have the area, soils, and other characteristics that permit installation of such disposal facilities without threatening surface or groundwater quality or posing any other health hazards and where community sewer service is not available and cannot be provided.

Policy PF-E.5: The County shall only approve land use-related projects that will not render inoperative any existing canal, encroach upon natural channels, and/or restrict natural channels in such a way as to increase potential flooding damage.

Policy PF-E.6: The County shall require that drainage facilities be installed concurrently with and as a condition of development activity to ensure the protection of the new improvements as well as existing development that might exist within the watershed.

Policy PF-F.1: The County shall continue to promote maximum use of solid waste source reduction, reuse, recycling, composting, and environmentally-safe transformation of wastes.

Policy PF-F.4: The County shall ensure that all new development complies with applicable provisions of the County Integrated Waste Management Plan.

Policy PF-J.3: The County shall require all new residential development along with new urban commercial and industrial development to underground utility lines onsite.

3.20.2 Significance Criteria

A project would result in significant effects to Utilities and Service Systems if it would:

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

b) Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years;

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;

d) Generate solid waste in excess of State or local standards or in excess of the capacity of local infrastructure;

e) Negatively impact the provision of solid waste services or the attainment of solid waste reduction goals; or

f) Not comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

CEQA Guidelines Appendix G Section XVIII, *Utilities and Service Systems*, asks whether a project would "[e]xceed wastewater treatment requirements of the applicable Regional Water Quality Control Board." Because this consideration is encompassed in the water quality-related question of whether a project would "[v]iolate any water quality standards or waste discharge requirements," any exceedance of wastewater treatment requirements is analyzed in Section 3.11, *Hydrology and Water Quality,* which found that the Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.

3.20.3 Direct and Indirect Effects

3.20.3.1 Approach to Analysis

The analysis of potential impacts related to Utilities and Service Systems addresses temporary construction-related and decommissioning-related impacts as well as longer-term impacts that could result from operation of the Project or an alternative.

3.20.3.2 Direct and Indirect Effects of the Project

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

Impact 3.20-1: The Project could result in the construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities that would cause significant environmental effects. (*Less than Significant Impact*)

Water

As described in Chapter 2, *Description of Project and Alternatives*, the Project would require non-potable water for dust suppression and other purposes during initial demolition and construction and during decommissioning. During Project operation and maintenance (O&M),

non-potable water would be required for PV solar panel washing and other uses, such as truck wheel washing. Since the Project would require up to eight full-time personnel, or personnel hours totaling eight full-time positions (e.g. plant operators, maintenance technicians, and security personnel), bottled water would be procured by O&M staff and stored on-site for consumption.

For water to be used during construction, the Project could use water from an existing well on the North Star Solar Project site, approximately 920 feet north of the northern boundary of Little Bear 1. Water from the well would be pumped to new aboveground tanks or ponds located on the North Star site and then transferred, as needed, to water trucks. Alternatively, water from the North Star well could be delivered to new aboveground tanks constructed on the Project site tanks via a new pipeline (see Section 2.5.3.1, *Water and Wastewater*, for details). The aboveground tanks would be removed at the completion of construction. Alternatively, contingent water sources for construction of the Project include delivery from WWD, or trucking water to the Project site from an agricultural well approximately 1.5 miles west of the Project site on West California Avenue, as described under Impact 3.20-2 below.

During Project operation, water either would be supplied by WWD and delivered to the Project site by existing pipelines or obtained from the existing well on the North Star site via the proposed pipeline. Water delivery from WWD would require connection fees with WWD. An alternative to WWD delivery for operational water demands would require installation of a permanent pipeline from the North Star well to the Project site. If an O&M building is constructed, a permanent water storage tank for fire protection and, if needed, sanitation also would be installed. Water for the storage tank would be sourced from either WWD or the North Star well.

Any water facilities including pipelines or water tanks used during Project O&M would temporarily remain in place for use during Project decommissioning and site restoration. Ultimately these facilities would either be left in place or would be removed as part of Project decommissioning.

New water facilities constructed as a part of the Project could include the placement of water tanks and the construction of a pipeline between the North Star Solar Project and the Project site. Portable aboveground water storage tanks used to store water for the duration of construction activities would be removed at the completion of construction. If constructed, the permanent water storage tank for the O&M building would adhere to the California Fire Code and Fresno County Fire Protection District (FCFPD) requirements, as described in Section 3.16, *Public Services*. In addition, Project plans would be reviewed by the FCFPD prior to the issuance of building permits. The underground sections of the pipeline would be placed in a casing installed using either trenching or directional boring. Upon decommissioning, with agency approval, below-ground pipelines would be left in place to minimize soil disturbance. Therefore, impacts related to the construction of water facilities would be less than significant.

