6 BIOLOGICAL RESOURCES

INTRODUCTION

This chapter describes the regulatory and environmental setting for biological resources known or with potential to occur on the project site and/or solar development area and identifies and analyzes impacts related to these resources resulting from implementation of the proposed project. In addition, this analysis addresses the consistency of the project with the goals and objectives of the South Sacramento Habitat Conservation Plan (SSHCP). As discussed in detail under "Regulatory Setting" below, the majority of the solar development area (1,252 acres) is located outside of the Urban Development Area (UDA) and solar development is not a covered activity under the SSHCP. Therefore, the project would not be subject to receive take coverage under the SSHCP and is not required to implement or comply with the provisions of the SSHCP. However, the conservation strategy and specific measures of the SSHCP were taken into consideration during the analysis if impacts on biological resources in this EIR.

The description of biological resources information and analysis presented in this section is based on the project-specific Biological Technical Report, Aquatic Resources Delineation Report, Arborist Report, and South Sacramento Habitat Conservation Plan Consistency Analysis prepared by Dudek (Appendix BR-1), from which information was verified and further evaluated by AECOM to support the independent analysis presented in this document; in some cases, acreages were re-calculated as a result.

ENVIRONMENTAL SETTING

The project site comprises numerous parcels that total approximately 2,704 acres in land area within the Consumnes community of unincorporated Sacramento County. Of the approximately 2,704-acre project site, approximately 1,412 acres of this area would be developed to support the project and is collectively referred to as the "solar development area." The remaining approximately 1,292 acres are referred to as "adjacent other lands" and would not be developed as part of the project. The project site is located on Barton Ranch in eastern Sacramento County approximately 2.5 miles south of White Rock Road in the Cosumnes rural residential community (refer to Plate BR-1 and Plate BR-2 in Chapter 2, "Project Description"). The project site is located within the southeastern Sacramento Valley vernal pool region and overlaps the easternmost portion of the Mather Core Recovery Area (USFWS 2005).

In the biological resources appendix (Appendix BR-1), the approximately 2,704-acre project site is referred to as the study area (study area or project study area [PSA]), and was evaluated for all biological resources, including additional species-specific buffers, as appropriate (see Appendix BR-1).

The project site has historically been used for sheep and cattle grazing and for apiary facilities. Other land uses vicinity of the project site include grazing, aggregate mining, Aerojet's currently vacant industrial lands, and the Prairie City State Vehicle Recreation Area (SVRA).

The project site is characterized by relatively flat topography with scattered rolling hills; elevations generally range from 150 to 350 feet above sea level. The majority of the project site is open grassland that has historically been used for grazing. Seasonal wetlands, vernal pools, and seasonally inundated wetlands and non-wetland waters (e.g., ephemeral drainages) are scattered throughout the project site. Two perennial streams, Carson Creek and Coyote Creek, flow northeast to southwest across the project site and eventually merge outside the project site and flow into Deer Creek, a tributary to the Cosumnes River.

Soils encountered during field surveys conducted within the project site were identified as primarily loamy soils, some with claypan. Of the total of 22 soil units mapped within the project site according to the Soil Survey, five are considered partially hydric. A wetland delineation confirmed hydric soils in a number of wetland features present on-site. Additional discussion of the project site's climate, soils, and hydrology are provided in Appendix BR-1 and in Chapter 10, "Hydrology and Water Quality."

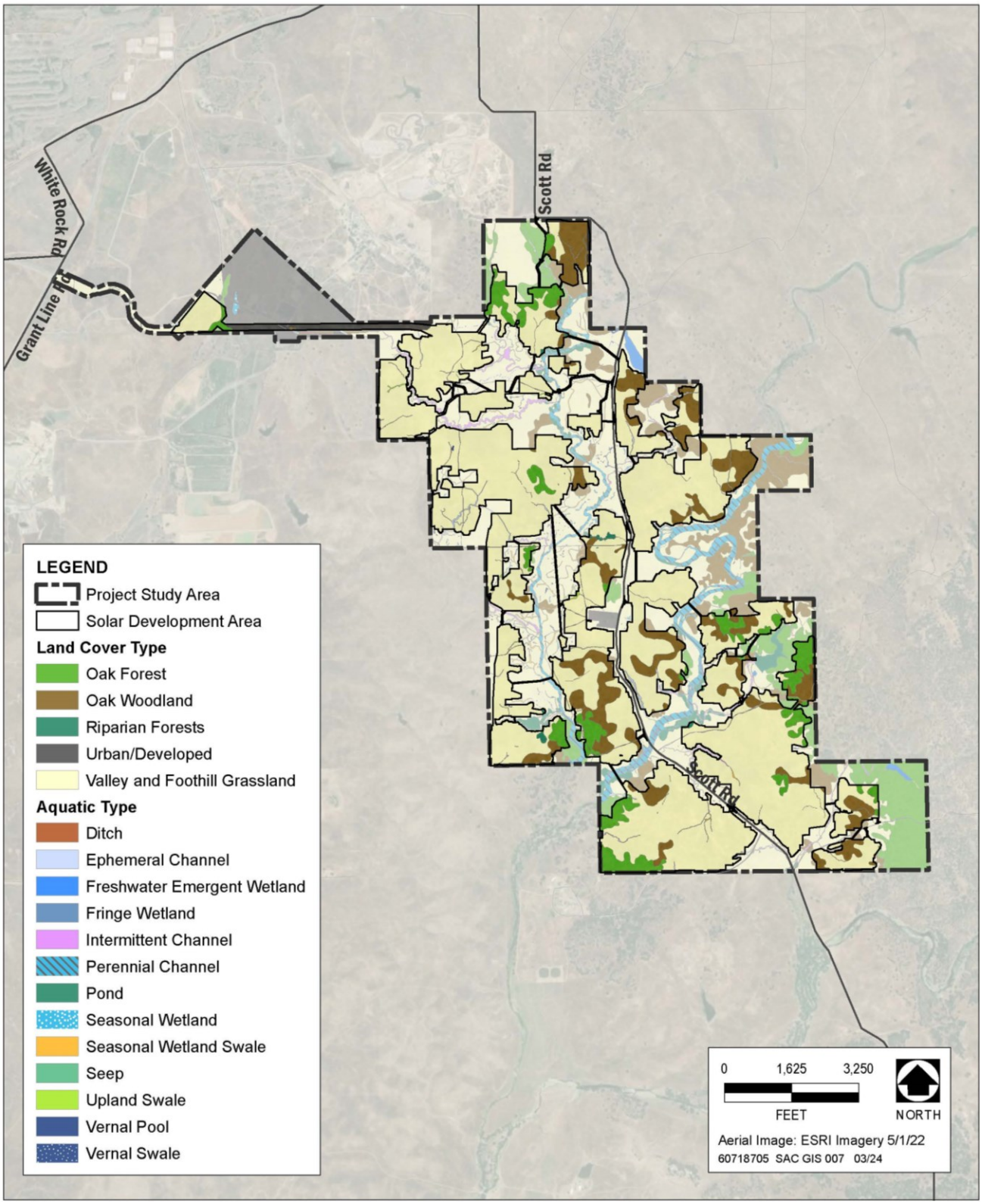
Vegetation and Land Cover

Terrestrial vegetation communities and land cover types were mapped within the project site in 2021 according to the Holland classification system (Holland 1986), after a review of the SSHCP Modeled Land Cover dataset for the area (Sacramento County 2018; USDA 2018). Following field surveys, a desktop evaluation was conducted, and vegetation and/or land cover classifications were additionally assigned based on the California Native Plant Society (CNPS) Manual of California Vegetation (CNPS 2023b). Vegetation and land cover types present in the project site include blue oak forest, blue oak woodland, riparian woodland/forest, urban/developed, and valley and foothill grassland. Aquatic cover types were identified based on an aquatic resources delineation completed by Dudek (see "Aquatic Features" below) (Appendix BR-1). Table BR-1 and Plate BR-1 identify vegetation communities, land cover types, and aquatic resources present within the solar development area and project site.

Aquatic Features

Dudek conducted an aquatic resources delineation within the project site between April and August 2021 (Appendix BR-1). Delineation surveys followed the methodology described in United States Army Corps of Engineers' (USACE's) Wetlands Delineation Manual (USACE 1987) and the Regional Supplement for the Arid West Region (USACE 2008a). Non-wetland waters of the United States (U.S.) and/or State were delineated based on the presence of an ordinary high-water mark (OHWM), as determined using the methodology in the OHWM Field Guide for the Arid West Region (USACE 2008b), and/or the top of bank. Additional detail on delineation methods, survey conditions, and field datasheets are provided in Appendix BR-1. Table BR-1 and Plate BR-1 identify all aquatic resources delineated within the solar development area and project site. Potential State and federal jurisdictional wetlands and other waters present in the solar development area are further identified under "Waters of the United States and Waters of the State," below.

Plate BR-1: Vegetation and Land Cover Types within the Solar Development Area and Project Site



Sources: Appendix BR-1, Dudek 2024

Table BR-1: Vegetation and Land Cover Types in the Solar Development Area and Project Site

Vegetation Community/Land Cover Type	Vegetation/Cover Type Description	SSHCP Land Cover Type(s)[1]	Solar Development Area (Acres)	Adjacent Lands within Project Site (Acres)	Project Site (Total Acres)
Upland Cover Types[2]					
Blue oak woodland (forest)	Present throughout the site, particularly in the south and east. Characterized by more than 10 percent canopy cover, primarily by blue oak *(Quercus douglasii*). Generally has a sparse shrub layer of scattered poison oak (*Toxicodendron diversilobum*) and coyote brush (*Baccharis pilularis*), and a well-developed valley and foothill grassland layer, interspersed with vernal pools and other wetland features. Other tree species present include foothill pine (*Pinus sabiniana*), interior live oak (*Quercus wislizenii*), valley oak (*Quercus lobata*), and California buckeye (*Aesculus californica*). Most closely resembles CNPS Manual of California Vegetation type *Quercus douglasii* forest and woodland alliance.	Blue oak woodland; mine tailing riparian woodland	101.00	161.83	262.83
Blue oak woodland	A transitional community between valley and foothill grasslands and blue oak woodland/forests. Characterized by a sparse (less than 10 percent) tree canopy of blue oaks ranging from scattered individuals and small clusters of trees, to small areas stands, like a savanna. Little to no shrub layer, but has a well-developed valley and foothill grassland layer. Most closely resembles CNPS Manual of California Vegetation type *Quercus douglasii* forest and woodland alliance.	Blue oak savanna	186.28	157.72	344.00
Riparian woodland/forest	Primarily concentrated along perennial, intermittent, and/or ephemeral channels; interspersed with blue oak woodland and forest throughout the site. Consists of an open-to-dense shrubby thicket dominated by a mixture of sandbar willow, arroyo willow (*S. lasiolepis*), red willow (*S. laevigata*), and immature stands of mixed various other riparian woodland tree species. Includes areas with a sub-canopy and understory of native and non-native species, including wild rose (*Rosa californica*), wild grape (*Vitis californica*), perennial pepperweed (*Lepidium latifolium*), Himalayan blackberry (*Rubus discolor*), curly dock (*Rumex crispus*), and various non-native grasses. Most closely resembles CNPS Manual of California Vegetation type *Quercus douglasii* forest and woodland alliance.	Mixed riparian scrub	4.19	28.36	32.55

Vegetation Community/Land Cover Type	Vegetation/Cover Type Description	SSHCP Land Cover Type(s)[1]	Solar Development Area (Acres)	Adjacent Lands within Project Site (Acres)	Project Site (Total Acres)
Valley and foothill grassland	Dominant vegetation community throughout the site. Annual herbaceous vegetation community characterized mostly by naturalized annual grasses, naturalized herbaceous annual forbs, and patches with relatively high proportions of native grasses and forbs. Composition varies with geographic and land use factors, such as rainfall, temperature, elevation, slope, aspect, grazing and other herbivory, and fire frequency and duration. Associated with vernal pools, and occurs as an understory within blue oak woodlands and forests, and riparian areas. Co-dominant, in places, with perennial grasses. For example, purple needlegrass (*Stipa pulchra*) can be found as the dominant grass (i.e., comprising greater than 20 percent cover) in small patches along ridgetops of low-lying hills within the site. Most closely resembles CNPS Manual of California Vegetation type *Avena* spp.- *Bromus* spp. herbaceous semi-natural alliance.	Valley grassland	1,088.42	676.31	1,764.73
Urban/Developed	Concentrated in the northwestern portion of the site, and near areas adjacent to Scott Road. Includes areas that have been completely altered by human activities and contain little to no vegetation, such as areas of low- and high-density residences and buildings, paved and gravel roadways, trails, gravel lots, recreational areas (i.e., Prairie City SVRA), and other constructed environments.	High density development; low density development; major roads; mine tailings; Recreational/ Landscaped	21.10	129.43	150.53
Aquatic Cover Types[3]					
Ditch	Present throughout the northeastern portion of the site. Either human-made or channelized natural features with intermittent hydrology intended for stormwater, agricultural, irrigation, runoff, or similar purposes. Vegetation in ditches varies from perennial rye grass, mouse barley, and prostrate knotweed (*Polygonum aviculare*), to a mix of upland and wetland vegetation along the bed and banks, to a fragmented riparian corridor comprised of large Fremont's cottonwood trees. Two ditches have potential downstream connectivity to Morrison Creek. Although inundation is visible on aerial imagery (Google Earth 2023), all ditches were dry during the field delineation. There is no continuous riparian corridor associated with these features on the site.	Stream/Creek	0.02	0.87	0.89

Vegetation Community/Land Cover Type	Vegetation/Cover Type Description	SSHCP Land Cover Type(s)[1]	Solar Development Area (Acres)	Adjacent Lands within Project Site (Acres)	Project Site (Total Acres)
Ephemeral Channel	Present throughout the site; many of which flow downstream into intermittent and perennial channels, while others connect swales and wetlands in larger complexes or are isolated. Consist of naturally occurring stream channels that contain flowing water during, and for a short duration after, precipitation events. Where vegetation was present, the ephemeral drainages contained a dominance of hydrophytic species like those described for seasonal wetlands and vernal pools. All ephemeral channels were dry at the time of the field delineation. There are no continuous riparian corridors associated with these features on the site.	Swale; Stream/Creek vernal pool invertebrate habitat	6.10	6.4	12.50
Intermittent Channel	Intermittent drainages on-site, including Little Deer Creek, are all tributary to the larger, perennial channels. Generally have flowing water during certain times of the year, when groundwater provides water for stream flow, and receive supplemental water from rainfall runoff. Somewhat similar to ephemeral channels, but characterized by deeper pools throughout. Inundation is visible on aerial imagery and standing water and/or saturation was present within low points or widenings of many of these features at the time of the field delineation.	Stream/Creek	0.38	20.07	20.45

Vegetation Community/Land Cover Type	Vegetation/Cover Type Description	SSHCP Land Cover Type(s)[1]	Solar Development Area (Acres)	Adjacent Lands within Project Site (Acres)	Project Site (Total Acres)
Perennial Channel	Carson Creek and its tributary, Coyote Creek, flow from north to south across the site. Carson Creek contained standing and/or flowing water, while Coyote Creek was mostly dry at the time of the field delineation except for standing water in deep plunge pools throughout. Open water within these features supported aquatic plants such as floating water primrose (*Ludwigia peploides;* OBL), Pacific mosquito fern (*Azolla filiculoides*; OBL), and hairy water clover (*Marsilea vestita;* OBL). Saturated areas below the OHWM supported wetland plant species like those within freshwater emergent wetlands, fringe wetlands, and seasonal wetlands. Below the top of bank, these features supported a mix of wetland and upland species, including portions of blue oak woodland, riparian woodland, and mixed riparian scrub. Approximately 2 miles south of the project site, Carson Creek converges with Deer Creek, a tributary to the Cosumnes River, a jurisdictional water with perennial flows that originates in the Sierra Nevada mountains and flows approximately 50 miles into the Central Valley, emptying into the Mokelumne River in the Sacramento-San Joaquin Delta. Portions of the Carson Creek and Coyote Creek riverbeds consist of granite slabs and outcroppings characteristic of mine tailings and riparian woodland.	Stream/Creek	0.38	69.36	69.74
Upland Swale	Consist of linear topographic depressions that lack a distinct OHWM. These features contain a mild break in slope and a slight change in vegetation type and cover but do not support a dominance of wetland vegetation. Contain upland grasses and facultative wetland grasses, similar to that for valley and foothill grassland and seasonal wetlands.	Stream/Creek vernal pool invertebrate habitat	2.07	2.93	5.00
Freshwater Emergent Wetland	Occur on-site primarily below the OHWM of Carson Creek. Characterized by erect, rooted herbaceous hydrophytes and dominated by perennial plants such as hardstem bulrush (*Schoenoplectus acutus*), pale spike rush (*Eleocharis macrostachya*), and Baltic rush (*Juncus balticus*). Three of these features (FEW-1, FEW-2, and FEW-5), located outside of Carson Creek, are shallow impoundments constructed within natural drainages, generally for the purpose of supporting livestock; one additional freshwater emergent wetland (FEW-3) is the result of seepage from an upslope pond.	Freshwater marsh	0	8	8.00

Vegetation Community/Land Cover Type	Vegetation/Cover Type Description	SSHCP Land Cover Type(s)[1]	Solar Development Area (Acres)	Adjacent Lands within Project Site (Acres)	Project Site (Total Acres)
Fringe Wetland	Occur primarily along terraces of Coyote Creek and Carson Creek, and intermittent channels, within the site. Characterized by their proximity to intermittent and perennial channels and dominated by hydrophytic plants such as pale spike rush, perennial rye grass, annual semaphore grass (*Pleuropogon californicus* var*. Californicus*), narrowleaf plantain *(Plantago lanceolata),* white-tip clover *(Trifolium variegatum),* and low spearwort *(Ranunculus pusillus*). No surface water was present during the field delineation. One of these features abuts a pond (P-01) that is an impoundment of an intermittent drainage tributary to Coyote Creek.	Freshwater marsh	0.01	2.54	2.55
Pond	Three ponds in total occur in the western, northern, and eastern portion of the site. These features are natural closed depressions that have been artificially augmented by perennial water sources, generally for the purpose of supporting livestock. Pond-01 (P-01) in the west receives input from ephemeral features during rain events, outlets into an intermittent channel tributary to Coyote Creek, and supports a sparse riparian zone comprised of Goodding's willow (*Salix gooddingii*). Pond-02 (P-02) in the north and adjacent to Carson Creek is largely unvegetated and receives input from ephemeral features during rain events. Pond-03 (P-03) in the east is a large feature that receives intermittent flows from a drainage to the north and outlets into a drainage tributary to Carson Creek. It supports sparse broadleaf cattail (*Typha latifolia*) and swamp smartweed (*Persicaria amphibia*) along the margins, and a berm along the west side supports a dense thicket of Himalayan blackberry (*Rubus armeniacus*).	Open water	0.01	9.46	9.47

Vegetation Community/Land Cover Type	Vegetation/Cover Type Description	SSHCP Land Cover Type(s)[1]	Solar Development Area (Acres)	Adjacent Lands within Project Site (Acres)	Project Site (Total Acres)
Seasonal Wetland	Occur throughout the site; most are inundated seasonally, and some are connected via swales, ephemeral channels, and/or intermittent channels. Characterized by a distinct change in vegetation type and cover from the surrounding grassland. Dominated by facultative grasses, including perennial rye grass (*Festuca perennis*) and mouse barley (*Hordeum marinum)*. Saturation and deep cow hoof punches were present in many of the seasonal wetlands during the field delineation. Two seasonal wetlands (SW-90 and SW-121) in the northwestern portion of the site appear to be remnants of historical drainages, supporting a fragmented riparian corridor comprised of Fremont's cottonwood (*Populus fremontii*) and Goodding's willow trees with an understory of sandbar willow (*Salix exigua*), poison oak (*Toxicodendron diversilobum*), and Himalayan blackberry. These features do not appear to have hydrologic connectivity to any other aquatic resources, and any natural hydrology in this area has been disrupted by development and disturbance associated with the adjacent Prairie City SVRA.	Seasonal wetland	0.16	3.94	4.10
Seasonal Wetland Swale	Present throughout the northern and eastern portions of the site, primarily in association with the Coyote Creek drainage. Consist of topographic depressions that would be expected to convey water when inundated, but where a defined bed and bank and typical fluvial indicators are lacking; delineated by a mild break in slope and change in vegetation type and cover. Dominated by facultative wetland grasses. Saturation was present in some swales at the time of the field delineation.	Swale	1.38	9.88	11.26

Vegetation Community/Land Cover Type	Vegetation/Cover Type Description	SSHCP Land Cover Type(s)[1]	Solar Development Area (Acres)	Adjacent Lands within Project Site (Acres)	Project Site (Total Acres)
Seep	Three seeps occur within the eastern portion of the site where groundwater flows to the soil surface, either from a clearly defined opening or from a saturated area where water percolates slowly through the soil. These features are dominated by herbaceous hydrophytic plants such as annual rabbits foot grass (*Polypogon monspeliensis*), salt grass (*Distichlis spicata*), and Pacific foxtail (*Alopecurus saccatus*). Seep-01 (SP-01) appears to be fed by the adjacent Carson Creek. Seep-02 (SP-02) appears to be perennial and to have been artificially augmented for the purpose of supporting livestock; it contained standing water at the time of the field delineation, contributing flows to an intermittent channel tributary to Coyote Creek. Seep-03 (SP-03) is located within an intermittent channel. SP-01 and SP-03 were saturated at the time of the field delineation.	-	0.01	0.15	0.16
Vernal Pool	Found primarily in the interior portion of the site; isolated or connected to larger vernal complexes via swales. Characterized by an impermeable layer such as a hard pan that may fill and empty several times during the rainy season. Exhibit concentric rings of distinctly different vegetation cover and species composition, the center of which was generally devoid of vegetation due to prolonged inundation and surrounded by a predominance of hydrophytic species such as Great Valley eryngo (*Eryngium castrense*), Fremont's goldfields (*Lasthenia fremontii*), short woollyheads (*Psilocarphus brevissimus*), and needleleaf navarretia (*Navarretia intertexta*), as well as facultative grasses growing along the feature margins. Cow punches and evidence of grazing were documented in many of the vernal pools on-site, and some hydrology was disrupted by property fences and associated berms.	Vernal pool	0.17	3.4	3.57
Vernal swale	Primarily occurring within the western portion of the site. Characterized as shallow, seasonal conveyance channels connecting vernal pools or seasonal wetland swales and forming complexes. The hydrophytic vegetation species composition is like those described for vernal pools.	Swale	0.04	1.98	2.02

Vegetation Community/Land Cover Type	Vegetation/Cover Type Description	SSHCP Land Cover Type(s)[1]	Solar Development Area (Acres)	Adjacent Lands within Project Site (Acres)	Project Site (Total Acres)
Subtotal (Terrestrial)			1,400.99	1,153.65	2,554.64
Subtotal (Aquatic Resources)			10.73	138.97	149.70
Total			1,411.72	1,292.62	2,704.34

Source: Appendix BR-1

Notes:

1 Cover types are based on mapping and vegetation descriptions provided in the South Sacramento Habitat Conservation Plan (SSHCP) (County of Sacramento et al. 2018) and represent a cross walk from vegetation communities/land cover types used to characterize the project site and solar development area (see Notes 2 and 3, below).

2 Upland vegetation communities and landcover types are based on the Holand classification system (Holland 1986).

3 Aquatic cover types are based on the aquatic resources delineation completed by Dudek (Appendix BR-1) and the Cowardin classification system (USFWS 2013).

CNPS = California Native Plant Society
FEW = freshwater emergent wetland
OBL = Obligate
OHWM = ordinary high-water mark
SSHCP = South Sacramento Habitat Conservation Plan
SVRA = State Vehicular Recreation Area

Native and Non-Native Trees

A tree survey was conducted by a certified arborist on various dates during the spring and summer of 2021, 2022, and 2023 (Appendix BR-1) to inventory all trees within the solar development area and project site and to identify their species, diameter (at breast height), canopy radius (i.e., protected root zone), critical root zone, and condition rating. Trees protected by the Sacramento County General Plan Policy CO-138 and CO-139 were also identified. A report detailing the tree inventory methods, data collection, results, and recommended actions is provided in Appendix BR-1. A total of 7,475 individual trees were recorded within the project site. Table BR-2 summarizes the tree inventory for the solar development area and project site.

Table BR-2: Summary of Tree Inventory within the Solar Development Area and Project Site

Tree Species	Project Site		Solar Development Area[1]	
	Number of Trees Inventoried	Number of Protected Status Trees[2]	Number of Trees Inventoried	Number of Protected Status Trees[2]
black walnut (*Juglans* sp.)	1	1	0	0
blue oak (*Quercus douglasii*)	6,834	6,391	4,554	4,259
California buckeye (*Aesculus californica*)	22	8	3	1
California sycamore (*Platanus racemose*)	6	0	0	0
Chinese pistache (*Pistacia chinensis*)	4	0	0	0
Coulter pine (*Pinus coulteri*)	14	0	0	0
Unknown elderberry (*Sambucus* sp.)	67	0	5	0
Fremont cottonwood (*Populus fremontii*)	77	23	6	5
fruit tree species (*Prunus* sp.)	3	1	3	1
interior live oak (*Quercus wislizeni*)	102	88	41	38
Unknown oak (*Quercus* sp.)	31	26	24	19
Pacific willow (*Salix lasiandra*)	1	0	0	0
silver maple (*Acer saccharinum*)	1	0	1	0
toyon (*Heteromeles arbutifolia*)	5	0	0	0
valley oak (*Quercus lobata*)	168	163	80	78
Unknown willow (*Salix* spp.)	67	44	1	0
unknown tree	72	50	69	49
Total	**7,475**	**6,795**	**4,787**	**4,450**

Source: Appendix BR-1
Notes:
DBH = diameter at breast height
1 All trees inventoried within the solar development area are proposed for removal.
2 Protected under Sacramento County General Plan, including any oak species measuring a minimum of 6 inches DBH (single tree) or 10 inches DBH (aggregate of multi-truck trees); heritage and landmark trees of any species with a DBH equal to or greater than 19 inches DBH (single tree); and trees within an aquatic resource feature or within 50 feet from an aquatic resource feature ordinary high water mark/top of bank; protected trees include trees that are of any arborist condition rating, including those that are dead.

A total of 6,795 trees protected under the Sacramento County General Plan, including some trees that are dead or in severe decline, were identified during the tree inventory within portions of the project site, 4,450 of which are within the solar development area and proposed for removal. The entirety of the project site was not surveyed for individual trees.

A total of 54.6 acres of oak tree canopy occurs within the solar development area.

Special-Status Species

Special-status species considered in this environmental impact report (EIR) include plants and animals in the following categories:

- species officially listed, proposed for listing by the State of California or the federal government as endangered, threatened, or rare;
- candidates for State or federal listing as endangered or threatened;
- species identified by the California Department of Fish and Wildlife (CDFW) as Species of Special Concern;
- species listed as Fully Protected under the California Fish and Game Code (CFGC);
- taxa considered by CDFW to be "rare, threatened, or endangered in California" and assigned a California Rare Plant Rank (CRPR). The CDFW system includes six rarity and endangerment ranks for categorizing plant species of concern, which are summarized as follows:
  - CRPR 1A – Plants presumed to be extinct in California;
  - CRPR 1B – Plants that are rare, threatened, or endangered in California and elsewhere;
  - CRPR 2A – Plants presumed to be extinct in California, but more common elsewhere;
  - CRPR 2B – Plants that are rare, threatened, or endangered in California, but more common elsewhere;
  - CRPR 3 – Plants about which more information is needed (a review list); and
  - CRPR 4 – Plants of limited distribution (a watch list).
- Taxa (i.e., taxonomic categories or groups) that meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act (CEQA) Guidelines, such as species protected under the California Fish and Game Code.

All plants with a CRPR rank are considered "special plants" by CDFW. The term "special plants" is a broad term used by CDFW to refer to all the plant taxa inventoried in CDFW's California Natural Diversity Database (CNDDB), regardless of their legal or protection status. Plants ranked as CRPR 1A, 1B, 2A, and 2B may qualify as endangered, rare, or threatened species within the definition of CEQA Guidelines Section 15380. CDFW recommends that potential impacts to CRPR 1 and 2 species be evaluated in CEQA documents. In general, CRPR 3 and 4 species do not meet the definition of endangered, rare, or threatened pursuant to CEQA Guidelines Section 15380. However, these species may be evaluated by the lead agency on a case-by-

case basis. Because of the association of several CRPR Rank 3 and 4 species with sensitive aquatic habitats that are present in the solar development area, CRPR Rank 3 and 4 species were considered "special-status" in this EIR analysis.

A list of special-status species with potential to occur within the solar development area, provided suitable habitat conditions are present, was developed through review of previous environmental reviews conducted for other projects in the vicinity; current CNDDB and CNPS Rare Plant Inventory searches (CDFW 2024e; CNPS 2024); a list of federally listed species with potential to occur within the biological resources study area obtained from the U.S. Fish and Wildlife Service (USFWS) Information, Planning, and Conservation System (USFWS 2024); and the SSHCP (County of Sacramento et al. 2018). The CNDDB and CNPS Inventory search included the Folsom SE and Buffalo Creek 7.5-minute United States Geographic Survey (USGS) quadrangles within which the solar development area occurs, plus the immediately adjacent surrounding quadrangles (Carmichael, Latrobe, Carbondale, Folsom, Clarksville, and Sloughhouse).

The project site is situated in the northeastern portion of the SSHCP Plan Area. As discussed in the "Regulatory Setting" section below, the majority of the solar development area (1,252 acres) is located outside of the urban development area. Solar development is not a covered activity under the SSHCP. Therefore, the project would not be subject to receive take coverage under the SSHCP and is not required to implement or comply with the provisions of the SSHCP. The project site contains documented occurrences for several SSHCP Covered Species, including legenere (*Legenere limosa*), vernal pool fairy shrimp (*Brachinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), western spadefoot (*Spea hammondii*), western pond turtle (*Emys marmorata*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Sacramento Orcutt grass (*Orcuttia viscida*), slender Orcutt grass (*Orcuttia tenuis*), Ahart's dwarf rush (*Juncus leiospermus var. ahartii*), Boggs lake hedge hyssop (*Gratiola heterosepala*), American badger (*Taxidea taxus*), and all the bird Covered Species, except greater sandhill crane (County of Sacramento, et al. 2018). The portion of the Habitat Conservation Plan (HCP) Plan Area where the project site is located is considered highly valuable for vernal pool ecosystems and encompasses the majority of blue oak woodland and forest present in the Plan Area.

To assist in identifying special-status species that are present or could occur in the solar development area or vicinity, focused protocol-level rare plant and special-status wildlife surveys were conducted for the project from 2021 through 2024. A detailed description of survey methods and results are provided in Appendix BR-1. Rare plant surveys were conducted in 2021, 2022, 2023, and 2024 in accordance with current USFWS (2000), CDFW (2018) and CNPS guidelines (2001); reference populations were visited prior to each year's survey to ensure target species were evident and identifiable. Surveys were conducted across a range of water year types. The year of 2021 was relatively dry; 2022 was slightly above average for precipitation in the region, 2023 was exceptionally wet, with rainfall amounts approximately 175 percent of average, and 2024 water year continued to have above average precipitation with it being about 161 percent of average. Protocol-level and focused surveys were completed for the following special-status wildlife species:

- burrowing owl (breeding season and wintering season survey),
- Crotch's bumble bee (habitat assessment)
- Swainson's hawk (breeding season survey and habitat assessment),

- tricolored blackbird (breeding season survey),
- valley elderberry longhorn beetle (exit hole surveys)
- western spadefoot (upland burrow surveys, breeding season larval surveys, habitat assessment, and nocturnal eye shine),

Plate BR-2 shows all CNDDB-recorded occurrences, essential fish habitat (EFH), and designated critical habitat present in and within five miles of the project site.

Table BR-3 and Table BR-4 identify special-status plants and wildlife with potential to occur within the solar development area. See Appendix BR-2 for species considered but eliminated from further analysis. Observations of special-status species, as well as other incidental observations during field surveys are listed in Appendix BR-1.

SENSITIVE NATURAL COMMUNITIES

Sensitive natural communities are communities that are of limited distribution statewide or within a county or region and may be vulnerable to effects of development projects. Sensitive natural communities are those that are listed in the CDFW CNDDB and in the Natural Communities List as having a rarity rank of S1 through S3 (CDFW 2023) due to the rarity of the community in the state or throughout its entire range (i.e., globally), or that have been afforded protection under local plans (e.g., Sacramento County General Plan); they also include those specifically evaluated under CEQA, Section 1602 of the CFGC, Section 404 of the Clean Water Act (CWA), or the State's Porter-Cologne Water Quality Control Act.

The following sensitive natural communities, as defined above, are present in the solar development area and are described in more detail in the sections that follow: vernal pools (i.e., resembling Northern hardpan vernal pools); potentially jurisdictional waters of the U.S. and of the State; annual grasslands that provide suitable foraging habitat for Swainson's hawk, white-tailed kite, and grassland-specialized birds (Grassland Bird Habitat), recognized by CDFW as becoming increasingly rare and showing greater declines when compared to other bird groups [CDFW 2023]; riparian habitat; valley needlegrass grassland (as a minor component of the valley and foothill grassland community); and oak woodlands (i.e., blue oak woodland, blue oak woodland [forest]).

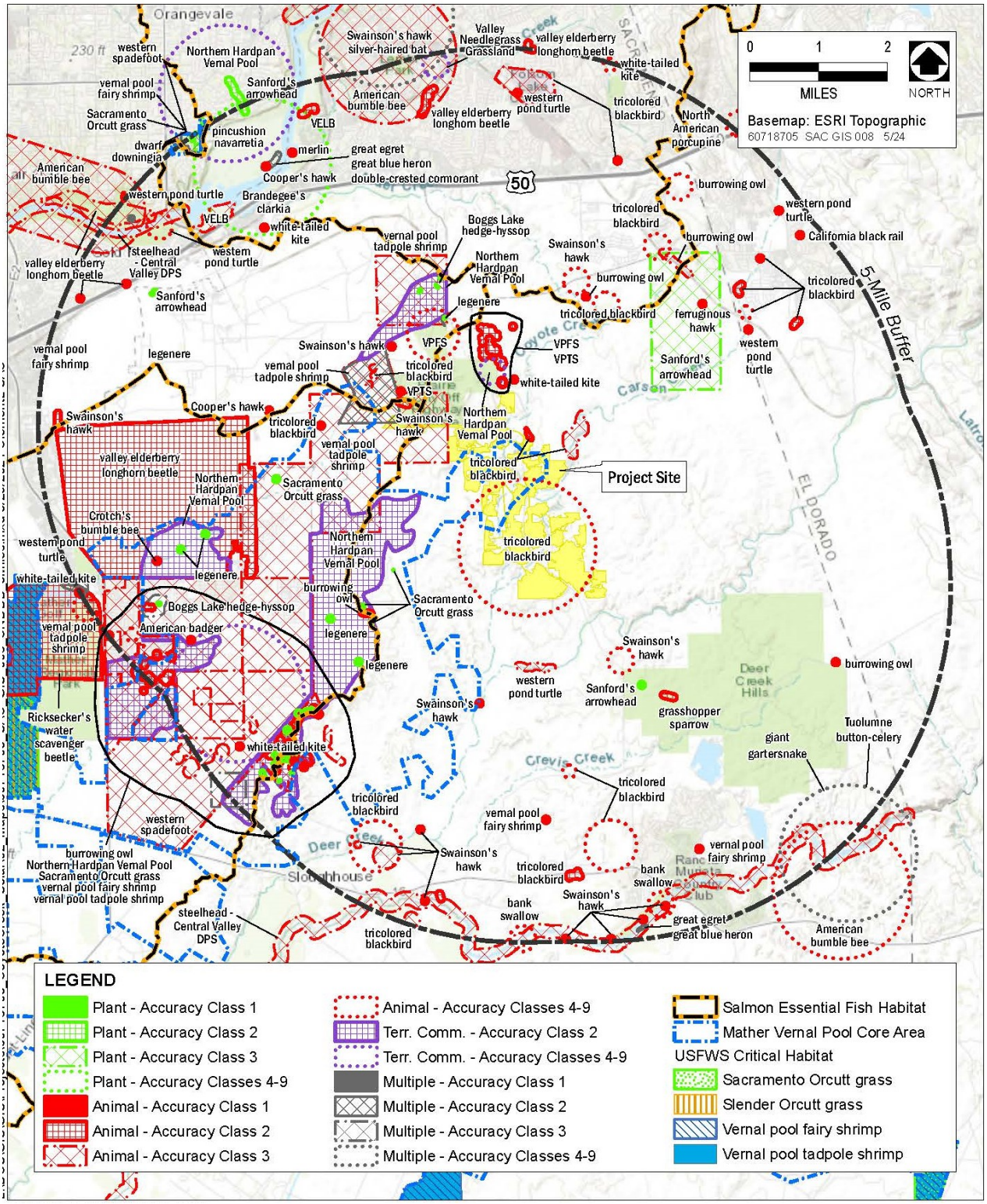
NORTHERN HARDPAN VERNAL POOL

Northern hardpan vernal pool habitat is mapped within five miles of the solar development area; the closest occurrence is less than one-quarter mile to the north (Plate BR-2). While this specific sensitive community type has not been confirmed to be present on-site, vernal pool habitat present within the solar development area resembles that of the sensitive community type Northern Hardpan Vernal Pool habitat, as described in Appendix BR-1 and in the SSHCP (County of Sacramento et al. 2018). Vernal pools are also wetlands, described as a sensitive community type under "Waters of the United States and Waters of the State," below.

WATERS OF THE UNITED STATES AND WATERS OF THE STATE

Jurisdictional wetlands and other waters of the United States and isolated wetlands/ waters (i.e., waters of the State) provide habitat, foraging, cover, migration, and movement corridors for both special-status and common species, and provide physical conveyance of surface water flows that can lessen the effects of large storm events, protecting habitat and other resources.