Wastewater

Nominal liquid (human) waste would be generated during demolition and construction, O&M, and decommissioning and site reclamation. No more than 750 personnel would be on-site during construction, which would be limited to 12 to 14 months in duration. The Project does not propose or require occupied structures. Operation and maintenance would require on-site

personnel who would typically work during regular business hours Monday through Friday. On a typical day, the number of staff on site may range from none (it is not necessary for staff to be present during plant operations) up to 20 during periodic, routine maintenance events. Non-routine (emergency) maintenance could require additional workers. Decommissioning and site restoration activities are expected to require a smaller workforce than construction, and to take approximately 14 months to complete. Portable restrooms will be provided for construction workers during construction and decommissioning activities. Either portable restrooms would be provided or a septic system would be installed for use for the duration of the Project depending on final design of the O&M building, if constructed. Wastewater generated from portable facilities would be limited and handled by a licensed provider in accordance with all applicable requirements and with available capacity for the project's needs. Impacts associated with new wastewater treatment facilities would be less than significant.

If the design for the O&M building includes sinks or toilets, a sanitary waste collection system would be necessary. Sanitary waste either would be collected in portable restrooms or routed to an in-ground septic system. An in-ground septic system would include a septic tank (up to 750 gallons) and an approximately 3,000 square foot leach field located in proximity to the O&M building. The septic system design would adhere to the California Plumbing Code and the Fresno LAMP, and would be reviewed by Fresno County Building and Safety Services prior to construction to ensure that soil and groundwater would be protected. As such, impacts related to the construction of a septic system would be less than significant. Therefore, no connection to any existing wastewater facilities and no additional wastewater treatment facilities would be required.

Stormwater

The Project is not located in an area that has an existing or planned stormwater drainage system. As described in Section 3.11, *Hydrology and Water Quality*, the Project would increase the peak storm runoff volumes by approximately 1.7 percent due to the addition of new facilities and impervious surfaces. While the Project's preliminary design includes detention basins, discharge to the downstream conveyance system may be a possibility if the downstream receiving features meet County criteria for existing drainage facilities. In the event that permanent storage is required on site, five basins included in the draft Project design would be sized per County standards that would serve to retain stormwater runoff (Appendix J1). Since any stormwater facilities would be constructed in accordance with County standards, potential impacts related to the construction of stormwater facilities would be less than significant.

Electricity and Natural Gas

The Project would require the construction of up to five individual Solar Facilities with arrays of solar PV panels and electrical facilities. Each Facility would include a substation, inverters, transformers, and a 34.5 kV overhead collection system, and could include an Energy Storage System. Little Bear 1 would require the installation of a new 115 kV interconnection to the North Star Solar Project's existing substation. Little Bears 3, 4, 5, and 6 would require the addition of a new electric conductor to the existing, approximately 2-mile 115 kV gen-tie in order to interconnect the Project to PG&E's existing Mendota Substation. The Project would receive service power from PG&E, and would have emergency generators available onsite. Electricity would be consumed by the Project, as required, when the Project is not powered by on-site energy generation.

During decommissioning, electrical power facilities would temporarily remain in place for use by the decommissioning and restoration workers until no longer needed. Any electric lines would be expected to be left in place at the request of and for the benefit of the landowner.

Solar PV projects do not require the use of natural gas for the power generation process; therefore, no natural gas facilities would be constructed. Electric facilities and connections are proposed as part of the Project could result in a number of environmental impacts. Any potentially significant environmental effects are analyzed and addressed on a resource-by-resource basis throughout this Chapter 3, *Environmental Analysis*. Therefore, impacts related to the construction of electric facilities would be less than significant.

Telecommunications

Telecommunications would be provided either by a local provider or via a microwave/satellite communications lattice tower that would be approximately 60 feet tall. A typical lattice tower would include four concrete foundations, each approximately 2 to 3 feet deep. The proposed location for the communications tower would be within the Little Bear 1 site at the southeastern corner of California Avenue and San Bernardino Avenue. The communications tower could result in environmental impacts, which are addressed on a resource-by-resource basis throughout this Chapter 3, *Environmental Analysis*. Therefore, for the purposes of this section, construction of the communications tower would result in less than significant impacts.

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b) Whether the Project would have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.

Impact 3.20-2: The Project could require water supplies exceeding existing entitlements and resources to serve Project construction, operation and maintenance, and decommissioning. (*Less than Significant Impact*)

A Water Supply Assessment (Appendix J2) was prepared to demonstrate the sufficiency of the available water supplies to satisfy the water demands of the Project, while still meeting other existing and planned future uses, including agricultural and manufacturing uses.

Initial Demolition and Construction; Decommissioning

The primary uses of water during initial demolition and construction of the Project would be for dust suppression and wheel washing performed as necessary, and for grading. The Project would require approximately 200 acre-feet of water during the 12 to 14-month construction period, and an estimated average flow rate of 110 to 130 gallons per minute (gpm) is required to supply water during construction.[2]

As explained under Impact 3.20-1, construction water demands for the Project would be satisfied using water from an existing well on the neighboring North Star Solar Project site, which has adequate capacity to serve the project's needs. As discussed in Section 3.11, *Hydrology and*

[2] Assumes a constant pumping rate 24 hours per day, 7 days per week for 12 to 14 months.