Plate BR-2: CNDDB-Recorded Occurrences, Essential Fish Habitat, and Designated Critical Habitat within 5 Miles of the Solar Development Area



Source: CDFW 2024e (March 2024 CNDDB)

Table BR-3 and Table BR-4 identify special-status plants and special-status wildlife, respectively, with potential to occur within the solar development area. As noted above, Appendix BR-2 includes a full list of species considered but eliminated from further analysis. Observations of special-status species, as well as other incidental observations during field surveys are listed in Appendix BR-1. The potential to occur for each species is identified in the far-right column, and each category is defined as follows:

- **Known to occur:** The species has been documented in the project site.
- **High:** The species has not been documented in the project site but is known to occur in the vicinity and species habitat is present.
- **Moderate:** The species has not been documented in the vicinity, but the project site is within the known range of the species, and habitat for the species is present.
- **Low:** The species has not been documented in the vicinity and the project site is within the known range of the species, but habitat for the species is of low quality.
- As described under “Aquatic Features,” above, an aquatic resources delineation was conducted for the project by Dudek (Appendix BR-1). Dudek’s preliminary assessment identified all wetlands and other waters present within the solar development area (10.74 acres) to be potential Waters of the U.S. and State. Because jurisdiction has not been verified by regulatory agencies, all aquatic features within the solar development area (see Table BR-1) are considered to be potentially jurisdictional wetlands and/or other waters of the U.S. and are waters (including wetlands, non-wetland waters, or other waters) of the State for the purposes of evaluation in this EIR.
- Grassland Bird Habitat
  - Grasslands occur throughout the solar development area. Regionally, grassland (i.e., Annual grassland) has been recognized in the SSHCP as essential for the long-term survival of many special-status species covered by the SSHCP and for conserving ecological functions of other associated land cover types (e.g., vernal pools and other wetlands, oak woodlands, and perennial grasslands).
  - Sacramento County recognizes grasslands in the eastern portion of the County as prime habitat for raptors (County of Sacramento 1993). Where grasslands contain native plant assemblages and where they occur adjacent to/intermixed with riparian, woodland, and wetland habitats, such as is the case in and surrounding the project site, their ecological value increases.
- Riparian Habitat
  - Riparian habitat (i.e., riparian woodland/forest) is interspersed with blue oak woodland and forest throughout the solar development area, where it occurs along perennial, intermittent, or ephemeral drainages (see Plate BR-1). Riparian vegetation is vegetation which occurs along a waterway and is dependent on and/or occurs because of the surface and subsurface hydrology of the waterway itself (USFWS 2025) and can include any habitat where herbaceous plants, shrub/scrubs, and/or trees of varying densities are growing along waterways with a defined bed and bank, including within the floodplain of waterways. A detailed description of riparian woodland/forest is provided in Appendix BR-1.

Table BR-3: Special-Status Plants with Potential to Occur within the Solar Development Area

Scientific Name	Common Name	Listing Status (Federal/State/ CRPR/SSHCP)	Habitat Requirements/Blooming Period/Elevation Range (Feet)	Potential to Occur
Brodiaea rosea ssp. *vallicola*	valley brodiaea	None/None/4.2/ None	Valley and foothill grassland Vernal pools; alluvial terraces, gravelly, sandy microhabitats/ April–May (June)/35–1,100.	**Present.** Valley brodiaea species was not observed during protocol-level botanical surveys in 2021, 2022, or 2023; but was observed in 2024. Valley brodiaea were observed primarily on the surrounding upland banks to ephemeral channels and swales. Dudek 2024).
Calycadenia spicata	spiked western rosinweed	None/None/1B.3 /None	Cismontane woodland and valley and foothill grassland; soils generally dry, adobe (heavy clay) or stony to gravelly clay; May–September/130–4,595	**Known to occur.** The project site is within the known range of the species, and habitat for the species is present; specifically, grassland habitat. One CNPS observation was recorded approximately one mile north of the project site, in 2021 (CNPS 2023c). This species was observed during protocol-level survey conducted by Dudek in 2023.
Downingia pusilla	dwarf downingia	None/None/2B.2 / Covered	Valley and foothill grassland (mesic), Vernal pools/annual herb; Mar–May/3–1,455.	**High.** The project site is within the known range of the species, and habitat for the species is present. Specifically, suitable grassland and vernal pool habitat occurs within the southern and western portions of the project site. Additionally, SSHCP modeled habitat for this species is present within the northwest portion of the project site (Sacramento County 2018). The nearest known occurrence for this species is approximately five miles northwest of the project site, at the Phoenix Park east of Fair Oaks (CDFW 2024e, CNPS 2023c).
Fritillaria agrestis	stinkbells	None/None/4.2/ None	Chaparral, cismontane woodland, pinyon and juniper woodland, valley and foothill grassland; clay, serpentine (sometimes) soil/March-June/35-5,100	**Low.** Habitat for the species in the project site is present; however, there are no documented CNDDB occurrences of this species within five miles of the PSA (CNPS 2023c).
Gratiola heterosepala	Boggs Lake hedge-hyssop	None/SE/1B.2/ Covered	Marshes and swamps (lake margins), Vernal pools; clay/annual herb/Apr–Aug/33–7,790.	**Moderate.** The project site is within the known range of the species, and suitable habitat for the species is present. Specifically, within the project site suitable habitat for this species is located throughout the vernal pools, wetlands swales and seasonal wetlands that occur on site. Additionally, SSHCP modeled habitat for this species is present within the project site (Sacramento County 2018). The nearest known occurrence for this species is approximately two miles northwest of the project site, near the intersection of Prairie City Road and White Rock Road (CDFW 2024e, CNPS 2023c).

Scientific Name	Common Name	Listing Status (Federal/State/ CRPR/SSHCP)	Habitat Requirements/Blooming Period/Elevation Range (Feet)	Potential to Occur
Hesperevax caulescens	hogwallow starfish	None/None/4.2/ None	Valley and foothill grassland and vernal pools; alkaline microhabitats; March–June/0–1,655.	**Low.** Habitat for the species in the project site is present; however, the nearest CNPS observation was recorded approximately three miles southwest of the project site (CNPS 2023c).
Hibiscus lasiocarpos var. *occidentalis*	woolly rose-mallow	None/None/1B.2 /None	Marshes and swamps (freshwater); Often in riprap on sides of levees/perennial rhizomatous herb (emergent)/June–Sep/0–395.	**Low.** Habitat for the species in the project site is minimal and of low quality. There are no documented CNDDB occurrences of this species within five miles of the PSA, the nearest known occurrence for this species is recorded in the Florin USGS 7.5-Minute Quad (CNPS 2023c).
Iris longipetala	coast iris	None/None/4.2/ None	Coastal prairie, lower montane coniferous forest, meadows and seeps/March-May(June)/0–1,970.	**Low.** Habitat for the species in the project site is minimal and of low quality. There are no documented CNDDB occurrences of this species within five miles of the PSA (CNPS 2023c).
Juncus leiospermus var. *ahartii*	Ahart's dwarf rush	None/None/1B.2 / Covered	Valley and foothill grassland (mesic)/annual herb/Mar–May/98–750.	**Known to occur.** This species has not been documented in the vicinity of the project site but is within the known range of the species, and habitat for the species is present within the project site. Specifically, within the project site suitable grassland habitat for this species is located within the southern and western portions of the project site. Additionally, SSHCP modeled habitat for this species is present within the project site (Sacramento County 2018). This species was observed during protocol-level survey conducted by Dudek in 2023.
Legenere limosa	legenere	None/None/1B.1 / Covered	Vernal pools/annual herb/Apr–June/3–2,885.	**High.** This species has been documented approximately 3 miles southwest of the PSA in the Buffalo Creek USGS 7.5-Minute Quad (CDFW 2024e). Specifically, within the project site suitable grassland habitat for this species is located within the southern and western portions of the project site. Additionally, SSHCP modeled habitat for this species is present within the project site (Sacramento County 2018)).
Lepidium latipes var. *heckardii*	Heckard's pepper-grass	None/None/1B.2 /None	Valley and foothill grassland (alkaline flats)/annual herb/Mar–May/7–655.	**Moderate.** The project site is within the known range of the species, and suitable habitat for the species is present. The nearest known occurrence for this species is recorded in the Florin USGS 7.5-Minute Quad (CNPS 2023c).

Scientific Name	Common Name	Listing Status (Federal/State/ CRPR/SSHCP)	Habitat Requirements/Blooming Period/Elevation Range (Feet)	Potential to Occur
Navarretia eriocephala	hoary navarretia	None/None/4.3/ None	Cismontane woodland and valley and foothill grassland; vernally mesic microhabitats/May-June/345–1,310.	**Low.** Habitat for the species in the project site is present; however, the nearest CNPS observation was recorded approximately two miles east of the project site in 1953 (CNPS 2023c).
Navarretia myersii ssp. *myersii*	pincushion navarretia	None/None/1B.1 / Covered	Vernal pools; often acidic/annual herb/Apr–May/66–1,080.	**Known to occur.** The project site is within the known range of the species, and habitat for the species is present. Specifically, within the project site, suitable habitat for this species is located within the vernal pools, wetland swales, and seasonal wetlands that are present within the project site. Additionally, the Hadselville-Pentz and Redding Gravelly Loam soil complexes within the project site are slightly acidic, therefore vernal pools located in these soils provide potential suitable habitat. Additionally, SSHCP modeled habitat for this species is present within the project site (Sacramento County 2018). This species was observed during protocol-level surveys conducted by Dudek in 2023).
Orcuttia tenuis	slender Orcutt grass	FT/SE/1B.1/ Covered	Vernal pools; Often gravelly/annual herb/May–Sep (Oct)/115–5,770.	**Moderate.** The project site is within the known range of the species, and habitat for the species is present. Specifically, within the project site, suitable habitat for this species is located within the vernal pools, wetland swales, and seasonal wetlands that are present within the project site. Additionally, SSHCP modeled habitat for this species is present within the project site (Sacramento County 2018). Designated Critical Habitat (DCH) for this species is located approximately 4.20 miles northwest of the project site. This species has been documented once within five miles of the project site, southwest of the project site, east of the Mather Air Force Base in Rancho Cordova (CDFW 2024e, CNPS 2023c, USFWS 2023b).

Scientific Name	Common Name	Listing Status (Federal/State/ CRPR/SSHCP)	Habitat Requirements/Blooming Period/Elevation Range (Feet)	Potential to Occur
Orcuttia viscida	Sacramento Orcutt grass	FE/SE/1B.1/Covered	Vernal pools/annual herb/Apr–July (Sep)/98–330.	**Moderate.** The project site is within the known range of the species, and habitat for the species is present. Specifically, within the project site, suitable habitat for this species is located within the vernal pools, wetland swales, and seasonal wetlands that are present within the project site. Additionally, SSHCP modeled habitat for this species is present within the project site (Sacramento County 2018). DCH for this species is located approximately 4.8 miles northwest of the project site. There are several documented occurrences of this species within five miles west and southwest of the project site, with the nearest known occurrence near Keifer Landfill, east of Grant Line Road (CDFW 2024e, CNPS 2023c, USFWS 2023b).
Sagittaria sanfordii	Sanford's arrowhead	None/None/1B.2 / Covered	Marshes and swamps (assorted shallow freshwater)/perennial rhizomatous herb (emergent)/May–Oct (Nov)/0–2,130.	**Low.** The project site is within the known range of the species, and habitat for the species is present, however minimal and of low quality. Specifically, within the project site, there is limited and low-quality habitat for this species (perennially inundated habitat). However, SSHCP modeled habitat for this species is present within the project site (Sacramento County 2018). This species has been documented within five miles of the project site, northeast of the project site, along tributaries to Carson Creek that are south of White Rock Road (CDFW 2024e, CNPS 2023c).
Trichostema rubisepalum	Hernandez bluecurls	None/None/4.3/ None	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, vernal pools; gravelly, serpentine (sometimes), volcanic (sometimes) /June-August/985-4,710	**Low.** The project contains suitable habitat for the species, however minimal and of low quality. There are no documented CNDDB occurrences of this species within five miles of the PSA (CDFW 2024e).
Trifolium hydrophilum	saline clover	None/None/1B.2 /None	Marshes and swamps, Valley and foothill grassland (mesic, alkaline), Vernal pools/annual herb/Apr–June/0–985.	**High.** The species has not been documented in the project site but is known to occur within five miles and species habitat is present. The nearest known occurrence for this species is recorded in the Florin USGS 7.5-Minute Quad, approximately three miles south of the project site (CNPS 2023c).

Scientific Name	Common Name	Listing Status (Federal/State/ CRPR/SSHCP)	Habitat Requirements/Blooming Period/Elevation Range (Feet)	Potential to Occur
Wyethia reticulata	El Dorado County mule ears	None/None/1B.2 /None	chaparral, cismontane woodland, lower montane coniferous forest, vernal pools; clay (sometimes) /April-August/605-2,065	**Low.** The project contains suitable habitat for the species, however minimal and of low quality. There are no documented CNDDB occurrences of this species within five miles of the PSA (CDFW 2024e).

Sources: Appendix BR-1; Calflora 2024, CDFW 2024e, CNPS 2024; Jepson eFLora 2023; County of Sacramento et al. 2018; USDA 2023; USFWS 2024

Notes for Table BR-3:

CDFW: California Department of Fish and Wildlife
CNDDB: California Natural Diversity Database
CNPS: California Native Plant Society
CRPR = California Rare Plant Rank
DCH; Designated Critical Habitat
PSA = project study area
SSHCP: South Sacramento Habitat Conservation Plan
USFWS: U.S. Fish and Wildlife
USGS: U.S. Geological Survey
FE: Federally listed as endangered
FT: Federally listed as threatened
SE: State listed as endangered
California Rare Plant Rank (CRPR) Categories:
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
0.1: Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat).
0.2: Moderately threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat).
0.3: Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known).
None = No conservation status.
SSHCP (South Sacramento Habitat Conservation Plan)
Covered: Currently listed as threatened or endangered under the California Endangered Species Act (ESA) or the federal ESA and covered within the Plan Area by the SSHCP.
None: Not covered under the SSHCP.
Potential for Occurrence Definitions:
Known to occur: The species has been documented in the project site.
High: The species has not been documented in the project site but is known to occur in the vicinity and species habitat is present.
Moderate: the species has not been documented in the vicinity, but the project site is within the known range of the species, and habitat for the species is present.
Low: The species has not been documented in the vicinity and the project site is within the known range of the species, but habitat for the species is of low quality.

Table BR-4: Special-Status Wildlife with Potential to Occur within the Solar Development Area

Scientific Name	Common Name	Listing Status (Federal/State/SSHCP)	Habitat Requirements	Potential to Occur
Amphibians				
Rana boylii	Foothill Yellow-legged Frog (South Sierra Distinct Population Segment)	FE/SE/None	Frequents rocky streams and rivers with rocky substrate and open, sunny banks, in forests, chaparral, and woodlands. Sometimes found in isolated pools, vegetated backwaters, and deep, shaded, spring-fed pools. Sea level to 6,000 ft.	**Low.** There is little suitable habitat for the species within the project site, at rocky streams within forest and woodland land cover. Further, there are no known occurrences of this species within five miles of the project site (CDFW 2024e).
Spea hammondii	western spadefoot toad (WST)	PX/SSC/Covered	Primarily grassland and vernal pools, but also in ephemeral wetlands and drainages that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture. Prefers open areas with sandy or gravelly soils. Aestivates within rodent burrows in upland habitats near temporary aquatic breeding sites.	**High.** This species has not been documented in the project site; however, this species is known to occur in the vicinity of the project site and suitable habitat is present. Additionally, SSHCP modeled foraging and aestivation habitat is present within the project site (Sacramento County 2018). There are known occurrences for this species within five miles of the project site, located on the west side of Grant Line Road, north of State Route 16 (CDFW 2024e). The nearest known occurrence for this species is recorded in an area that is bordered by Sunrise Boulevard, State Route 16, Grant Line Road, and Douglas Road in the city of Rancho Cordova (CDFW 2024e). No WST were identified during focused field studies conducted by Dudek in 2021.
Reptiles				
Actinemys marmorata	western pond turtle	PX/SSC/Covered	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter.	**Known to occur.** Various occurrences of this species have been documented within the project site, specifically along or near Carson Creek (Dudek 2024e). Additionally, suitable aquatic and upland habitat is present within the project site and SSHCP modeled aquatic and upland habitat is present within the project site (Sacramento County 2018). There are also known occurrences for this species within two miles of the project site, located within Deer Creek south of the project site (CDFW 2024e). Four individuals were observed during Dudek reconnaissance surveys.

Scientific Name	Common Name	Listing Status (Federal/State/SSHCP)	Habitat Requirements	Potential to Occur
Birds				
Accipiter cooperii (nesting)	Cooper's hawk	None/WL/Covered	Nests in mixed and deciduous forests, open woodlands, small woodlots, riparian woodlands, open and pinyon woodlands, and forested mountainous regions.	**Low.** This species has not been documented in the project site and suitable nesting habitat is minimal. There is a known occurrence for this species approximately two miles west of the project site (CDFW 2024e).
Agelaius tricolor (nesting colony)	tricolored blackbird (TRBL)	BCC/SSC, ST/Covered	Nests near freshwater, emergent wetland with cattails or tulles, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture.	**Known to occur.** Quality suitable habitat is present within the project site for this species. Additionally, SSHCP has modeled nesting and foraging habitat within the project site (Sacramento County 2018). There are several known occurrences of this species that overlap with the project site boundary, specifically throughout the entirety of the southern extent of the project site, and several documented occurrences within the immediate vicinity (CDFW 2024e). A vocalization of this species was documented within the project site, west of Coyote Creek, during TRBL focused surveys conducted by Dudek in 2021. No nesting activity was observed during these surveys.
Ammodramus savannarum (nesting)	grasshopper sparrow	None/SSC/None	Nests and forages in moderately open grassland with tall forbs or scattered shrubs used for perches	**Moderate.** This species has not been documented within the project site. However, this species is known to occur in the vicinity of the project site, and suitable grassland habitat is present. There are known occurrences for this species within two miles southeast of the project site, with the nearest known occurrence a half mile north of Latrobe Road and a half mile east of Scott Road (CDFW 2024e).
Aquila chrysaetos (nesting and wintering)	golden eagle	BCC, FP/FP/None	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats.	**Known to occur.** The project site provides marginal foraging habitat for this species, and in general habitat is either absent or of low quality. This species was observed foraging and in flight in the western vicinity of the project site during field surveys conducted by Dudek in 2021. Based on the USFWS IPaC Report, this species has the potential to occur on or near the project site (CDFW 2023e, USFWS 2023b), however, there are no documented occurrences of this species within five miles of the project site (CDFW 2024e).