Water Quality, historical groundwater data, aquifer testing results, and prior use of the well during construction of the North Star project indicate that the North Star well would reliably supply the Project's expected construction water requirements of 200 acre-feet over 12 to 14 months.[3]

Although the North Star well is expected to be able to serve Project construction supply needs, contingent water sources for construction of the Project include delivery from WWD. Construction water demands for the Project could be supplemented using water delivered by WWD under an M&I water supply contract. WWD has confirmed it can supply up to 5 acre-feet per year per 160 acres annually for solar development operations (WWD 2017). Based on the size of the Project, WWD therefore could provide up to 40 acre-feet per year during the construction period. Alternatively, construction water needs could be satisfied by trucking water to the Project site from an agricultural well approximately 1.5 miles west of the Project site on West California Avenue. The Project proponent had an agreement with the well owner to purchase water that was used during construction of a different solar project in 2015. Subject to a new agreement with the well owner, this well could be used to provide water, which would be trucked to the Project site.

Water usage during decommissioning would be expected to be similar to Project construction. Therefore, the Project would have sufficient water supplies available to serve Project construction and decommissioning, and impacts would be less than significant.

Operation and Maintenance

During Project O&M, water would be used for panel washing and other uses. Bottled water would be procured by O&M staff and stored on-site for consumption. Once the Project facilities have been constructed, the annual operational water consumption is expected to be approximately 5 acre-feet per year. Approximately 1 acre-foot per year is needed for each of the five facilities which is equivalent to approximately 9 gpm, on average.[4]

As described above, WWD has confirmed it can supply up to 5 acre-feet per year per 160 acres annually for solar development operations (WWD 2017). Based on the size of the Project, WWD therefore could provide up to 40 acre-feet per year during O&M under M&I water service. As previously discussed in Section 3.11, *Hydrology and Water Quality*, WWD M&I water deliveries would constitute an available and reliable source to meet the operational water supply of 5 acre-feet per year for the Project, as anticipated Project annual water demand of 5 acre-feet per year represents a small fraction of WWD's total water use.

As discussed under Impact 3.20-1, an alternative to WWD delivery for operational water demands would require installation of a permanent pipeline from the North Star well to the Project site. As described above, historical groundwater data, aquifer testing results, and prior use of the North Star well during construction of the North Star project indicate that the North Star

[3] During construction of the North Star Solar Project, the North Star well was pumped at rates of up to 125 gpm during construction; the observed drawdown was consistent with the predicted drawdown based on aquifer properties estimated from pumping tests conducted prior to construction, and when pumping of the well stopped, groundwater levels recovered to static levels in the aquifer prior to pumping (Appendix J2).

[4] Assumes a constant pumping rate 12 hours per day, 5 days per week, 4.3 weeks per month.

well would be a reliable source of water for Project O&M, if needed as an alternative to water from WWD.

Therefore, the Project would have sufficient water supplies available to serve Project O&M, and impacts would be less than significant.

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c) Whether the Project would result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments. (*No Impact*)

The Project would not be served by a wastewater treatment provider because there would be no connection to a sewer system. Instead, either portable restrooms would be provided or a septic system would be installed for use for the duration of the Project depending on final design of the O&M building, if constructed. Therefore, no impact would occur.

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d) Whether the Project would generate solid waste in excess of State or local standards or in excess of the capacity of local infrastructure.

Impact 3.20-3: The Project would not generate solid waste in excess of State or local standards or in excess of the capacity of local infrastructure. (*Less than Significant Impact*)

Construction and Decommission

As described in Chapter 2*, Description of Project and Alternatives*, the majority of waste generated during construction activities would be non-hazardous and consist primarily of cardboard, wood pallets, copper wire, scrap metal, common trash, and wood wire spools. Construction waste materials such as metal and wood would be separated from the waste stream and recycled whenever feasible. Non-recyclable construction waste would be placed into commercial trash dumpsters located onsite. Dumpsters would be collected as needed by a commercial service and delivered to a landfill, such as the American Avenue Landfill, described in more detail below. Construction is expected to take place over up to 14 months amounting to approximately 1,200 cubic yards of solid waste expected to be generated over the total construction period. It is conservatively assumed that Project construction would require disposal of approximately 20 cubic yards of solid waste per week at a Class III landfill, and that this volume could be disposed of on one day per week.