Scientific Name	Common Name	Listing Status (Federal/State/SSHCP)	Habitat Requirements	Potential to Occur
Athene cunicularia (burrow sites and some wintering sites)	burrowing owl (BUOW)	BCC/SCE/Covered	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows.	**High.** The project site contains suitable open grassland habitat with ground squirrel burrows to support this species. Additionally, SSHCP modeled habitat occurs within the project site (Sacramento County 2018). A ground-perching BUOW was observed during protocol-level surveys by Dudek in 2021 (Dudek 2024). Additionally, several potential burrows were discovered with BUOW sign (owl pellet, whitewash, etc.).
Buteo regalis (nesting)	ferruginous hawk	None/WL/Covered	Nests in grasslands, prairie, sagebrush steppe, scrubland, and pinyon-juniper woodland edges.	**Low.** This species has not been documented in the project site as suitable nesting habitat is minimal. There is a known occurrence for this species approximately three miles northeast of the project site (CDFW 2024e).
Buteo swainsoni (nesting)	Swainson's hawk (SWHA)	BCC/ST/Covered	Nests in riparian, open woodland, and savanna, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture.	**Known to occur.** SWHA have been observed within the project site during reconnaissance-level surveys in 2021 and focused surveys in 2023. No confirmed active SWHA nests documented within the project site during the site surveys. Additionally, SSHCP modeled foraging habitat occurs within the project site (Sacramento County 2018). Occurrences of nesting or suspected nesting for this species have been recorded at the confluence of Deer Creek and Carson Creek to the southwest, along Scott Road approximately 1 mile southeast, and east of White Rock Road within approximately 1 mile from the north northwestern boundary of the project site (CDFW 2024e, USFWS 2023b) .
Elanus leucurus (nesting)	white-tailed kite	None/FP/None	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands.	**Known to occur.** The project site contains suitable nesting and foraging habitat for this species. Additionally, SSHCP modeled habitat occurs within the project site (Sacramento County 2018). Various occurrences of this species have been documented in various locations within the project site (Dudek 2024). Additionally, there are several known occurrences within the immediate vicinity (CDFW 2024e).
Geothlypis trichas sinuosa	saltmarsh common yellowthroat	BCC/SSC/None	Nests and forages in emergent wetlands including woody swamp, brackish marsh, and freshwater marsh.	**Low.** The project site provides suitable foraging habitat for this species, however nesting habitat is limited, and in general habitat is minimal and of low quality. There are no documented occurrences within five miles of the project site (CDFW 2024e). Based on the USFWS iPaC Report, this species has the potential to occur on or near the project site (CDFW 2024e, USFWS 2023b).

Scientific Name	Common Name	Listing Status (Federal/State/SSHCP)	Habitat Requirements	Potential to Occur
*Haliaeetus leucocephalus (*nesting and wintering*)*	bald eagle	FDL, BCC/ SE/None	Nests in forested areas adjacent to large bodies of water, including seacoasts, rivers, swamps, large lakes; winters near large bodies of water in lowlands and mountains.	**Known to occur.** Nesting habitat for the species is either absent or of low quality, however foraging habitat for this species is present within the project site. There are no known CNDDB occurrences of this species within five miles of the project site (CDFW 2024e, USFWS 2023b), however, this species was observed in various locations throughout the project site. This species was observed foraging along or near Carson Creek during the reconnaissance-level surveys conducted by Dudek in 2021.
Laterallus jamaicensis coturniculus	California black rail	BCC/FP, ST/None	Tidal marshes, shallow freshwater margins, wet meadows, and flooded grassy vegetation; suitable habitats are often supplied by canal leakage in Sierra Nevada foothill populations.	**Low.** Habitat for the species within the project site is minimal and of low quality. The nearest known occurrence for this species is recorded along Blackstone Parkway, approximately one mile southeast of White Rock Road at Latrobe Road (CDFW 2024e, USFWS 2023a).
Riparia riparia (nesting)	bank swallow	None/ST/None	Nests in riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with sandy soils; open country and water during migration.	**High (foraging).** The project site provides suitable migratory and foraging habitat for this species, but the site is outside of the known breeding range. There are no known occurrences of this species within five miles of the project site (CDFW 2024e). The nearest known occurrence is recorded on the Consumes River, nearly 5 miles south of the project site (CDFW 2024e).
Invertebrates				
Bombus crotchii	Crotch's bumble bee	None/SCE/None	Open grassland and scrub habitats. This species is classified as a short-tongued species, whose food plants include milkweed (*Asclepias* sp.), pincushion (*Chaenactis* sp.), lupine (*Lupinus* sp.), clover (*Medicago* sp.), Phacelia, and sage (*Salvia* sp.). Nests are often located underground in abandoned rodent nests, or above ground in tufts of grass, old bird nests, rock piles, or cavities in dead trees.	**Moderate.** The project site is within the known range of the species, and suitable habitat for the species is present, specifically open grassland habitat with floral resources to support this species. The nearest known occurrence for this species is within 4.7 miles west of the project site, northwest of Douglas Boulevard at Jaeger Road, approximately three miles southeast of White Rock Road (CDFW 2024e).

Scientific Name	Common Name	Listing Status (Federal/State/SSHCP)	Habitat Requirements	Potential to Occur
Branchinecta lynchi	vernal pool fairy shrimp	FT/None/Covered	Vernal pools, seasonally ponded areas within vernal swales, and ephemeral freshwater habitats.	**Known to occur.** The project site contains suitable vernal pool habitat to support this species, and SSHCP modeled habitat is present within the project site (Sacramento County 2018). Occurrences of this species have been recorded along the western portion of the gen-tie alignment route in the northwest vicinity of the project site (CDFW 2024e, USFWS 2023b). Additionally, there are several known occurrences of this species within five miles of the project site, several of which are in occupied pools immediately north of the project site (CDFW 2024e). The nearest DCH unit for vernal pool fairy shrimp is approximately five miles west of the project site (USFWS 2023b).
Danaus plexippus	Monarch butterfly	PX/None/None	Host plant milkweed (*Asclepias* spp.). Nectaring plants with the most observations include: blazing stars (*Liatris* spp.), beggarticks (*Bidens* spp.), thistles (*Circium*, spp.), crownbeards or wingstems (*Verbesina* spp.), goldenrods (*Solidago* and *Oligoneuron* spp.), and asters (*Symphotrichum* spp.).	**Low/Moderate.** The project site is within the known range of the species, and suitable host plants (i.e., milkweed), as well as nine additional known nectaring plants for this species were observed within the project site during project-related field surveys. However, the extent to which suitable habitat is present throughout the project site and solar development area are unknown. The nearest known occurrence for this species is approximately 8.5 miles northeast of the project site, in the Cameron Park, California vicinity (milkweed mapper website). According to the December 2024 Dudek Biological Technical Report Appendix E, milkweed has not been observed within the study area.
Desmocerus californicus dimorphus	valley elderberry longhorn beetle (VELB)	FT/None/Covered	Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus nigra* ssp. *caerulea*).	**Moderate.** The project site is within the known range of this species. There is suitable habitat for this species within the project site, specifically observed elderberry shrubs (*Sambucus* sp.) within riparian and upland habitats. Additionally, small patches of SSHCP modeled habitat occur within the project site (Sacramento County 2018). This species has been documented within five miles of the project site, west of the project site, between White Road and Douglas Road (CDFW 2024e, USFWS 2023b).

Scientific Name	Common Name	Listing Status (Federal/State/SSHCP)	Habitat Requirements	Potential to Occur
Lepidurus packardi	vernal pool tadpole shrimp	FE/None/Covered	Ephemeral freshwater habitats including alkaline pools, clay flats, vernal lakes, vernal pools, and vernal swales.	**Known to occur.** The project site contains suitable vernal pool habitat to support this species, and SSHCP modeled habitat is present within the project site (Sacramento County 2018). Occurrences of this species have been recorded along nearly the entirety of the gen-tie alignment route in the northwest vicinity of the project site (CDFW 2024e, USFWS 2023b). Additionally, there are several known occurrences of this species within five miles of the project site, several of which are in occupied pools immediately north of the project site (CDFW 2024e). The nearest DCH unit for vernal pool tadpole shrimp is approximately five miles west of the project site (USFWS 2023b).
Mammals				
Taxidea taxus	American badger	None/SSC/Covered	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils.	**High.** This species has not been documented within the project site. However, this species is known to occur in the vicinity of the project site, and suitable grassland habitat and SSHCP modeled habitat is present (Sacramento County 2018). The nearest known occurrence for this species is recorded a half mile east of Sunrise Boulevard, and one mile south of Douglas Road in the city of Rancho Cordova (CDFW 2024e).

Sources:
Appendix BR-1; CDFW 2023, CDFW 2024e, Dudek 2024, Dudek 2024e, NOAA 2023, Sacramento County 2018, USFWS 2013, USFWS 2023a, USFWS 2023b.

Notes for Table BR-4:

BUOW: burrowing owl
CNDDB: California Natural Diversity Database
DCH = Designated Critical Habitat
ft.: feet
IPaC: Information, Planning, and Conservation System
SWHA: Swainson's hawk
TRBL: tricolored blackbird
VELB: valley elderberry longhorn beetle
WST: western spadefoot toad
USFWS: U.S. Fish and Wildlife Service

Federal Status
BCC: USFWS Bird of Conservation Concern
FDL: Federally delisted
FE: Federally listed as endangered
FP: Federally Protected
FT: Federally listed as threatened
PX: Federally listed as proposed

State Status
FP: Fully protected
SCE: State Candidate Endangered
SE: State listed as endangered
SSC: Species of Special Concern
ST: State listed as threatened
WL: Watch List
None: No conservation status

SSHCP (South Sacramento Habitat Conservation Plan)
Covered: Currently listed as threatened or endangered under the California Endangered Species Act (ESA) or the federal ESA and covered within the Plan Area by the SSHCP.
None: Not covered under the SSHCP.

Potential for Occurrence Ranks
Known to Occur: The species, or evidence of its presence, has been documented in the project site.
High: The species has not been documented in the project site but is known to occur in the vicinity and species habitat is present.
Moderate: The species has not been documented in the vicinity, but the project site is within the known range of the species, and habitat for the species is present.
Low: The species has not been documented in the vicinity and the project site is within the known range of the species, but habitat for the species is either absent or of low quality.

VALLEY NEEDLEGRASS GRASSLAND

Valley needlegrass grassland is mapped within five miles of the solar development area; the closest occurrence is approximately 4.5 miles to the north (Plate BR-2). According to Holland (1986), this sensitive vegetation community is dominated by perennial, tussock-forming *Stipa (Nassella) pulchra*, with native and introduced annuals occurring between the perennials. It often intergrades with oak woodlands on moist, well-drained sites. The CNPS Manual of California Vegetation (CNPS 2023a) type that most closely resembles this sensitive community type is Needle grass – Melic grass grassland, which recognizes additional species, such as *Nassella cernua*, as characteristic of this sensitive community type. Vernal pools and seasonal wetlands within the solar development area present soil conditions that are complimentary to this sensitive natural community and one native needlegrass species was identified within the project site, nodding needlegrass (*Stipa cernua*). Therefore, some conditions within the project site may potentially meet the classification criteria for this sensitive natural community.

OAK WOODLAND

Blue oak woodlands/forest are scattered throughout much of the eastern portion of the solar development area and project site, but primarily along the northern and southern portions of Coyote Creek, in the southwest near the confluence of Coyote and Carson creeks, and all along the eastern edge of the project site. Native oak woodlands with greater than 10 percent canopy cover are considered sensitive in the State of California. Conversion of oak woodlands that may have a significant effect on the environment are subject to mitigation requirements as set forth in the California Oak Woodlands Conservation Act and in the Sacramento County General Plan (See Regulatory Setting Section below). A detailed description of oak woodland/forest within the solar development area and project site is provided in Appendix BR-1.

DESIGNATED CRITICAL HABITAT/ESSENTIAL FISH HABITAT

No designated critical habitat or essential fish habitat overlaps the solar development area or the project site. The nearest mapped designated critical habitat (for Central Valley steelhead) is approximately four miles northwest of the project site (Plate BR-2), along the American River. Designated critical habitat for Sacramento Orcutt grass also occurs approximately 4.8 miles northwest, and for Sacramento Orcutt grass and slender Orcutt occurs approximately six miles west of the project site (Plate BR-2). Additional designated critical habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp occurs approximately five miles west of the project site (Plate BR-2). Additional details regarding essential fish habitat and designated critical habitat are provided in Appendix BR-1.

MATHER CORE RECOVERY AREA

The USFWS established the Mather Core Recovery Area in the 2005 Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (Recovery Plan) (USFWS 2005). According to USFWS, the “core areas are the specific sites that are necessary to recover these endangered or threatened species or to conserve the species of concern addressed in this recovery plan” (USFWS 2005). While not legally mandated for protection outside of areas of designated critical habitat, core areas are the focus of recovery efforts. General recovery criteria identified for the Mather Core Recovery Area in the Recovery Plan are to protect 85 to 95 percent of suitable habitat for vernal pool branchiopods and 95 to 100 percent of Orcutt grass occurrences.

Approximately 568 acres of the project site, including 289 acres within the solar development area, are within the Mather Core Recovery Area (Plate BR-2).

WILDLIFE CORRIDORS AND HABITAT LINKAGES

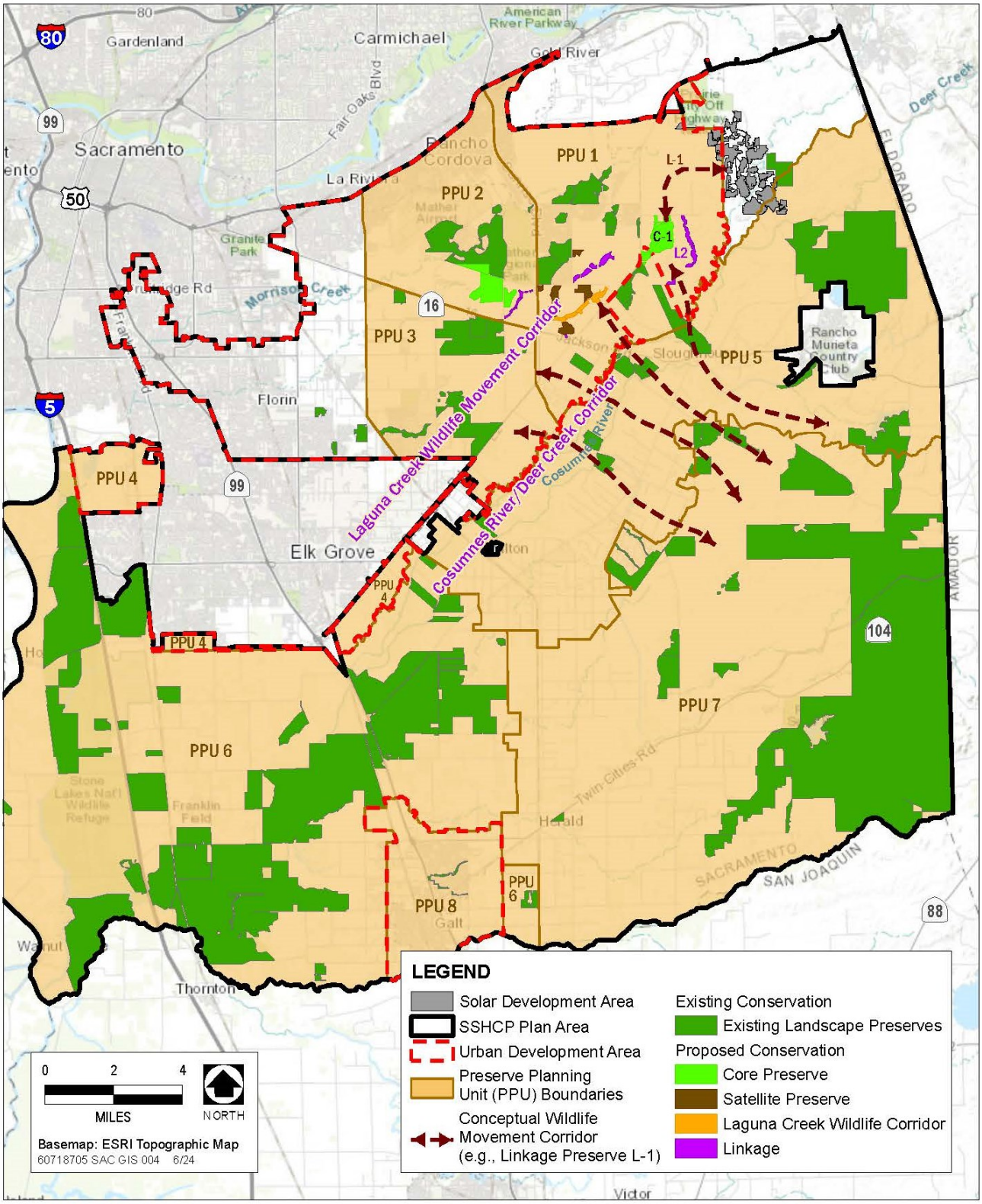
Wildlife movement corridors have been recognized by federal and state agencies as important habitats worthy of conservation. Wildlife corridors provide migration channels seasonally (i.e., between winter and summer habitats) and provide non-migrant wildlife the opportunity to move within their home range for food, cover, reproduction, and refuge.

According to the California Essential Habitat Connectivity Project, the Coyote Creek corridor and generally remaining riparian corridors such as along Carson Creek which cross the solar development area are considered essential habitat connections, providing native habitat for resident wildlife and linkages between native habitat in the surrounding area (Spencer et al. 2010) Due to high levels of natural land conversion and fragmentation, these remaining riparian corridors play a critical role in supporting cross valley connectivity and helping to connect remaining natural areas in the Central Valley. The California Essential Habitat Connectivity Project also identifies much of the grasslands within the project site as “Natural Areas Small,” which are areas important to maintaining ecological integrity at local and regional scales, but not included in the Essential Habitat Connectivity network at the state-wide scale.

The SSCHP identifies the Carson Creek linkage (i.e., Linkage Preserve L-1) as a targeted linear preserve within Preserve Planning Unit 1 (PPU 1) intended to connect a proposed core preserve area southwest of the project site near Glory Lane (i.e., referred to as Core Preserve C-1 in the SSHCP) to undeveloped areas to the east that are outside of the Sacramento County UDA, where Carson Creek occurs within the project site. The SSHCP anticipated that the Carson Creek linkage area (L-1) will be bordered by urban development with full buildout of the UDA; therefore, the Carson Creek linkage corridor is anticipated to be important for maintaining habitat connectivity to areas outside the UDA in the future buildout scenario. A map of the SSHCP planning areas, including the PPUs, existing preserves, and conceptual wildlife movement corridors in relation to the solar development area is included as Plate BR-3.

Furthermore, the valley grasslands on site provide nursery and migratory habitat for common wildlife species. Existing fencing on the project site is designed primarily to manage on-site cattle operations and provide visibility to wildlife. Existing fencing is approximately four to five feet high and is constructed of single barbed wire, woven wire, or high-tensile wire, which likely retains some wildlife permeability across the site.

Plate BR-3: SSHCP Planning Areas



Source: Sacramento County 2022; Adapted by AECOM 2024

REGULATORY SETTING

See Appendix BR-1 for a detailed description of the following relevant federal, State, and local regulations; a brief summary is provided below.

FEDERAL

ENDANGERED SPECIES ACT, 16 U.S.C. SECTION 1531 ET SEQ

Pursuant to the federal ESA (16 United States Code [U.S.C.] Section 1531 et seq.), USFWS has regulatory authority over species listed or proposed for listing as endangered or threatened. In general, persons subject to federal ESA (including private parties) are prohibited from "taking" endangered or threatened fish and wildlife species on private property, and from "taking" endangered or threatened plants in areas under federal jurisdiction or in violation of state law. Under Sections 7 and 10 of the federal ESA, USFWS may issue a permit for the take of threatened or endangered species if such taking is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity," and is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat for any such species.

The federal ESA also requires designation of critical habitat (habitat essential to the conservation of the species) and development and implementation of recovery plans for the conservation and survival of listed species. As such, the federally listed species addressed in this document have designated critical habitat subject to "take" restrictions identified above. Furthermore, the proposed project should maintain consistency with the stated recovery objectives included in all relevant species recovery plans.

CLEAN WATER ACT, 33 U.S.C. SECTION 1251 ET SEQ.

The Clean Water Act (CWA) is the major federal legislation governing water quality, providing guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 404 of the CWA requires a project applicant to obtain a permit from the USACE before engaging in any activity that involves any discharge of dredged or fill material placed in waters of the United States, including wetlands. Section 401 of the CWA requires an applicant applying for a Section 404 permit that may result in a discharge of pollutants into waters of the U.S. to obtain Section 401 water quality certification (or certification waiver), thereby ensuring that the discharge will comply with provisions of the CWA. The State Water Resources Control Board and Regional Water Quality Control Boards (RWQCBs) administer the 401 certification program in California. Section 402 of the CWA establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the U.S.

The definition of waters of the U.S. establishes the geographic scope for authority under Section 404 of the CWA; however, the CWA does not specifically define "Waters of the United States," leaving the definition open to statutory interpretation and agency rulemaking. The definition of what constitutes "Waters of the United States" (provided in 33 CFR Section 328.3[a]) has changed multiple times over the past few decades starting with the *United States v. Riverside Bayview Homes, Inc.* court ruling in 1985. Subsequent court proceedings, rule makings, and congressional acts in 2001 (*Solid Waste Agency of Northern Cook County v. United States Army*

Corps of Engineers), 2006 (*Rapanos v. United States*), 2015 (Clean Water Rule), 2018 (suspension of the Clean Water Rule), 2019 (formal repeal of the Clean Water Rule), 2020 (Navigable Waters Protection Rule), and 2021 (*Pasqua Tribe et al v. United States Environmental Protection Agency* resulting in remand and vacatur of the Navigable Waters Protection Rule and a return to "the pre-2015 regulatory regime") have attempted to provide greater clarity to the term and its regulatory implementation. A Revised Definition of "Waters of the United States" rule (Rule) (88 CFR 3004–3144) became effective on March 20, 2023, restoring federal jurisdiction over waters that were protected prior to 2015 under the CWA for traditional navigable waters, the territorial seas, interstate waters, and upstream water resources that significantly affect those waters. The Rule represented a re-expansion of federal jurisdiction over certain water bodies and wetlands previously exempt pursuant to the 2020 Navigable Waters Protection Rule. The Rule also considered various subsequent court decisions including two notable Supreme Court decisions. However, the applicability of the Rule was substantially affected by a subsequent May 2023 Supreme Court ruling, which reinstated the "Significant Nexus" test and adopted the "Relatively Permanent Standard" test. On May 25, 2023, in *Sackett v. USEPA,* the Supreme Court issued an opinion in a case concerning the applicability of the term "Waters of the United States" in the CWA to wetlands adjacent to other waters. The USACE and the U.S. Environmental Protection Agency have published the Final Rule on August 29, 2023, to address the Sackett decision.

Migratory Bird Treaty Act, 16 U.S.C. Section 703, et seq.

The Migratory Bird Treaty Act provides that it shall be unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird (including birds of prey) listed in Title 50, Section 10.13 of the CFR, or any part, nest, or egg of any such bird. This prohibition includes both direct and indirect acts, although harassment and habitat modification are not included unless they result in direct loss of birds, nests, or eggs.

Bald and Golden Eagle Protection Act, 16 U.S.C. Section 668

The Bald and Golden Eagle Protection Act prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" (see 50 CFR 10.12 and 22.6) bald or golden eagles, including their parts (including feathers), nests, or eggs. In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death, or nest abandonment.

State

California Environmental Quality Act, Public Resources Code Section 21000, et seq.

CEQA requires public agencies undertaking discretionary actions to approve a project to first determine whether a project may have a significant effect on the environment, and then to prepare an EIR if there is substantial evidence that the project may have a significant effect on the environment. Where an EIR has been prepared, CEQA further requires public agencies to adopt findings with respect to each significant effect that "changes or alterations have been required in, or incorporated, into the project which mitigate or avoid the significant effects on the environment; that those changes are within the responsibility and jurisdiction of another public

agency and have been, or can and should be, adopted by that other agency; or that specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or alternatives identified in the EIR" (Public Resources Code Section 21081[a]).

California Endangered Species Act, California Fish and Game Code Section 2050, et seq.

The California Endangered Species Act (CESA) directs state agencies not to approve projects that would jeopardize the continued existence of an endangered or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of a species. Furthermore, CESA states that reasonable and prudent alternatives shall be developed by the CDFW, together with the project proponent and any state lead agency, consistent with conserving the species, while at the same time maintaining the project purpose to the greatest extent possible.

CESA prohibits the take of state-listed threatened or endangered animals and plants unless otherwise permitted pursuant to CESA. "Take" under CESA is defined as any of the following: "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" (CFGC Section 86).

Lake and Streambed Alteration Program, California Fish and Game Code Section 1602

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by CDFW under Section 1602 of the CFGC. Under Section 1602, it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by CDFW, or use any material from the streambeds, without first notifying CDFW of such activity and obtaining a final agreement authorizing such activity.

Porter-Cologne Water Quality Control Act, California Water Code Section 13000, et seq.

The Porter-Cologne Act (California Water Code Section 13000, *et seq.*) requires that each of the state's nine RWQCBs prepare and periodically update basin plans for water quality control. Basin plans offer an opportunity to protect wetlands through the establishment of water quality objectives. The RWQCB's jurisdiction includes federally protected waters, as well as areas that meet the definition of "waters of the state" defined as any surface water or groundwater, including saline waters, within the boundaries of the state. The RWQCB has the discretion to take jurisdiction over areas not federally regulated under Section 401 provided they meet the definition of waters of the state.

As detailed above in "Clean Water Act, 33 U.S.C. Section 1251 et seq" above, Section 401, the Porter-Cologne Act, CFGC Sections 1601-1607, delegates responsibility to the SWRCB for water rights and water quality protection and directs the nine statewide RWQCBs to develop and enforce water quality standards within their jurisdiction.

Fully Protected Species, California Fish and Game Code Sections 3511, 4700, 5050, and 5515

These statutes prohibit take or possession at any time of fully protected species. CDFW has informed nonfederal agencies and private parties that they must avoid take of any fully protected species in carrying out projects.

Protection of Bird Nests and Raptors, California Fish and Game Code Section 3503

Section 3503 of the CFGC states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Typical violations include destruction of active nests because of tree removal and failure of nesting attempts, resulting in loss of eggs and/or young.

Protection of Non-Game Mammals, California Fish and Game Code Section 4150

CFGC Section 4150 states a mammal occurring naturally in California that is not a game mammal, fully protected mammal, or fur-bearing mammal is a non-game mammal. A non-game mammal may not be taken or possessed under this code. All bat species occurring naturally in California are considered non-game mammals and are therefore prohibited from take as stated in CFGC Section 4150.

Native Plant Protection Act, California Fish and Game Code Sections 1900 et seq

The purpose of the act is to preserve, protect, and enhance endangered or rare native plants of California. If potential impacts are identified that could result from a project activity, then consultation with CDFW, permitting, and/or other mitigation may be required. As such, the act allows landowners to take listed plant species from (among other places) a canal, lateral ditch, building site, road, or other right-of-way, provided that the landowner first notifies CDFW and gives the agency at least 10 days to come and retrieve (and presumably replant) the plants before they are plowed under or otherwise destroyed.

California Oak Woodlands Conservation Act and Oak Protection

The 2005 CFGC Sections 1360–1372 outline the terms and conditions comprising the California Oak Woodlands Conservation Act (OWCA). The OWCA mandates counties to require feasible and proportional habitat mitigation for impacts on oak woodlands as part of the CEQA review process. An oak woodland is defined as an oak stand with greater than 10 percent canopy cover comprised of native oak (*Quercus* spp.) trees with a diameter at breast height (DBH) greater than 5 inches, or an oak stand that may have historically supported greater than 10 percent canopy cover. The OWCA encourages and defers to local jurisdictions to develop and implement oak conservations plans developed under the OWCA (WCB 2021).

Under Section 21083.4 of the Public Resources Code, each county is required to determine whether a project under its jurisdiction “may result in a conversion of oak woodlands that will have a significant effect on the environment.” The law applies to all oak woodlands, except those dominated by black oak (*Quercus kelloggii*). Mitigation is required for any project that may have a significant effect on oak woodland and may be selected from several mitigation

alternatives set forth in Public Resources Code Section 21083.4(b). However, only up to 50 percent of the required mitigation may be satisfied by planting of oaks.

Other State Tree Protection Regulations

Additional State laws that regulate and/or protect oaks and oak woodlands include the Professional Foresters Law, CEQA, and adopted regulations of the Board of Forestry and Fire Protection. The Professional Foresters Law addresses oak habitat evaluations. Both the Professional Foresters Law and CEQA apply to all local jurisdictions.

Local

Sacramento County General Plan

The Sacramento County General Plan, with a planning horizon of 2030, includes goals, policies, and implementation programs to protect environmental resources that are important elements in the quality of life of Sacramento County residents. The following are General Plan Conservation Element policies (most recently amended in 2017) pertaining to biological and aquatic resources in Sacramento County that are most relevant to the proposed project.

Vegetation and Wildlife: Habitat Protection and Management

Policy CO-58. Ensure no net loss of wetlands, riparian woodlands, and oak woodlands.

Policy CO-59. Ensure mitigation occurs for any loss of or modification to the following types of acreage and habitat function: (1) vernal pools, (2) wetlands, (3) riparian, (4) native vegetative habitat, and (5) special-status species habitat.

Policy CO-60. Mitigation should be directed to lands identified on the Open Space Vision Diagram and associated component maps.

Policy CO-61. Mitigation should be consistent with Sacramento County-adopted habitat conservation plans.

Policy CO-62. Permanently protect land required as mitigation.

Policy CO-66. Mitigation sites shall have a monitoring and management program including an adaptive management component including an established funding mechanism. The programs shall be consistent with Habitat Conservation Plans that have been adopted or are in draft format.

Aquatic Resources: Rivers and Streams

Policy CO-87. Encourage private landowners to protect, enhance and restore riparian habitat.

Policy CO-89. Protect, enhance, and maintain riparian habitat in Sacramento County.

Policy CO-91. Discourage introductions of invasive non-native aquatic plants and animals.

Policy CO-92. Enhance and protect shaded riverine aquatic habitat along rivers and streams.

Policy CO-115. Provide setbacks along stream corridors and stream channels to protect riparian habitat functions.

(1) A functional setback of at least 100 feet and measured from the outside edge of the stream bank should be retained on each side of a stream corridor that prohibits development or agricultural activity. This buffer is necessary to protect riparian functions by allowing for the filtering of sediment, pesticides, phosphorus and nitrogen, organic matter and other contaminates that are known to degrade water quality. This buffer also provides for the protection of vegetation along the stream bank which provides bank stability, erosion control and flood attenuation;

(2) A transitional setback of at least 50 feet in width beyond the functional buffer should be retained along all stream corridors. This buffer is necessary to protect hydrogeomorphic functions that regulate water temperature, regulate microclimate, maintain channel complexity, and retain hydrologic flow regimes. This buffer also provides corridors to facilitate the movement of wildlife.

TERRESTRIAL RESOURCES

Policy CO-138. Protect and preserve non-oak native trees along riparian areas if used by Swainson's Hawk (SWHA), as well as landmark and native oak trees measuring a minimum of 6 inches in diameter or 10 inches aggregate for multi-trunk trees at 4.5 feet above ground.

Policy CO-139. Native trees other than oaks, which cannot be protected through development, shall be replaced with in-kind species in accordance with established tree planting specifications, the combined diameter of which shall equal the combined diameter of the trees removed.

Policy CO-140. For projects involving native oak woodlands, oak savannah, or mixed riparian areas, ensure mitigation through either of the following methods:

(1) An adopted habitat conservation plan;

(2) Ensure no net loss of canopy area through a combination of the following: A- preserving the main, central portions of consolidated and isolated groves constituting the existing canopy and B- provide an area on site to mitigate any canopy lost. Native oak mitigation area must be a contiguous area on site which is equal to the size of canopy area lost and shall be adjacent to existing oak canopy to ensure opportunities for regeneration;

(3) Removal of native oaks shall be compensated with native oak species with a minimum of a one-to-one DBH replacement;

(4) A provision for a comparable on-site area for the propagation of oak trees may substitute for replacement tree planting requirements at the discretion

of the Sacramento County Tree Coordinator when removal of a mature oak tree is necessary;

(5) If the project site is not capable of supporting all the required replacement trees, a sum equivalent to the replacement cost of the number of trees that cannot be accommodated may be paid to Sacramento County's Tree Preservation Fund or another appropriate tree preservation fund; and

(6) If on-site mitigation is not possible given site limitation, off-site mitigation may be considered. Such a mitigation area must meet all the following criteria to preserve, enhance, and maintain a natural woodland habitat in perpetuity, preferably by transfer of title to an appropriate public entity. Protected woodland habitat could be used as a suitable site for replacement tree plantings required by ordinances or other mitigations.

(a) Equal or greater in area to the total area that is included within a radius of 30 feet of the dripline of all trees to be removed;

(b) Adjacent to protected stream corridor or other preserved natural areas;

(c) Supports a significant number of native broadleaf trees; and

(d) Offers good potential for continued regeneration of an integrated woodland community.

Policy CO-141. In 15 years, the native oak canopy within on-site mitigation areas shall be 50% canopy coverage for valley oak and 30% canopy coverage for blue oak and other native oaks.

Swainson's Hawk Impact Mitigation Fee Ordinance

In 1997, in response to the need to mitigate for the loss of Swainson's hawk foraging habitat (suitable areas within 10 miles of a Swainson's hawk nest) in Sacramento County, the Board of Supervisors adopted an ordinance that established a Swainson's Hawk Impact Mitigation Program (Sacramento County Code Chapter 16.130 *Swainson's Hawk Impact Mitigation Fees*). Under the Swainson's Hawk Impact Mitigation Program, only projects which have an impact of less than 40 acres are eligible to pay fees. Projects impacting 40 acres or more of foraging habitat must provide compensatory land acceptable to CDFW and the County.

South Sacramento Habitat Conservation Plan

The SSHCP provides a framework to improve conservation of natural resources, including endangered species habitat, while streamlining the permitting process for certain types of planned development, infrastructure, and maintenance activities. The SSHCP does not apply to the project. The SSHCP provides take authorization for 28 Covered Species with potential to occur in the Plan Area and includes conservation actions to protect all 28 Covered Species whether they are currently listed or not. The SSHCP plans to establish an interconnected preserve system that supplements, complements, and links together existing preserves in the Plan Area. The SSHCP Permit term is 50 years. The Plan Area is divided into the area within the UDA, where all proposed urbanization will occur and some preserves will be established,

and the area outside the UDA (Plate BR-3). Most preservation associated with the SSHCP, approximately 27,554 acres, will occur outside of the UDA with the intent to protect agricultural lands, as well as habitat for Covered Species. Only limited development activities (i.e., infrastructure) are covered by the SSHCP in areas outside the UDA. Solar development, such as for the proposed project, is not a covered activity under the SSHCP. The SSHCP conservation strategy divides the Plan Area into 8 PPUs that provide geographic representation across the preserve system and that each contain important Covered Species Resources targeted for preservation.

The majority of the solar development area (1,252 acres) is located outside of the UDA and solar development is not a covered activity under the SSHCP. Therefore, the project would not be subject to receive take coverage under the SSHCP and is not required to implement or comply with the provisions of the SSHCP. However, the project site is located within the SSHCP Plan Area that includes much of southeastern Sacramento County. The project site is mostly located outside of PPUs, but a small portion (approximately 148 acres) in the southeastern portion of the solar development area overlaps PPU 5 and a few portions (approximately 159 acres) of the western portion of the solar development area overlaps PPU 1 (Plate BR-3). PPU 5 encompasses 52,534 acres, approximately 6,500 acres of which are in existing preserves and 1,691 acres of which are proposed for SSHCP preserves. PPU 5 is located outside the UDA. The dominant land cover in PPU 5 is grassland, but PPU 5 is also important for riparian-dependent species; it contains nearly all of the recorded occurrences for the valley elderberry longhorn beetle within the SSHCP Plan Area, all of which occur outside the project site and solar development area. PPU 1 is located primarily within the UDA. The dominant land cover in PPU 1 is also grassland, but PPU 1 is also very important for vernal pool species; it contains the greatest amount of vernal pool and swale habitat of any PPU within the UDA, some of which overlaps the project site and solar development area. PPU 1 encompasses 19,729 acres; approximately 1,158 acres of which are in high density development, 1,180 acres of which are in existing preserves (within and outside the UDA) and approximately 3,756 acres are proposed for SSHCP preserves primarily within the UDA. PPU 1 also contains 15,827 acres of the 24,245-acre Mather Core Recovery Area, identified in the Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (USFWS 2005).

Impacts and Analysis

This section presents the biological resources impact analysis for the proposed project including thresholds of significance, methods of analysis, and avoidance, minimization and/or compensatory mitigation measures.

Significance Criteria

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the CEQA Guidelines, as amended, and are consistent with Sacramento County policies, codes, and regulations. The proposed project would result in a significant impact related to biological resources if any of the following occur:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;

- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS;
- have a substantial adverse effect on State or federally protected wetlands (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted HCP, natural community conservation plan, or other approved local, regional, or state HCP.

METHODOLOGY

This section analyzes potential direct and indirect impacts and temporary and permanent impacts on biological resources that have the potential to result from project implementation.

Direct impacts are caused by the project and occur at the same time and place. Direct permanent impacts refer to the long-term permanent physical loss of a biological resource typically due to clearing and grading associated with project implementation (e.g., permanent loss of vegetation/wildlife habitat, injury/mortality of individual plants or wildlife, permanent interference with wildlife movement or habitat connectivity). Temporary impacts refer to a temporary loss of biological resources that would generally occur for a short period (e.g., up to approximately one year) and would normally be reversible (e.g., temporary removal of vegetation during construction after which revegetation would occur).

Indirect impacts are reasonably foreseeable project effects on adjacent biological resources outside the direct disturbance zone that may occur typically during construction, such as from dust, noise, vibration, increased human activity, and pollutants. Indirect impacts also include project-related effects that could occur later in time, such as changes to hydrology, introduction of invasive species, operations-related dust and noise that persist after construction is complete.

Potential impacts on biological resources resulting from implementation of the proposed project were determined by mapping and quantifying common and sensitive habitats, including SSHCP modeled habitats, within the solar development area, by identifying potential effects to special-status species that could result from loss of these habitats and from other potential project-related direct and indirect effects, by evaluating the location and spatial context of wildlife movement corridors and known nursery sites relative to proposed project activities, and by assessing the consistency with local policies and ordinances including the SSHCP Conservation Strategy.