The American Avenue Landfill is permitted to receive 2,200 tons of waste per day and has a remaining capacity of approximately 29,358,535 cubic yards (CalRecycle 2018a). CalRecycle estimates that construction debris can weigh between 400 and 2,400 lbs per cubic yard, depending on its contents (CalRecycle 2004). Although Project construction debris would not consist primarily of asphalt or concrete because construction would not include the demolition of these materials, this analysis uses the higher weight estimate as a conservative assumption. The weight of 20 cubic yards at 2,400 lbs per cubic yard would be approximately 24 tons. Even if this amount

was delivered to the American Avenue Landfill in one day, the landfill would have an average of 2,176 tons remaining of its daily permitted capacity. In addition, the total construction waste generated by the Project would account for approximately 0.004 percent of the American Avenue Landfill's remaining capacity. Therefore, landfill waste generated by the Project would not exceed its permitted daily tonnage or deplete substantial long-term capacity.

The Project also would be required to comply with the CalGreen Code which requires 65 percent construction waste diversion (CBSC 2016), and the Fresno County Construction and Demolition Debris Recycling Program, which would require the Applicant to prepare and implement a Waste Management Plan, and generate a waste log during construction and demolition (Fresno County 2017b).

The waste generated during decommissioning and site reclamation would be primarily non-hazardous and recycled whenever feasible. Damaged panels would be disposed of in compliance with applicable requirements related to the disposal of hazardous materials as described in Section 3.10, *Hazards and Hazardous Materials*. Recyclable materials, including PV panels, would be removed from the waste stream and recycled prior to disposal of solid waste in an approved landfill. Non-recyclable waste would be disposed of in a landfill, as described above.

Decommissioning of the Solar Facility could occur after the American Avenue Landfill has reached its permitted capacity in 2031 (CalRecycle 2018a). If the Project was decommissioned after the closure of the American Avenue Landfill, waste would be hauled to the nearest landfill facility. Currently, the nearest landfill other than American Avenue is the Billy Wright Disposal Site, located in Los Banos in Merced County, approximately 36.3 miles from the Project site. Based on the anticipated landfill capacity described in Section 3.20.1.1, *Environmental Setting*, sufficient capacity would be available to handle disposal of non-recyclable waste generated by the Project. The Billy Wright Disposal Site is expected to reach its permitted capacity in 2054, which is close to the end of the Project's expected 30-year span of commercial operation, as operation is expected to commence in 2020.

However, in order to comply with the California Integrated Waste Management Act, Fresno County will continue to be required to demonstrate on a 5-year reporting cycle that it has at least 15 years of remaining landfill capacity available within the County, and it is therefore anticipated that during decommissioning, expanded capacity will be available at American Avenue Landfill, the Billy Wright Disposal Site, or another location that will be provided within the County with sufficient capacity to accommodate the Project's solid waste. Impacts under this criterion would be less than significant.

Operation and Maintenance

During O&M activities, the Project would generate a small amount of waste associated with maintenance activities, such as broken or rusted metal, defective or malfunctioning equipment, electrical materials, empty containers, other miscellaneous solid waste, and typical refuse from the O&M staff. Up to 1 cubic yard of waste per week would be accumulated in an onsite dumpster that would be collected weekly by a commercial waste management service. As described above, the American Avenue Landfill contains sufficient capacity to serve the Project

during O&M through August 2031. If the Project is operational after the closure of the American Avenue Landfill, waste would be hauled to the nearest landfill facility. Additionally, O&M activities would produce negligible volumes of solid wastes that would be disposed of in accordance with all applicable requirements. Therefore, the impact would be less than significant.

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e) Whether the Project would negatively impact the provision of solid waste services or the attainment of solid waste reduction goals. (*No Impact*)

As described under Impact 3.20-3, above, during initial demolition and construction, the Project would be required to comply with the CalGreen Code and the Fresno County C&D Debris Recycling Program, which is intended to assist the County in compliance with the solid waste reduction goals of AB 939. Project operation would generate a negligible amount of solid waste and an onsite dumpster that would be collected weekly by a commercial waste management service. Therefore, the Project would not negatively impact the provision of solid waste services or the attainment of solid waste reduction goals and no impact would occur.

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f) Whether the Project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste. (*No Impact*)

As described under Impact 3.20-3, above, during initial demolition and construction, the Project would be required to comply with the CalGreen Code, and the Fresno County Construction and Demolition Debris Recycling Program which is intended to assist the County in compliance with the solid waste reduction goals. During O&M and decommissioning, Project waste would be disposed of consistent with applicable federal, state, and local recycling, reduction, and waste requirements and policies. The American Avenue Landfill, the Billy Wright landfills, or new facilities developed in accordance with the County's 5-year review of remaining landfill capacity, would have sufficient capacity to accept anticipated Project needs. Therefore, the Project would not result in impacts related to conflicts with federal, state, and local management and reduction statutes and regulations related to solid waste.

Mitigation: None required.