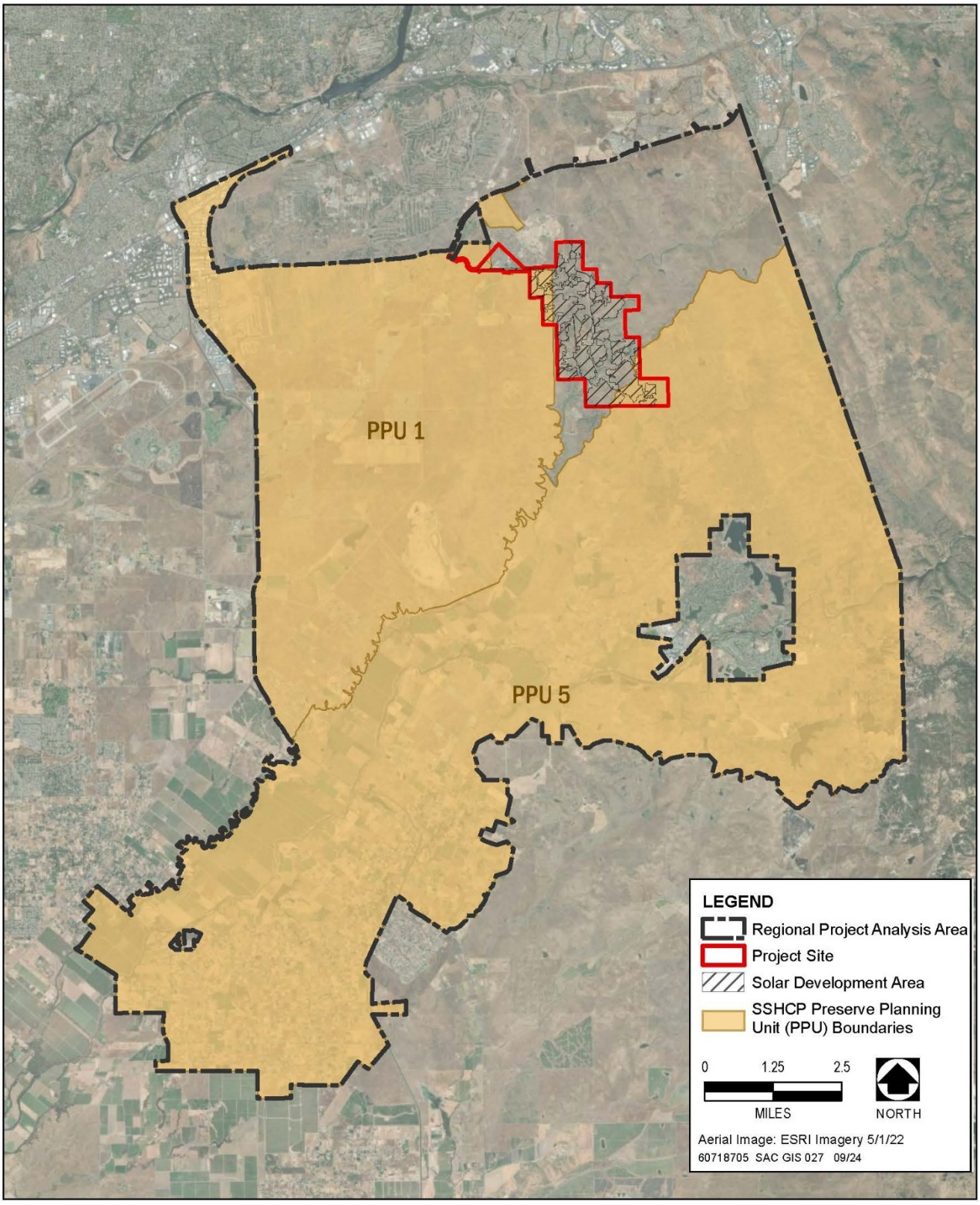
A detailed analysis of project impacts and impact determinations are provided in the following sections. For species and resources for which modeled suitable habitat data are available from the SSHCP, a “regional project analysis area” consisting of the northeastern portion of the SSHCP Plan Area (i.e., PPUs 1 and 5 and the portion of the SHCP Plan Area in between) was

used to evaluate the impact context for biological resources (Plate BR-4). This regional project analysis area was selected because PPUs were delineated, in part, to be spatially representative of regional biological resources, with each PPU capturing specific habitats and areas of importance for a suite of species characteristic of that portion of the SSHCP Plan Area (County of Sacramento et al. 2018), and because relevant biological resources data are readily available for these areas. Impacts below are discussed both in terms of project site-specific impact acreages and also within the context of the "regional project analysis area" to reflect impacts to biological resources in the region.

PROJECT IMPACTS AND MITIGATION MEASURES

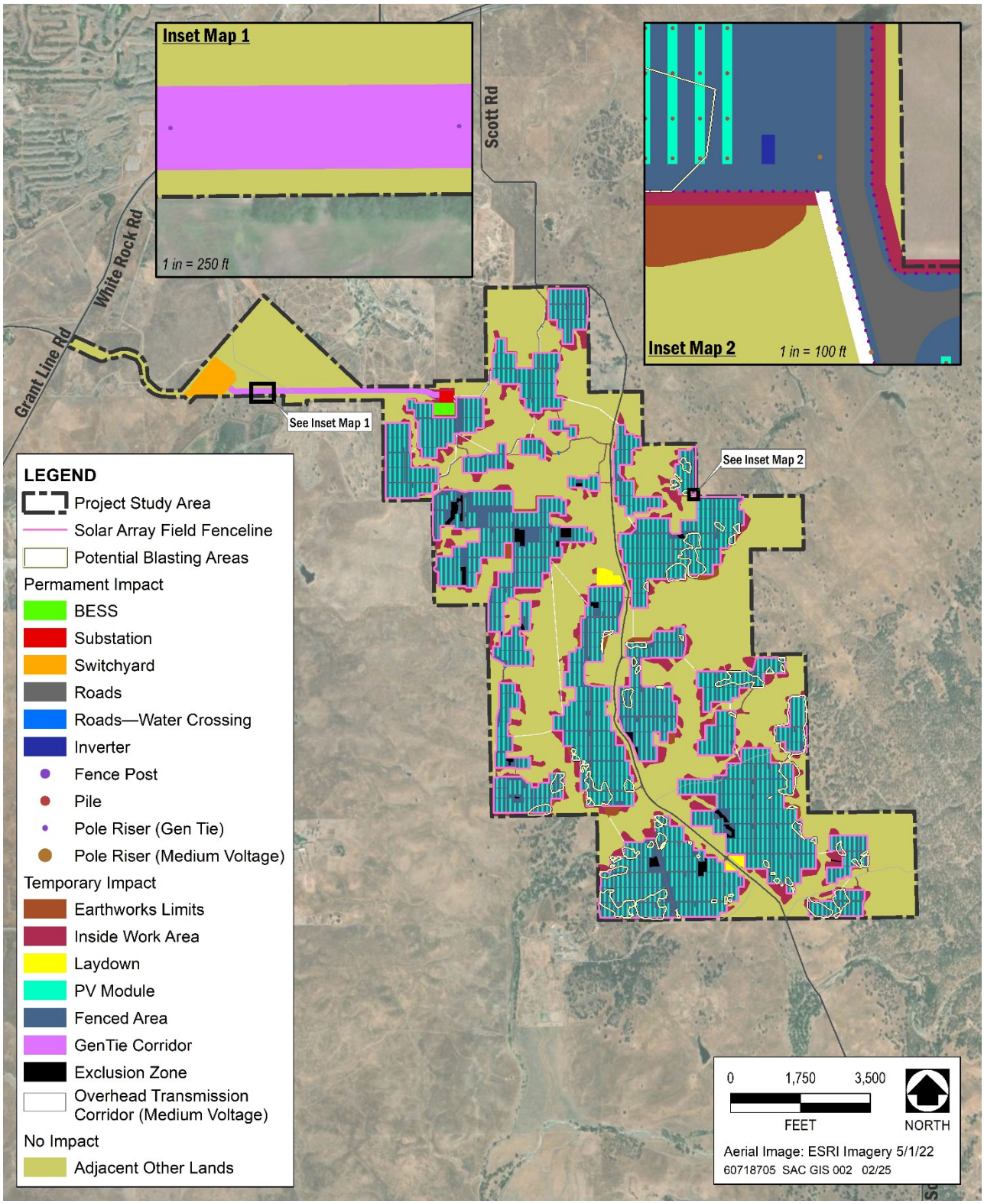
Plate BR-5 identifies the permanent and temporary impact footprint (i.e., direct impacts) for the proposed project as it relates to individual project components (e.g., BESS, substation, roads, etc.). Table BR-6 summarizes temporary and permanent impacts to vegetation communities and land cover types from the proposed project, according to the impact categories displayed on Plate BR-5. However, one exception is that permanent impacts have been assigned to all project components where they overlap vegetation communities characterized by a tree canopy layer (i.e., blue oak woodland, blue oak woodland [forest], and riparian woodland/forest) because all trees are proposed for removal from the entire solar development area. Plate BR-5 and Table BR-5 provide the basis, in part, for the impact analyses present in the sections that follow.

Plate BR-4: Regional Project Analysis Area



Source: Dudek 2024

Plate BR-5: Proposed Project Impact Footprint



Source: Dudek 2024

Table BR-5: Proposed Project Direct Impacts on Vegetation Communities/Land Cover Types

Vegetation Community/Land Cover Type[1]	Permanent Impact (Acres)[2]	Temporary Impact (Acres)[3]
Upland Cover Types		
Blue oak woodland (forest)	101.00	0
Blue oak woodland	186.28	0
Riparian woodland/forest	4.19	0
Valley and foothill grassland	52.94	1,035.49
Urban/Developed	0.90	20.20
Subtotal—Upland Cover Types	***345.31***	***1,055.69***
Aquatic Cover Types		
Ditch	0	0.02
Ephemeral channel	0.12	5.97
Intermittent channel	0.12	0.26
Perennial channel	0.10	0.28
Upland swale	0.01	2.07
Freshwater emergent wetland	0	0
Fringe wetland	0	0.01
Pond	0	0.01
Seasonal wetland	0	0.16
Seasonal wetland swale	0.05	1.32
Seep	0	0.01
Vernal pool	<0.01	0.17
Vernal swale	0.02	0.03
Subtotal—Aquatic Cover Types	***0.42***	***10.30***
Total	**345.73**	**1,066.00**

Sources: Dudek 2024; compiled by AECOM 2023

Notes:

[1] Upland vegetation communities and landcover types are based on the Holand classification system (Holland 1986). Aquatic cover types are based on the aquatic resources delineation completed by Dudek (Appendix BR-1) and the Cowardin classification system (USFWS 2013).

[2] Permanent impacts on vegetation communities/land covers were assessed for the following project components: the battery energy storage system, substation, switchyard, access roads, fence posts, inverters, solar panel piles, and poles supporting electrical infrastructure. Permanent impacts were additionally assessed on all vegetation communities with trees (i.e., blue oak woodland, blue oak woodland (forest), riparian woodland/forest) from the following project components, because trees would be permanently removed from all of these areas: earthwork limits, inside work area, fenced area, photovoltaic (PV) module, gen-tie corridor, overhead transmission corridor (medium voltage).

[3] Temporary impacts on vegetation communities/land covers without trees were assessed for the following project components: earthwork limits, inside work areas, laydown areas, PV modules, fenced area, gen-tie corridor, overhead medium voltage transmission line corridor, and exclusion zones.

Impact BR-1: Have a Substantial Adverse Effect, Either Directly or Through Habitat Modifications, on Any Species Identified as a Candidate, Sensitive, or Special-Status Species in Local or Regional Plans, Policies, or Regulations, or by CDFW or USFWS

Impact Summary

Ground-disturbing activities during project construction (including grading and potential blasting) would result in the temporary and permanent removal of, or degradation (e.g., through erosion or sedimentation) to habitats that are potentially suitable for and/or known to be occupied by special-status plants and wildlife. Noise, vibration, visual or physical disturbances, and fugitive dust generated during ground-disturbing construction or operations could harm or kill special-status plants and wildlife or cause special-status wildlife to abandon essential life history functions (e.g., breeding sites) within or adjacent to the solar development area. Accidental spills/leaks from construction- or operations-related equipment use could expose special-status plants and wildlife to harmful pollutants. Construction vehicles and equipment used during construction and operations could introduce weeds that degrade wildlife habitat or compete with special-status plants. The operation of PV solar fields could result in "lake-effect" injury or mortality to birds and bats, as described further below (see also sections "Other Nesting Raptors and Migratory Birds," and "Native Bats"). Operation of electrical infrastructure (e.g., overhead powerlines, transformers, substation) could cause injury or mortality of special-status wildlife from collision or electrocution. Trash and material stockpiles generated during construction and water use during construction and operations and maintenance activities (e.g., dust control, washing solar modules) could attract wildlife into harm's way or attract predators that harm special-status wildlife. Decommissioning activities would have a short-term adverse impact on special-status species that continue to use the project site during operations, but is likely to have a long-term beneficial impact on special-status species, in particular grassland and woodland associated species. Depending on the level of restoration achievable on-site, wetland-associated species may also benefit from decommissioning. Additional detail about effects from potential blasting and the "lake effect" are provided in the paragraphs that follow.

Blasting may be required during site preparation (i.e., grading) and trenching in areas underlain by granitic materials in order to establish foundations and final graded elevation (see Chapter 2, "Project Description", and Chapter 12, "Noise"). Potential blasting areas are identified on Plate BR-5 and total approximately 106 acres within the 1,412-acre solar development area. Construction of the project would include up to one blasting event per day, for a total of 35 blasting events. Each proposed blasting event would be no more than approximately 8 tons of charge detonated in multiple instantaneous blasts of no more than 2.8 kg charges spread out over a maximum 30-minute duration in total on any given day. As identified in Chapter 12 (Noise), blasting is anticipated to generate the second highest noise and vibration levels of all proposed project-related construction activities. During blasting, noise and vibration levels are anticipated to be 98.1 decibels (dB) Equivalent Noise Level (L_{eq}) at 150 feet (See Table NOI-14) and 0.999 inches per second (in/sec) peak particle velocity (PPV), or 108 vibration decibels (VdB), at 149 feet (Dudek 2024), respectively, without implementation of standard best management practices that are typically implemented to reduce resultant noise and vibrations (and that are required by mitigation identified in Chapter 12 of this EIR). Each blasting event would displace between 10,000 and 12,000 cubic yards of soil, with an average depth of 12 feet.

For the purposes of analysis in this EIR, potential blasting areas are considered a temporary impact, except where they overlap areas identified as permanent impacts (see Plate BR-5).

Noise and vibrations associated with blasting activities have potential to negatively affect wildlife, including nesting birds and burrowing mammals. Blasting noise and vibrations may temporarily displace individuals from adjacent suitable habitats; cause abandonment of nests, eggs, or young; affect communication between individuals in a way that could increase vulnerability to predation, reduce foraging efficiency or breeding success; or cause general increases in stress levels. The physical displacement of soil and rock during blasting could also cause direct injury/mortality of wildlife as a result of being stricken by blast debris or by being entombed in burrows that collapse as a result of vibrations from blasting, but see further discussion below with regard to best management practices typically implemented during blasting (and required by mitigation detailed in Chapter 12 of this EIR, “Noise”) that would avoid and minimize potential for these impacts.

Both noise and vibration diminish in magnitude with increases in distance from the source. Noise levels diminish by approximately 6 dB per doubling of distance from the source; vibration levels diminish by approximately 35.4 percent per doubling of distance from the source. Both noise and vibration attenuation can be affected by other environmental factors, such as weather and soil type, but generalized attenuation rates presented above and identified in Tables NOI-14 (for noise) and Table BR-6 (for vibration), below, have been assumed to be representative for the project site.

Table BR-6: Attenuation of Blasting Vibration Levels with Distance.

Distance from Blasting Source (Feet)	Anticipated Vibration Level (VdB)	Anticipated Vibration Level (PPV in in/sec)
149	108	0.999
160	107	0.9
173	106	0.8
189	105	0.7
209	104	0.6
236	102	0.5
274	100	0.4
435	94	0.2
691	88	0.1

Note:

in/sec = inches per second

PPV = peak particle velocity

As identified in Chapter 12, ambient noise levels measured at the project site ranged from 40 to 68 A-weighted decibels (dBA) (see Table NOI-4); and a typical background vibration-velocity level in residential areas is approximately 50 VdB (0.0013 in/sec PPV). Potential impacts on wildlife from blasting noise and vibrations may occur up to the distance where disturbance levels attenuate to ambient levels. However, substantial adverse noise effects may reasonably be expected to be limited to distances up to where noise levels drop to 50-60 dBA, an identified conservative multiple-impulse noise impact threshold (such as for jackhammer or pile driving

activities) that has been previously identified for birds (Caltrans 2016) and may be reasonably assumed to be a substantial impact threshold for birds and other wildlife in relation to project-proposed blasting, where short-term multiple-impulse blasts may occur for up to 30-minutes in duration in a given day. Based on noise attenuation modeling, unmitigated blasting-generated noise (i.e., without implementation of standard blasting best management practices) would attenuate to 60 dBA at approximately 2.3 miles (~ 12,000 feet) from the blasting source. With implementation of standard best management practices such as blast mats and temporary noise barriers which can conservatively reduce noise levels by 20 dBA (See Chapter 12, "Noise"), noise levels could be reduced to approximately 55 dBA at 0.5 mile. Most wildlife known or with potential to occur on-site are mobile and could move away from high noise areas for the relatively short duration of this potential impact (up to 35 days of blasting impacts in total, spread out across the project site); furthermore, for wildlife that would be expected to remain in burrows during blasting events, noise impacts would be expected to be buffered in their underground burrows. However, nesting birds and communally roosting bats may be subject to significant negative impacts within approximately 0.5 mile of proposed blasting areas with implementation of noise mitigation measures.

In regard to potential impacts from vibrations, a case study that evaluated blasting- and traffic-induced vibrations on the stability of artificially created desert tortoise and San Bernardino kangaroo rat burrows found that vibrations up to as high as 0.4 in/sec PPV (equivalent to approximately 99 VdB) did not cause burrow collapse (Barneich et al 2004). Furthermore, a conservative engineering assessment of the structural integrity of Hawaiian petral burrows in Maui, Hawaii determined that burrows would be expected to sustain vibrational forces associated with up to 0.12 in/sec PPV without collapse; these same burrows sustained a 6.8 magnitude earthquake (measured at 3.4 in/sec PPV) in the immediate proximity and did not collapse (USFWS 2007). Using values from these studies as a guideline for impact thresholds and based on vibration attenuation modeling identified in Table BR-6, blasting-generated vibrations from the project would be expected to attenuate to 0.4 in/sec within 100 feet from the blasting source. Therefore, special-status species present in burrows within 100 feet from the blasting source could be subject to potentially significant impacts from vibrations.

Ongoing impacts on wildlife during project operation could also result from increased human presence and activities in the area, including visual and noise disturbances, as well as direct impacts related to collisions with solar arrays, including the "lake effect" (Kagan et al. 2014) or collisions/electrocutions associated with electrical infrastructure (Huso et al. 2016).