3.20.3.3 Direct and Indirect Effects of Alternatives

Increased Habitat Reduced Acreage Alternative

Under the Increased Habitat/Reduced Acreage Alternative, Little Bear 6 would not be constructed, reducing the Project impact acreage by approximately 161 acres. Compared to the Project, the Increased Habitat/Reduced Acreage Alternative would result in less surface disturbance, reduced construction and decommissioning activities, and reduced demand for water. Similar to the Project, the Increased Habitat/Reduced Acreage Alternative would have no impact in regards to wastewater treatment capacity, the provision of solid waste services, and conflicts

with solid waste reduction statutes and regulations. The Increased Habitat/Reduced Acreage Alternative would require similar water, wastewater, stormwater, electricity, and telecommunications facilities as the Projects and would therefore also similar but slightly reduced impacts related to the construction of those facilities. The Increased Habitat/Reduced Acreage Alternative would require less water for construction, O&M, and decommissioning activities, and similar to the Project, would also have similar but slightly reduced impacts related to water supply. The Increased Habitat/Reduced Acreage Alternative would also entail reduced construction and decommissioning activities compared to the Project and would therefore have a similar but slightly reduced impact on the capacity of solid waste infrastructure, similar to the Project.

No Project Alternative

If the No Project Alternative is implemented, the proposed demolition of structures would not occur; neither the solar facilities nor the Little Bear gen-tie line would be constructed, operated, or maintained; and the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions relating to water supply, solid waste management, wastewater or storm water, the No Project Alternative would cause no impact to Utilities and Service Systems.

3.20.4 Cumulative Analysis

The Project would have no impact with respect to wastewater treatment requirements, the provision of solid waste services or the attainment of solid waste reduction goals, or compliance with reduction statutes and regulations related to solid waste. Therefore, the Project would not cause or contribute to significant cumulative impacts in these areas. The cumulative analysis provided below considers the incremental impacts related to the construction of utility facilities, water consumption, and landfill capacity caused by the Project from the start of construction through the end of decommissioning, in combination with other past, present, and reasonably foreseeable future projects.

The Project would result in less than significant impacts relating to the construction of new water, wastewater, stormwater, electrical, and telecommunications facilities. The geographic scope of potential cumulative impacts related to this topic would include the service areas of the utility and service providers that would serve the Project site.

3.20.4.1 Water Service

The geographic scope of potential cumulative impacts related to water entitlements and resources would be the area underlain by the Westside Subbasin of the San Joaquin Valley Groundwater Basin if groundwater is used, or areas served by WWD if water is purchased from WWD. The Westside Subbasin boundary generally overlaps the WWD service area boundary and falls under the jurisdiction of WWD. Past, present, and reasonably foreseeable future projects within the Westside Subbasin (which corresponds with the WWD) include the North Star Solar (2), Citizen

Solar B (3), RE Tranquillity #1 - #8 (4-11), Silverado Power (12), RE Adams East (13), Three Rocks Solar (14), Giffen Solar Park (16), Aspiration Solar G (17), and Scarlet Solar (19) power projects, as shown in Figure 3.1-1, *Potentially Cumulative Projects within 15 Miles of the Little Bear Solar Site*.

As is the case for the Project's construction-related water consumption, cumulative demand would be short-term and would be met using groundwater supplies, which are understood to recover from short-term periods of heavier-than-average withdrawal, or would be met using WWD-provided water, which the district manages for long-term supply reliability (Appendices J2 and J3). Therefore, the cumulative construction-related water demand is not anticipated to result in the need for new or expanded water entitlements. Operational water consumption would be substantially lower for each of the projects in the cumulative scenario, similar to that of the Project, and similarly would not result in the need for such entitlements. In addition, the Fresno County Solar Guidelines requires projects to identify the source of water that will be used and to provide data on water deliveries and/or production capacities of wells. The Project's incremental impacts, when combined with the incremental impacts of other projects in the cumulative scenario, would not result in a significant adverse impact related to the availability of existing water supplies.

3.20.4.2 Stormwater

The geographic scope of potential cumulative impacts related to stormwater would be the areas of Fresno County not included in the Fresno Metropolitan Flood Control District that are downstream of the Project site (Fresno Metropolitan Flood Control District 2018). Past, present, and reasonably foreseeable future projects within this area include the CalRenew-1 Project (1), North Star Solar Project (2), Citizen Solar B Project (3), Silverado Power Project (12), Eslinger Biodiesel Project (15), and the Gestamp Solar Project (18) The Project could construct stormwater detention basins that would be sized per County standards and would serve to retain stormwater runoff. Discharge to the downstream stormwater conveyance system may also be a possibility if the downstream receiving features meet County criteria for existing drainage facilities. The Project would increase the peak storm runoff volumes from the Project site by approximately 1.7 percent due to the addition of new facilities and impervious surfaces. Therefore, the Project's incremental impacts, when combined with the similar incremental impacts of other projects in the cumulative scenario, would not result in a significant adverse impact related to the construction of stormwater facilities.

3.20.4.3 Electrical Service

The geographic scope of potential cumulative impacts related to electrical service would be PG&E's electrical service territory, which extends far beyond Fresno County (PG&E 2014). Within this area, the Project would construct new and expanded electric power facilities, which could cause significant environmental effects. All of the projects identified in Section 3.1.3, *Cumulative Effects Approach*, and shown in Figure 3.1-1, Potentially Cumulative Projects within 15 Miles of the Little Bear Solar Site, also are within this service area and are assumed to have resulted in or will result in the construction of new or expanded electric power facilities except for the Eslinger Biodiesel project (15), which would be a solid waste processing facility for

biodiesel production. Other PG&E electrical infrastructure construction is governed by the California Public Utilities Commission (CPUC). See, for example, the initial study/mitigated negative declarations (IS/MNDs) prepared by the CPUC for PG&E's Shepherd Substation Project, which would add facilities to the existing power grid and accommodate future development and growth (CPUC 2018), and Sanger Substation Expansion Project, which would expand electric facilities to increase the reliability of electric service (CPUC 2017b). Both of these projects would be located in unincorporated Fresno County, California.

As described in Section 2.3.2, *Surrounding Uses*, the second circuit along the North Star Solar Project gen-tie line has not yet been strung, but was reviewed as part of the scope for the North Star Project. The stringing of this second circuit could overlap with construction of the Project's gen-tie lines and other related electrical infrastructure. The impacts of cumulative construction, operation, and maintenance of the North Star Solar Project gen-tie line and this Project's electrical system facilities and infrastructure are analyzed on a resource-by-resource basis in this Chapter 3, *Environmental Analysis*. No significant adverse cumulative environmental impacts have been identified. To the contrary, the cumulative renewable energy benefits that would result from the combination of the North Star Solar Project, this Project's, and other solar projects in the cumulative scenario would have a beneficial impact relative to energy conservation and GHG emissions reduction associated with the continued migration toward less-carbon-intensive energy sources. Therefore, the Project's incremental impacts, when combined with the incremental impacts of past, present, and reasonably foreseeable future projects in the cumulative scenario would not result in a significant adverse impact related to the construction of new or expanded electric power facilities.

3.20.4.4 Telecommunications Service

The geographic scope of potential cumulative impacts related to telecommunications service would be AT&T and Comcast Xfinity's telecommunications service territories (CPUC 2014; 2017a; Cable Coverage and Availability Maps 2018). All of the projects identified in Section 3.1.3, *Cumulative Effects Approach*, are presumed to be within this service area. However, the Project's only newly-proposed telecommunications facility is a communications tower that would service only the Project. Therefore, the impacts of constructing, operating, and maintaining this new telecommunications infrastructure would not combine with the incremental impacts of other projects' new telecommunications infrastructure. No significant cumulative impact would result.

3.20.4.5 Landfill Capacity

The geographic scope of potential cumulative impacts to landfill capacity would be the areas served by the American Avenue and Billy Wright landfills. The Project would generate solid waste in varying amounts, causing less than significant impacts, during the construction, O&M, and decommissioning; thus, the Project could contribute to cumulative effects related to the generation of solid waste. As described in Section 3.1.3, *Cumulative Effects Approach*, Table 3.1-1, Little Bear Solar Generating Facility Project Cumulative Impact Analysis Projects List, most of the projects in the cumulative scenario are solar PV projects similar to the Project, and therefore would be expected to generate similar amounts and types of solid waste in proportion to their size. Even if

cumulative conditions did represent a significant cumulative effect, however, the Project's incremental contribution would not be cumulatively considerable in light of the negligible amount of waste anticipated to result during the Project's limited construction period.

During O&M, the cumulative volume of solid waste disposal would be substantially lower compared with construction. During decommissioning and reclamation, the American Avenue Landfill may not be available and the Project and other projects requiring solid waste disposal may need to use the Billy Wright Landfill or an alternate location. However, as described above, to comply with the Integrated Waste Management Act, Fresno County is required to demonstrate that it has at least 15 years of remaining capacity in landfills throughout the County, or to create and implement a plan to site additional capacity to achieve and continue to meet the 15-year capacity requirement.

It is anticipated that the County therefore would have at least 15 years of remaining capacity at the time of decommissioning, in compliance with this Act, and that decommissioning waste could be disposed of within Fresno County within the limits of available permitted capacity. The same state and local requirements for waste diversion and recycling that would apply to the Project also would apply to other projects in the cumulative scenario and the total volume of waste that would be landfilled under the cumulative scenario is not expected to exceed the permitted capacity of available landfills. Therefore, the Project's incremental contribution to capacity concerns would not be cumulatively considerable.

3.20.5 References

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CHAPTER 4
Comparison of Alternatives

This section compares the environmental advantages and disadvantages of the Project and alternatives evaluated in detail in this Draft EIR. This comparison is based on the analysis of environmental impacts of the Project provided in Sections 3.2 through 3.20 and the descriptions of the Project and alternatives provided in Chapter 2, *Description of Project and Alternatives*. This comparison is designed to satisfy the requirements of CEQA Guidelines §15126.6(d), which states:

> *The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed.*

4.1 Comparison Methodology

The following methodology was used to compare alternatives in this Draft EIR:

Step 1: Identification of Alternatives. The alternatives development and screening process described in Chapter 3 was used to identify potential alternatives to the Project. Among the many potential alternatives initially considered, the Increased Habitat/Reduced Acreage Alternative and the No Project Alternative were carried forward for detailed environmental review. No other reasonable feasible alternatives meeting most of the basic Project Objectives were identified that would substantially reduce or eliminate the anticipated significant environmental effects of the Project.