The "lake effect" refers to the potential direct impacts on wildlife in which wildlife (e.g., birds and bats) might collide with or become stranded within photovoltaic (PV) panels because of the water-like reflective surface created by the aggregation of closely spaced PV panels onto which they are attracted or otherwise attempt to land (Kagan et al. 2014). Horvath et al. (2009) first introduced the concept as polarized light pollution, in which artificial surfaces such as asphalt, glass, and PV solar panels reflect highly and horizontally polarized light. Because many animal taxa are known to perceive polarized light and to use polarized light as environmental cues, and because highly and horizontally polarized light is very attractive to some animal groups (e.g., insects), Horvath et al. (2009) identified the potential for ecological traps from artificial sources of polarized light in particular surfaces that reflect supernormal polarization signatures. While potential exists for "lake-effect" related impacts, some recent studies on the impact of utility-scale solar development on birds and bats in the United Kingdom (Harrison et al. 2017) and in California (Diehl et al. 2024) suggest that collision risk of PV solar facilities to birds and bats may

depend on the habitat and landscape context (arid regions may experience higher mortality) and taxonomic group, such as higher risk to water-obligate species in arid environments and warblers; and overall may be relatively low when compared to other forms of solar energy facilities (concentrated solar power) and wind energy facilities. Plate BR-5 shows the project site plan and identifies the project components as they relate to the temporary and permanent construction disturbance footprint for the proposed project. While solar panels would create permanent overhead cover along rows of solar arrays within the solar array fields, much of the existing vegetation beneath the panels and between rows and array blocks would remain unaffected or would be restored to grassland soon after project construction per implementation of the Agricultural Management Plan (see Mitigation Measure AG-1 in Chapter 4, "Agricultural Resources").

Details regarding species-specific impacts are described in the species-specific subsections included below. Collectively, impacts on special-status species resulting from project construction, operations and maintenance activities, and decommissioning would be **potentially significant**.

To avoid and minimize general construction-related impacts on special-status plants and wildlife, the following general avoidance and minimization measures (AMMs) shall be implemented during construction and decommissioning of the project. The following AMMs were developed, in part, based on a review of *SSCHP General Avoidance and Minimization Measures, Condition 3 – Implement Construction Best Management Practices* and *General Covered Species Take Avoidance and Minimization Measures for applicability to the Project*.

Mitigation Measures

BR-1a: Implement Construction Best Management Practices to Avoid and Minimize Potential for Construction-Related Impacts on Special-Status Plants and Wildlife.

- ***Construction Fencing.*** *Orange construction fencing, or equivalent, shall be installed to ensure that ground disturbance does not extend beyond the allowed construction footprint (i.e., the limit of project construction plus equipment staging areas, vehicle parking, materials storage, and newly-developed access roads). The fencing shall remain in place until project completion.*
- ***Erosion Control.*** *Before implementing ground-disturbing activities, temporary control measures for sediment, stormwater, and pollutant runoff shall be installed to protect water quality and species habitat. Silt fencing or other appropriate sediment control device(s) shall be installed downslope of any activities that disturbs soils. Fiber rolls and seed mixtures used for erosion control shall be free of viable noxious weed seed. Erosion controls installed in or adjacent to known or potential habitat for western pond turtle and western spadefoot must be of appropriate design and materials that shall not entrap the species (e.g., not contain mesh netting). Regular monitoring and maintenance of the project's erosion control measures shall be conducted until project completion to ensure effective operation of erosion control measures.*
- ***Equipment Storage and Fueling.*** *During construction activities, equipment storage and staging shall occur only in designated areas of the development footprint. Fuel storage and equipment fueling shall occur a minimum of 100 feet away from waterways, stream channels, stream banks, and other environmentally sensitive areas (e.g., known rare*

plant occurrences) within the development footprint. If construction activities result in a spill of fuel, hydraulic fluid, lubricants, or other petroleum products, the spill shall be absorbed, and waste disposed of in a manner to prevent pollutants from entering a waterway or stream setback.

- ***Erodible Materials.*** *Construction activities must not deposit erodible materials into waterways; vegetation clippings, brush, loose soils, or other debris material shall not be stockpiled within stream channels or on adjacent banks. Erodible material must be disposed of such that it cannot enter a waterway, stream setback or aquatic land cover type. If water and sludge must be pumped from a subdrain or other structure, the material shall be conveyed to a temporary settling basin to prevent sediment from entering a waterway.*

- ***Dust Control.*** *During ground-disturbing construction activities, active construction sites shall be watered regularly, if warranted, to avoid or minimize impacts from construction dust on adjacent vegetation and wildlife habitats. No surface water shall be used from aquatic land covers and water shall be obtained from a municipal source or existing groundwater well.*

- ***Construction Lighting.*** *All temporary construction lighting (e.g., lighting used for security or occasional nighttime equipment maintenance or other limited scope of work such as to avoid extreme heat) shall be directed away from adjacent natural habitats, and particularly riparian and wetland habitats and wildlife movement areas.*

- ***Biological Monitor.*** *A qualified biological monitor shall be on-site during construction activities as needed, as described below in Mitigation Measure BR-1b (Special Status Plants), Mitigation Measure BR-1c (Western Spadefoot), Mitigation Measure BR-1d (Western Pond Turtle), Mitigation Measure BR-1f (Swainson's Hawk), Mitigation Measure BR-1g (Tricolored Blackbird), Mitigation Measure BR-1h (Valley Elderberry Longhorn Beetle)), Mitigation Measure BR-1l (Nesting Raptors and Migratory Birds), and Mitigation Measure BR-1m (Crotch's Bumble Bee).*

- ***Training of Construction Staff.*** *A mandatory Worker Environmental Awareness Program (WEAP) shall be conducted by a qualified biologist for all construction workers, including contractors, prior to the commencement of construction activities. The training shall include how to identify special-status species that might enter the construction site, relevant life history information and habitats, statutory requirements and the consequences of non-compliance, the boundaries of the construction area and permitted disturbance zones, litter control training (SPECIES-1), and appropriate protocols if a special-status species is encountered.*

- *Supporting materials containing training information shall be prepared and distributed by the qualified biologist. When necessary, training and supporting materials shall also be provided in Spanish. Upon completion of training, construction personnel shall sign a form stating that they attended the training and understand all AMMs.*

- ***Soil Compaction.*** *After construction is complete, all temporarily disturbed areas shall be restored similar to pre-project conditions, including impacts relating to soil compaction, water infiltration capacity, and soil hydrologic characteristics.*

- ***Revegetation.*** *Cut-and-fill slopes shall be revegetated with native or existing non-invasive, non-native plants (e.g., non-native grasses) suitable for the altered soil conditions. Non-native plants identified as a State listed noxious weed or as a California Department of Food and Agriculture rated A through C invasive plant are prohibited.*

- ***Speed Limit.*** *Project-related vehicles shall observe the posted speed limits on paved roads and a 10-mile-per-hour speed limit on unpaved roads and during travel in project areas. Construction crews shall be given weekly tailgate instruction to travel only on designated and marked existing, cross-country, and project-only roads.*

- ***Litter Removal Program.*** *A litter control program shall be instituted for the entire project site. All workers shall ensure that their food scraps, paper wrappers, food containers, cans, bottles, and other trash are deposited in covered or closed trash containers. All garbage shall be removed from the project site at the end of each workday, and construction personnel shall not feed or otherwise attract wildlife to the area where construction activities are taking place.*

- ***No Pets in Construction Areas****. To avoid harm and harassment of native species, workers and visitors shall not bring pets onto a project site.*

- ***Minimize Effects from Temporary Channel Re-Routing.*** *If necessary to temporarily re-route a stream, creek, or drainage in order to conduct project work activities (i.e., conducting work when the channel is naturally dry is not feasible), the re-routing will be completed in a manner that minimizes impacts to beneficial uses and habitat. The following measures will be employed to minimize disturbances that will adversely impact water quality:*

  - *No equipment will be operated in areas of flowing or standing water.*

  - *Construction materials and heavy equipment must be stored outside of the active flow of any waters.*

- ***Design for Stream Channel Alterations.*** *Local, native materials will be used as fill material to the extent practicable.*

- ***Prevent Invasive Species Spread.*** *Construction- and operations-related activities shall be conducted in a manner that avoids the spread of invasive species. Such prevention measures shall include the following:*

  - *Before bringing any equipment onto the project site, equipment must be cleaned of mud, dirt, and plant material. Cleaning shall occur in the infested area, or another appropriate off-site location as approved by Sacramento County.*

  - *Ground-disturbing activities shall start in un-infested areas and move to infested areas to the maximum extent feasible. Where work must occur in infested areas, equipment must be cleaned of any mud, dirt, and plant material before moving into un-infested areas; or the project proponent shall apply an appropriate manual, mechanical, or chemical (if authorized) treatment in accordance with County and State regulations prior to working in infested areas.*

  - *Invasive plant prevention techniques shall be incorporated into operations and maintenance plans.*

  - *A qualified biologist shall be retained to conduct an annual weed survey in spring for five years following construction along all road shoulders, ditches and other linear aquatic features, and the fence line within portions of the project site disturbed during construction for invasive weeds or other exotic plant species. Where new weed infestations (relative to pre-project conditions) have been identified or where known prior noxious weed infestations appear to have expanded as a result of project developments, the project proponent shall apply an appropriate manual, mechanical, or chemical (if authorized) treatment in accordance with County and State regulations.*

- ***Blasting Plan.*** *Implement Mitigation Measure NOI-1b, Prepare and Implement a Blasting Plan, which includes optimizing blast design parameters (e.g., charge size, delay intervals, etc.) and using blast mats to cover the blast area to reduce noise levels; and implement noise monitoring to determine if additional real-time sound attenuating measures, as specified, are necessary. In addition to requirements in NOI-1b, which are intended to ensure compliance with noise related regulations, additional sound attenuating measures, as described in NOI-1b, may be needed to reduce potential noise- and vibration- related impacts to special-status species, as identified in the species-specific mitigation measures subsections provided below.*

A species-specific impact analysis and identification of required mitigation are provided in the following sections.

Special-Status Plant Species

Database searches revealed no special-status plant occurrences previously documented within the solar development area; the nearest previously documented rare plant occurrence is approximately 1.3 miles southwest of the project site (Sacramento Orcutt grass). However, four rare plants were observed during project surveys in 2023 and 2024 within and near the solar development area that could be affected by project activities: spiked western rosinweed (*Calycadenia spicata*) (within and adjacent to the solar development area), and Ahart's dwarf rush and pincushion navarretia (adjacent to the solar development area), as further described next. More than 500 individuals of spicate calycadenia (CRPR 1B.3, annual) were detected in 31 separately mapped occurrences throughout the western half of the solar development area and in adjacent areas west of the project site in 2023; populations were reportedly widespread and variable within these areas (Appendix BR-1, Biological Technical Report). Ahart's dwarf rush (CRPR 1B.2, annual) and pincushion navarretia (CRPR 1B.1, annual) were also detected in a few locations outside of, but adjacent to, the solar development area. Two individuals of Ahart's dwarf rush were observed approximately 35 feet west of the proposed switchyard in association with a vernal pool. Over 2,000 pincushion navarretia plants were observed in three general locations outside of, but adjacent to, the solar development area: (1) approximately 70 feet west of the proposed switchyard, in association with a vernal pool; (2) approximately 60 to 375 feet west of solar array fields along the western boundary of the solar development area, in association with vernal pools, seasonal wetlands and an ephemeral drainage; and (3) approximately 100 feet east of solar array fields in the southwest portion of the site, in association with a vernal pool. While rainfall was considered low during 2021, 2022 delivered slightly above average precipitation for the region, and 2023 and 2024 were considered exceptionally wet. Therefore, rare plant surveys conducted in 2022, 2023 and 2024 were considered sufficient to expect germination and detection of potential special-status species considered in this document.

A total of 18 separately mapped occurrences of spiked western rosinweed within the western portions of the solar development area could be directly impacted by the project during construction activities associated with the solar array fields, which represents approximately 58 percent of the 31 occurrences within the project site. Because this is an annual species for which the population numbers fluctuate in any given year, the actual direct impact to individuals may differ at the time of project construction; however, because the potential impact is based on survey results from an extremely wet survey year (2023), it is likely to be representative of the maximum potential impact to this species. Direct impacts on spiked western rosinweed could occur during site preparation/grading, driving of support piles for solar panels, trenching of underground collection lines and overland travel of vehicles and equipment through suitable habitats; and could include removal/unearthing of or crushing individuals, smothering individuals under stockpiled material, and temporary disturbance/degradation to occupied habitat (e.g., soil compaction). Such activities could cause a reduction in the local seed bank if individuals are removed/destroyed prior to seed set. Because this species was only recently added to the CRPR list, as a 1B.3 ranked species, there are currently no records in the CNDDB. Calfora reports approximately 160 occurrences of this species in California, of which five are from Sacramento County and including one in the project site vicinity (east of Scott Road) from 2021 (Calflora 2024). While the project would impact approximately 58 percent of the local on-site population and approximately 11 percent of state-wide occurrences, occurrences in adjacent areas of the project site are likely to persist beyond construction. However, the entire range of this species is currently restricted to a narrow band along the eastern edge of the Central Valley and adjacent lower Sierra Nevada foothills from Butte County to Kern County (Stone et al. 2023). Degradation of adjacent special-status plant habitat for spicate calycadenia, Ahart's dwarf rush, and pincushion navarretia from inadvertent encroachment of project construction activities into adjacent occupied occurrences, fugitive dust, the introduction of invasive weeds, project-related stormwater runoff, spills of toxic materials, or changes in on-site hydrology or drainage patterns would not be expected because the project would implement construction best management practices (see Mitigation Measure BR-1a) and would be required to comply with laws, regulations, and ordinances (including permit terms) related to water quality (see Impact HYD-1 in Chapter 10, "Hydrology and Water Quality").

Implementation of grazing regimes or other vegetation management actions as part of the Agricultural Management Plan, if incompatible with the life cycle of spiked western rosinweed, could reduce the long-term persistence of this species on the site. Because the project would impact a majority (approximately 60 percent) of the on-site occurrences for spiked western rosinweed, representing approximately 11 percent of documented occurrences across its currently known range, this would be considered a potentially significant impact. The potential loss of any known special-status plant occurrence would be considered a **potentially significant** impact.

To reduce impacts to spiked western rosinweed, Ahart's dwarf rush, and pincushion navarretia to less than significant, the following Mitigation Measure BR-1b shall be implemented as part of the project:

Mitigation Measures

BR-1b: Avoid, Minimize, and Mitigate for Impacts on Special-Status Plants.

- *Implement Mitigation Measure BR-1a, in particular the following: Construction Fencing, Erosion Control, Equipment Storage and Fueling, Erodible Materials, Dust Control, Construction Lighting, Biological Monitor, Training of Construction Staff, Soil Compaction, Revegetation and Prevent Invasive Species Spread.*
  - *A discussion of special-status plant species with potential to occur, sensitive natural communities, and sensitive aquatic resources shall be included in the WEAP discussed under "Training of Construction Staff" Mitigation Measure BR-1a.*
- *For special-status plant occurrences identified during project surveys to be within 100 feet of the solar development area (i.e., spiked western rosinweed, Ahart's dwarf rush, and pincushion navarretia), install environmentally sensitive area (ESA) fencing to protect and avoid these occurrences from inadvertent encroachment from adjacent construction activities. ESA fencing and/or appropriate signage shall be installed at a minimum of 20 feet from the edge of special-status plant populations. The project shall avoid performing any construction-related activities within the ESA. For work that cannot be avoided in the ESA, a biological monitor shall be present when project construction-related activities occur.*
- *For special-status plant occurrences within the solar development area (i.e., spiked western rosinweed), install ESA fencing to protect and avoid all (i.e., complete avoidance) or portions of known occurrences from direct disturbances during construction (i.e., spatial avoidance) to the maximum extent feasible. ESA fencing shall be installed as described above. A biological monitor shall be present when project construction-related activities occur within the ESA.*
- *Where spatial avoidance during construction, as described above, does not avoid effects, implement temporal avoidance by scheduling work activities (e.g., overland travel, grading, etc.) within known occurrences of spiked western rosinweed to occur after the majority of plants within the occurrence have set seed for the year (i.e., typically in late summer/early fall), as determined by a qualified botanist. If ground-disturbing activities must be conducted within known occurrences of this species, the following shall also be required in addition to temporal avoidance:*
  - *salvage topsoil from occupied areas prior to ground-disturbances for reestablishment once construction is complete,*
  - *retain a qualified botanist to monitor during initial ground-disturbing activities within known occurrences of this species to ensure all required measures are being implemented, and*
  - *retain a qualified botanist to conduct periodic surveys throughout the operational life of the project (including the first year post-construction and approximately every five years on average thereafter, with the goal of targeting years with sufficient rainfall for successful germination of this species). The intent of monitoring during operations is to confirm the re-establishment and continued occupancy of spiked western rosinweed within each recorded occurrence where temporal avoidance is implemented and to ensure no net loss of occurrences of this species.*
- *Incorporate specific grazing/mowing regimes and other relevant management measures consistent with the long-term preservation of spiked western rosinweed occurrences on-*

site into the Agricultural Management Plan (see Mitigation Measure AG-1 in Chapter 4, "Agricultural Resources"), such as mowing after seed set, incorporating compatible grazing prescriptions, and installing permanent ESA signage near spiked western rosinweed occurrences within/adjacent to the solar development area to alert Operations and Management staff of the ESA and any associated operational restrictions.

- *Implement the Aquatic Resource Mitigation Plan, as required under Mitigation Measure BR-3, to protect adjacent wetlands/waters within 50 feet from the solar development area that support special-status plants from indirect impacts.*

SPECIAL-STATUS WILDLIFE SPECIES

WESTERN SPADEFOOT

Western spadefoot has not been documented in the solar development area and no recent records (within the past few decades) are documented within five miles. No western spadefoot or their larval masses were observed during focused larval and eye-shine surveys conducted in suitable aquatic habitat within the solar development area in 2022. Furthermore, no suitable burrows for this species were observed during upland burrow surveys conducted for this species concurrently with burrowing owl surveys in 2021. However, potentially suitable aquatic (e.g., vernal pools, seasonal wetlands, swales, and other aquatic features) and upland habitats for this species are present in the solar development area and the potential for this species to occur cannot be ruled out from one season of negative aquatic survey results. A fairly recent occurrence of this species (from 2018) was documented approximately six miles southwest of the project site (CDFW 2024e). While little is known about the movements and dispersal distances of this species, a recent study from southern California found that western spadefoot burrows were located on average within 225 feet from aquatic breeding pools (Baumberger et al. 2019).

Project implementation would result in the temporary and permanent loss of potential aquatic habitat (e.g., vernal pools and other seasonal aquatic habitats) and adjacent upland habitat (e.g., annual grasslands and oak woodland), as shown in Table BR-7. Permanent impacts on aquatic habitat would result primarily from the construction of roads, and also minimally from installation of solar panel piles, power poles, and fence posts; temporary impacts on aquatic habitat would primarily occur within the fenceline of the solar array fields. For upland habitat, the majority of permanent impacts on upland habitats would result from construction of roads, the switchyard, the battery energy storage system, and substation; and the vast majority of temporary impacts would result from construction of the solar array fields. However, required implementation of the Aquatic Resources Mitigation Plan (see Mitigation Measure BR-3) would compensate for the potential loss of aquatic habitats that could support this species and restore temporarily impacted aquatic habitat within and around the solar array fields. Furthermore, the project would restore annual grasslands in and around solar fields and continue site grazing as part of the implementation of the Agricultural Management Plan (see Mitigation Measure AG-1 in Chapter 4, "Agricultural Resources"), which would help maintain suitable upland habitat for this species on-site after construction and throughout operations.