Step 2: Determination of Environmental Impacts. Potential environmental impacts of the Project and each of the alternatives were identified and analyzed in detail in Chapter 3, including potential direct, indirect, and cumulative impacts related to construction, operation and maintenance, and decommissioning of the Project.

Step 3: Comparison of Project with Alternatives. Environmental impacts of the Project were compared to those of the Increased Habitat/Reduced Acreage Alternative, and the No Project Alternative to make a preliminary determination of the Environmentally Superior Alternative.

4.2 Comparison of Alternatives and Identification of the Environmentally Superior Alternative

One alternative in addition to the No Project Alternative was identified for evaluation in this Draft EIR: the Increased Habitat/Reduced Acreage Alternative. The potential environmental impacts of this and the No Project Alternative are analyzed in comparison to the Project in each of the resource areas in Chapter 3. As analyzed and documented in Chapter 3, neither the Project, nor the Increased Habitat/Reduced Acreage Alternative, nor the No Project Alternative would cause a significant and unavoidable impact to any environmental resource. All impacts of the Project and the Increased Habitat/Reduced Acreage Alternative would be less than significant or less than significant with mitigation incorporated. The No Project Alternative would cause none of the impacts that could result from the Project.

The results of the comparative analysis of each of the resource areas analyzed in Chapter 3 are set forth in **Table 4-1**, which compares the conclusions of the impact analyses for the Increased Habitat/Reduced Acreage Alternative against the conclusions for the Project. The comparative analysis summarized in Table 4-1 shows that there is one impact area, Hydrology and Water Quality, for which the Project would be the Least Preferred alternative and the Increased Habitat/ Reduced Acreage Alternative would be the Environmentally Preferred Alternative. Under the Increased Habitat/Reduced Acreage Alternative across all other impacted resource areas except Energy Conservation and Greenhouse Gas (GHG) emissions, impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. For energy conservation and GHG the Project would be Environmentally Preferred due to its ability to offset such usages.

CEQA Guidelines §15126.6(e)(2) requires an EIR to identify an environmentally superior alternative. If the environmentally superior alternative is the No Project Alternative, the EIR also must identify an environmentally superior alternative from among the other alternatives. In general, the environmentally superior alternative is defined as that alternative with the least adverse impacts to the project area and its surrounding environment. CEQA Guidelines Section 15126.6(a) places emphasis on alternatives that "avoid or substantially lessen the significant effects" of a project; distinctions between impacts that are less than significant or are mitigated to less than significant are typically not considered when selecting an environmentally superior alternative.

The No Project Alternative would avoid all impacts of the Project and would not create any new significant impacts of its own. However, as noted in Section 3.9, *Greenhouse Gas Emissions*, the No Project Alternative would not result in the GHG emissions reductions benefits that would result from the Project. The No Project Alternative also would fail to meet any of the basic Project Objectives, including assisting California utilities in meeting their obligations under California's RPS Program, as discussed in Section 3.7, *Energy Conservation*.

TABLE 4-1
SUMMARY OF IMPACTS OF THE PROJECT AND INCREASED HABITAT/REDUCED ACREAGE ALTERNATIVE

Resource Area	Project	Increased Habitat/Reduced Acreage Alternative
Aesthetics	Impacts determined to be Less than Significant. **No Preference**	Impacts would be similar but reduced compared to the Project; this would generally not affect significance determinations, which would remain the same as for the Project. **No Preference**
Agriculture and Forestry Resources	Impacts determined to be Less than Significant. **No Preference**	Impacts would be the same as the Project. **No Preference**
Air Quality	Impacts determined to be Less than Significant with Mitigation Incorporated. **No Preference**	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **No Preference**
Biological Resources	Impacts determined to be Less than Significant with Mitigation Incorporated. **No Preference**	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **No Preference**
Cultural Resources	Impacts determined to be Less than Significant with Mitigation Incorporated. **No Preference**	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **No Preference**
Energy Conservation	Impacts determined to be Less than Significant; beneficial contribution resulting from generation of renewable energy. **Environmentally Preferred**	Impacts (including beneficial contribution to energy supply) would be similar to the Project but reduced. **No Preference**
Geology, Soils, and Paleontological Resources	Impacts determined to be Less than Significant with Mitigation Incorporated. **No Preference**	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **No Preference**
Greenhouse Gas Emissions	Impacts determined to be Less than Significant; overall beneficial impact from net GHG reduction. **Environmentally Preferred**	Impacts would be the same as the Project, overall beneficial impact from net GHG reduction would be reduced in comparison to the Project. **No Preference**
Hazards and Hazardous Materials	Impacts determined to be Less than Significant with Mitigation Incorporated. **No Preference**	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **No Preference**
Hydrology and Water Quality	Impacts determined to be Less than Significant. **No Preference**	Impacts to groundwater supplies would be reduced compared to the Project. Other impacts would be similar but reduced compared to the Project this would not affect significance determinations, which would remain the same as for the Project. **Environmentally Preferred**
Land Use and Planning	No Impacts. **No Preference**	No Impacts. **No Preference**

TABLE 4-1 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROJECT AND INCREASED HABITAT/REDUCED ACREAGE ALTERNATIVE

Resource Area	Project	Increased Habitat/Reduced Acreage Alternative
Mineral Resources	No Impacts. **No Preference**	No Impacts. **No Preference**
Noise	Impacts determined to be Less than Significant with Mitigation Incorporated. **No Preference**	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **No Preference**
Population and Housing	Impacts determined to be Less than Significant. **No Preference**	Impacts would be the same as the Project. **No Preference**
Public Services	No Impacts. **No Preference**	No Impacts. **No Preference**
Recreation	No Impacts. **No Preference**	No Impacts. **No Preference**
Transportation and Traffic	Impacts determined to be Less than Significant with Mitigation Incorporated. **No Preference**	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **No Preference**
Tribal Cultural Resources	Impacts determined to be Less than Significant with Mitigation Incorporated. **No Preference**	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **No Preference**
Utilities and Service Systems	Impacts determined to be Less than Significant. **No Preference**	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **No Preference**

The CEQA Guidelines define the environmentally superior alternative as that alternative with the least adverse impacts to the project area and its surrounding environment; therefore, the No Project Alternative is considered the environmentally superior alternative for CEQA purposes because it would not create any of the localized impacts of the Project, even though it would have a less beneficial impact than that of the Project on energy conservation and GHG emissions. The No Project Alternative would fail to meet the basic objectives of the Project, including, but not limited to, the generation of renewable solar electricity from proven technology, construction of a project that would assist the State in achieving RPS and SB 350 GHG reduction goals, and benefitting local communities through the creation of jobs, demand for local goods and services and increased sales and use tax revenue.

Since the environmentally superior alternative is the No Project Alternative, the EIR also must identify an environmentally superior alternative from among the other alternatives. The significant and unavoidable impacts to aesthetics cannot be reduced to a less-than-significant level under the Increased Habitat/Reduced Acreage Alternative. Therefore, the comparison of

alternatives for the purpose of determining the environmentally superior alternative is based on a comparison of other types of impacts.

Determining an environmentally superior alternative can be difficult because of the many factors that must be balanced. For example, the Increased Habitat/Reduced Acreage Alternative could be preferred because, relative to the Project, it would require less groundwater and so would have comparatively reduced groundwater supply impacts, and because incrementally reduced impacts would result from the 161 fewer acres of disturbance even though the impact conclusions would be the same as the Project. By contrast, the Project could be preferred because it would generate more renewable energy and result in a net GHG emissions reduction benefit relative to the Increased Habitat/Reduced Acreage Alternative. All other impacts of the Project and alternatives would be similar for all environmental resources. The County preliminarily has identified the Project as the environmentally superior alternative because the beneficial effects associated with the greater amount of renewable energy it would produce would be experienced long-term. Nonetheless, County decision-makers may weigh the relative benefits of the alternatives differently and with additional information received in or developed during the project approval process reasonably could reach a different decision.

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CHAPTER 5
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5.3 Recipients of the Draft EIR

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Sterner, Dave

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Federal Agencies

United States Army Corps of Engineers

United States Department of Agriculture, Natural Resources Conservation Service

United States Department of the Interior, Fish and Wildlife Services, Endangered Species Division

United States Environmental Protection Agency Region 9

United States Fish and Wildlife Service, San Joaquin Valley Division

State Agencies

California Department of Conservation

California Department of Fish and Wildlife

California Department of Forestry and Fire Protection Fresno-Kings Unit

California Department of Transportation (Caltrans District 6)

California Energy Commission

California Environmental Protection Agency Department of Toxic Substances Control

California Highway Patrol

California Native American Heritage Commission

California Public Utilities Commission

California Reclamation Board

California Regional Water Quality Control Board, Region 5

California State Clearinghouse

California State Office of Historic Preservation, Department of Parks and Recreation

Local Agencies

Central Valley Flood Protection Board

City of Kerman Planning Department

City of Mendota, Planning and Community Development

City of San Joaquin

Consolidated Mosquito Abatement District

Fresno County Fire Protection District

Fresno Council of Governments

Fresno Metropolitan Flood Control District

Golden Plains Unified School District

James Irrigation District

Kings River Conservation District

Pacific Gas & Electric, Land Services Department

San Joaquin Valley Air Pollution Control District

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