Table BR-7: Project Impacts on Western Spadefoot Aquatic and Upland Habitat

Habitat Type[1]	Permanent[2] (Acres)	Temporary (Acres)[3]	Total (Acres)
Aquatic	0.42	10.30	10.72
Upland	62.38	1,1,313.33	1,375.71
Total	62.80	1,323.63	1,386.43

1 Suitable aquatic habitat for this species includes all aquatic features within the solar development area. Suitable upland habitat includes oak forest, oak woodland, valley and foothill grassland (within 5,249 ft of suitable aquatic habitat) within the solar development area.

2 Permanent impacts on western spadefoot habitat were assessed for the following project components: the battery energy storage system, substation, switchyard, access roads (including at water crossings), fence posts, inverters, solar panel piles, and poles supporting electrical infrastructure (i.e., pole risers).

3 Temporary impacts on western spadefoot habitat were assessed for the following project components: earthwork limits, inside work areas, laydown areas, photovoltaic (PV) modules, fenced area, gen-tie corridor, the overhead medium voltage transmission line corridor, and exclusion zones.

Temporary and permanent impacts from the proposed project represent approximately 2 percent of suitable aquatic (567 acres) and upland (62,877 acres) habitats for this species in the regional project analysis area (see Plate BR-4). Of the total impact from the proposed project, 8.61 acres of permanent impacts and 279.95 acres of temporary impacts on suitable aquatic and upland habitat for western spadefoot would occur within the Mather Core Recovery Area, an area identified in the vernal pool recovery plan as necessary for the conservation of vernal pool-associated species such as western spadefoot.

Injury or mortality of western spadefoot individuals could result from vehicle/equipment strikes, entrapment in trenches or construction materials, or from being entombed in burrows/aestivation sites during the use of construction equipment or vehicles, if individuals are present in work areas during ground disturbing activities (including as a result of vibration-induced emergence from burrows). Blasting may occur to support grading activities in areas underlain by bedrock (see Plate BR-5). Blasting is not likely to impact this species while in aestivation sites (outside the breeding/dispersal season) as areas of bedrock are not typically considered suitable for this species; furthermore, blasting activities would be sited to avoid aquatic features within the solar development area.

Degradation of adjacent habitat from inadvertent encroachment, fugitive dust, and the introduction of non-native weeds would be unlikely because of implementation of construction BMPs (See Mitigation Measure BR-1a). Implementation of construction BMPs and the project stormwater pollution and prevention plan, as required by existing regulations (see Chapter 10, “Hydrology and Water Quality”, Impact HYD-1), would also largely prevent sedimentation, runoff, and pollution related impacts to off-site wetlands and grasslands that might support this species.

Indirect impacts could include displacement of individuals, or disruption of essential life history activities (e.g., foraging, breeding, nesting, etc.) of western spadefoot in adjacent areas because of increased human presence, light, and noise during operations and maintenance. Installation of seven-foot-tall agricultural-style woven wire fence around solar array fields could impede movement of western spadefoot on site after project construction, particularly if fencing is installed between potential breeding ponds and upland refugia/dispersal sites and does not include specifications for a gap at the bottom to allow for wildlife movement. Injury or mortality of individuals could also result the use of equipment/vehicles on-site during operations and maintenance (e.g., panel washing, mowing, etc.), if project operations occur during the breeding

and dispersal season, and the species is present. In addition, on-site wetlands and other suitable aquatic breeding habitat that are restored after temporary construction impacts could be subject to long-term degradation from shading by solar panels during operations that could change water temperature, vegetation composition, and hydrology (including hydroperiod) of wetlands; this would potentially affect up to 2.34 acres of suitable aquatic habitat for this species present in the PV module portion of the solar development area (i.e., beneath solar panels).

Because the project would impact upland and aquatic habitat for this species, including approximately 289 acres (1.19 percent) of impacts within the Mather Core Recovery Area (USFWS 2005), and could result in injury to or mortality of western spadefoot individuals, if present; this impact would be considered **potentially significant**.

To reduce impacts to western spadefoot to less than significant, Mitigation Measure BR-1c (Avoid, Minimize, and Mitigate for Impacts on Western Spadefoot) shall be implemented as part of the project.

Mitigation Measures

BR-1c: Avoid, Minimize, and Mitigate for Impacts on Western Spadefoot.

- *Implement Mitigation Measure BR-3 (State or Federally Protected Wetlands and Other Waters).*
- *Implement Mitigation Measure AG-1 (see Chapter 4, "Agricultural Resources").*
- *Implement Mitigation Measure BR-1a (Construction Best Management Practices).*
  - *Western spadefoot shall be included in the WEAP discussed under "Training of Construction Staff" in Mitigation Measure BR-1a.*
  - *In addition, if erosion control (described in Mitigation Measure BR-1a) is implemented in the solar development area, non-entangling erosion control material shall be used to reduce the potential for entrapment. Tightly woven fiber netting (mesh size less than 0.25 inch) or similar material shall be used to ensure that western spadefoots are not trapped (i.e., no monofilament). Coconut coir matting and fiber rolls containing burlap are examples of acceptable erosion control materials.*
- *Avoid Aquatic Habitat or Implement Work Window: Where feasible, temporary construction fencing shall be installed a minimum of 250 feet from the delineated wetland edge of any potentially suitable aquatic habitats (e.g., vernal pools, seasonal wetlands) for western spadefoot. All construction and operations activities are prohibited within this buffer area. If aquatic habitats are not avoided, project ground-disturbing activities within such areas (including overland driving of vehicles and equipment) shall be restricted to the Western Spadefoot Work Window (see below).*
- *Western Spadefoot Work Window: Project ground-disturbing activities (including overland driving of vehicles and equipment) within suitable habitat for western spadefoot (e.g., grassland, woodland) shall occur outside of this species' breeding and dispersal seasons (i.e., work to occur after May 15 and before October 15).*
- *Pre-construction Survey: If project ground-disturbing activities must be implemented in potentially suitable habitat for this species during the breeding and dispersal season*

(October 15 to May 15), activities shall not start until 30 minutes after sunrise and must be completed 30 minutes prior to sunset. In addition, a qualified biologist shall conduct a pre-construction survey of the active work areas (including access roads) for western spadefoot prior to initial ground disturbance and prior to work activities in mornings following measurable precipitation events. The survey will include searching small mammal burrows, crevices, and other potential refugia, as well as underneath equipment and inside uncapped stored pipes that are 3 cm (1.2 inches) or greater in diameter. Construction may commence once the biologist has confirmed that no spadefoot are in the work area. If western spadefoot is encountered, refer to Spadefoot Encounter Protocol, below.

- *Construction Monitoring: If project ground-disturbing activities must be implemented in potentially suitable habitat for this species during the breeding and dispersal season (October 15 to May 15), a qualified biologist experienced with western spadefoot identification and behavior shall monitor the solar development area. The qualified biologist shall be on-site daily while construction-related activities are taking place and shall inspect the solar development area for these species every morning prior to construction activities. The qualified biologist shall also train construction personnel on the required species avoidance procedures, and correct protocols in the event that a western spadefoot enters an active construction zone. If western spadefoot is encountered, refer to Spadefoot Encounter Protocol, below.*

- *Spadefoot Entrapment Avoidance: All excavated steep-walled holes or trenches more than six inches deep shall be covered with plywood (or similar material) or provided with one or more escape ramps constructed of earth fill or wooden planks (maximum 2:1 slope) at the end of each workday or 30 minutes prior to sunset, whichever occurs first. All steep-walled holes or trenches shall be inspected by the qualified biologist each morning prior to and each evening after work activities for the day to ensure that no wildlife has become entrapped and/or to relocate any wildlife that may have become trapped to suitable habitat outside the construction area; relocation would take place only by a qualified biologist with appropriate handling permits. All construction pipes, culverts, similar structures, construction equipment, and construction debris left overnight within potential habitat shall be inspected for western spadefoot by the qualified biologist prior to being moved. If western spadefoot is encountered, refer to WS-6, below.*

- *Spadefoot Encounter Protocol: If a western spadefoot is encountered during project activities, the qualified biologist shall notify CDFW and any other appropriate responsible Agency (e.g., USFWS if the species has become federally listed) immediately. Project activities shall be suspended within a 100-foot radius of the animal until the animal moves out of the work area on its own volition, or is relocated by a qualified biologist with appropriate handling permits. Prior to relocation, the qualified biologist shall notify CDFW and USFWS (if relevant) to determine the appropriate procedures related to relocation. If the animal is handled, a report shall be submitted within one business day to CDFW and USFWS (if relevant) that includes the date, location, habitat description, circumstances requiring the animal to be handled, and any additional measures taken to further protect western spadefoot. Any worker who inadvertently injures or kills a western spadefoot or who finds any individual(s) dead, injured, or entrapped must immediately report the incident to the qualified biologist. The biologist shall report any take (i.e., injury or mortality) of listed species to CDFW and USFWS (if relevant) immediately.*

- *Rodent Control: Rodent control shall be allowed only in and around human-occupied portions of the project site.*
- *Spadefoot Friendly Fencing Specifications: During operations, if woven wire fence to be installed around the perimeter of solar array fields would not allow for the passage of western spadefoot (i.e., spacing of woven wire is not sufficient to allow for passage of a western spadefoot), incorporate appropriate design features along the bottom of the perimeter fencing to allow for the movement of western spadefoot across fencing (e.g., incorporate a minimum 3 inch-wide gap between the ground surface and bottom of the fence).*

NORTHWESTERN POND TURTLE

Seven northwestern pond turtle records are documented within five miles of the project site. Furthermore, 10 northwestern pond turtle individuals were observed along Carson Creek during reconnaissance-level surveys conducted for the project from 2021 through 2023. Northwestern pond turtle individuals were primarily observed in association with deeper fringe wetlands with slower moving water.

Project implementation could impact this species through the permanent loss of or temporary disturbance to suitable aquatic habitat (e.g., ditches and ephemeral, intermittent, and perennial channels and nearby aquatic features) and adjacent upland habitats (i.e., blue oak woodland and forest, riparian woodland/forest, and valley and foothill grassland) in the amounts shown in Table BR-8. Similar to that described for the western spadefoot, implementation of Mitigation Measure BR-3 and the Agricultural Management Plan (see Mitigation Measure AG-1) would compensate for habitat loss and restore and maintain some habitat function in the solar development area.

Table BR-8: Project Impacts on Northwestern Pond Turtle Aquatic and Upland Habitat

Habitat Type[1]	Permanent (Acres)[2]	Temporary (Acres)[3]	Total (Acres)
Aquatic	0.34	6.47	6.81
Upland	45.98	1,338.33	1,384.31
Total	46.32	1,344.80	1,391.12

1 Suitable aquatic habitat for this species includes: all linear aquatic features (ditches; ephemeral, intermittent, and perennial channels); and freshwater emergent wetlands, ponds, fringe wetlands, and seeps that occur within 0.25 mile from linear aquatic features. Suitable upland habitat includes all natural communities (i.e., non-urban/developed) within 0.25 mile from suitable aquatic habitat, defined above.

2 Permanent impacts on northwestern pond turtle habitat were assessed for the following project components: the battery energy storage system, substation, switchyard, access roads (including at water crossings), fence posts, inverters, solar panel piles, and poles supporting electrical infrastructure (i.e., pole risers).

3 Temporary impacts on northwestern pond turtle habitat were assessed for the following project components: earthwork limits, inside work areas, laydown areas, photovoltaic (PV) modules, fenced area, gen-tie corridor, and overhead medium voltage transmission line corridor, and exclusion zones.

Temporary and permanent impacts from the proposed project represent less than 1 percent of suitable aquatic habitat (981 acres) and approximately 3 percent of suitable upland habitat (42,743 acres) for this species in the regional project analysis area (see Plate BR-4).Project construction, operations, and maintenance activities could result in injury/ mortality (including in aestivation sites) and/or loss of nests, if this species is present in suitable habitat within the solar

development area during construction or operations in suitable habitat on-site, similar to that described above for western spadefoot.

- Indirect impacts would be similar to that described for western spadefoot, above.
- Potential injury to or mortality of this species would be considered a **potentially significant** impact.

To reduce impacts to northwestern pond turtle to less than significant, the following Mitigation Measure BR-1d shall be implemented as part of the project:

Mitigation Measures

BR-1d: Avoid, Minimize, and Mitigate for Impacts on Northwestern Pond Turtle.

- *Implement Mitigation Measure BR-3 (State and Federally Protected Wetlands and Other Waters).*
- *Implement Mitigation Measure AG-1 (see Chapter 4, "Agricultural Resources").*
- *Implement Mitigation Measure BR-1a (Construction Best Management Practices).*
  - *In addition, if erosion control (described in Mitigation Measure BR-1a) is implemented in the solar development area, non-entangling erosion control material shall be used to reduce the potential for entrapment. Tightly woven fiber netting (mesh size less than 0.25 inch) or similar material shall be used to ensure that turtles are not trapped (i.e., no monofilament). Coconut coir matting and fiber rolls containing burlap are examples of acceptable erosion control materials.*
  - *This species shall be included in the WEAP discussed under "Training of Construction Staff" in Mitigation Measure BR-1a.*
- *Avoid Aquatic Habitat Where Feasible: Where feasible, temporary construction fencing shall be installed a minimum of 300 feet from the potential suitable aquatic habitat for northwestern pond turtle (e.g., streams, ponds, freshwater emergent wetlands, etc.). All construction and operations activities shall be prohibited within this buffer area, or implement the Western Pond Turtle Work Window (see below).*
- *Western Pond Turtle Work Window: For any project-related activities that occur within 300 feet of suitable aquatic habitat, project ground-disturbing activities shall be conducted outside of northwestern pond turtle's active season (i.e., work to occur after May 1 and before September 15). If project activities must be implemented during the breeding and dispersal season, they shall not start until 30 minutes after sunrise and must be completed 30 minutes prior to sunset.*
- *Western Pond Turtle Pre-Construction Survey: a qualified biologist shall conduct a pre-construction survey for northwestern pond turtle within 48 hours prior to the start of construction activities within 300 feet of suitable aquatic habitat. Concurrently with the pre-construction survey, assessments for nesting pits and/or wintering site (e.g., burrows) shall be conducted and any identified sites shall be delineated with high visibility flagging or fencing and avoided during construction activities.*

- *Western Pond Turtle Encounter Protocol: If a northwestern pond turtle, nesting pits, and/or wintering sites are encountered during the pre-construction survey a qualified biologist shall be present during grubbing and clearing activities in suitable habitat to monitor for northwestern pond turtle. If a turtle is observed in the active construction zone, project activities shall be suspended within a 100-foot radius of the animal until the animal moves out of the work area on its own volition. If necessary, the qualified biologist shall notify CDFW to determine the appropriate procedures related to relocation to nearby suitable habitat. If the animal is handled, a report shall be submitted within one business day to CDFW that includes the date, location, habitat description, circumstances requiring the animal to be handled, and any additional measures taken to further protect northwestern pond turtle. Any worker who inadvertently injures or kills a northwestern pond turtle or who finds one dead, injured, or entrapped must immediately report the incident to the qualified biologist.*

- *Work in Aquatic Habitat, Dewatering and Exclusion: If project does not avoid potential aquatic habitats, as described above, scheduled work activities when habitat is naturally dry (e.g., in seasonal aquatic habitats). If project activities must occur in suitable aquatic habitat that is wetted, the following shall be implemented: The wetted aquatic habitat shall be dewatered and remain dry and absent of aquatic prey (e.g., crustaceans and other aquatic invertebrates) for a minimum of 15 days prior to the initiation of construction activities. If complete dewatering is not possible, CDFW shall be contacted to determine what additional measures may be necessary to minimize effects to northwestern pond turtle. After aquatic habitat has been dewatered for a minimum of 15 days, exclusion fencing shall be installed extending a minimum of 300 feet into adjacent uplands to isolate both the aquatic and adjacent upland habitat within work area boundaries. Exclusionary fencing shall be erected 36 inches above ground and buried at least 6 inches below the ground to prevent any northwestern pond turtles from attempting to burrow or move under the fence into the work area. In addition, high-visibility fencing shall be erected to identify work area limits and to protect adjacent habitat from encroachment of personnel and equipment. Northwestern pond turtle habitat outside exclusionary fencing shall be avoided by all construction or maintenance personnel. The fencing and work area shall be inspected by a qualified biologist before the start of each workday and periodically throughout each workday to ensure that the fencing is intact and that no northwestern pond turtles have entered the work area. Fencing shall be maintained by the contractor or maintenance entity until completion of the work, upon which it shall be completely removed. If, after exclusion fencing and dewatering, northwestern pond turtles are found within the work area, the qualified biologist shall contact CDFW to discuss the next best steps such as the relocation of the individual(s) to suitable aquatic habitat outside the exclusion fencing.*

BURROWING OWL

Eight burrowing owl records are documented within five miles of the solar development area. Furthermore, project surveys conducted from 2021 through 2023 confirmed occupancy of the site vicinity by burrowing owl during its breeding season: one burrowing owl was observed perched in the central northwestern portion of the project site in 2021, approximately 250 feet from the solar development area boundary along the upper reaches of the Carson Creek corridor. Additionally, 11 potential burrows/complexes, one potential burrow/complex with signs of use (e.g., pellets, whitewash, etc.) and an isolated pellet were observed within the solar

development area. Occurrences within the project site were focused along the upper reaches of Carson Creek and lower reaches of Coyote Creek near its confluence with Carson Creek. While observations of this species and its sign were primarily recorded in the northernmost and southwestern most portions of the solar development area, all open areas within the solar development area (e.g., annual grassland) and areas of sparse tree cover (i.e., oak woodland with less than 10 percent canopy cover) provide suitable foraging and nesting habitat for this species.

Project implementation would result in the temporary and permanent loss of annual grasslands, seasonally inundated habitats, and suitable oak woodlands (less than 10 percent cover) that provide potential breeding/foraging and potential wintering habitat for burrowing owl, as identified in Table BR-9. The majority of permanent impacts would be associated with the solar array field portion of the project, which would predominantly include open ground beneath individual solar panels and between rows and blocks of solar panels (i.e., subarrays) that would be restored to grassland upon completion of construction per Mitigation Measure AG-1 (Implement the Agricultural Management Plan, see Chapter 4). However, it has been conservatively assumed that burrowing owls would not use the solar array fields after construction because they typically inhabit areas that are open and sparse. Similarly, areas within the fenced solar facility that would be excluded from development (i.e., exclusion zones) would likely be too small (all are less than 3 acres each) and fragmented to support this species after project construction; therefore, exclusion zones within the fenced solar facility would also be considered a permanent loss of habitat. Therefore, the entire area of suitable habitat for this species within the solar array field, and adjacent areas up to the solar array fence line would be considered a permanent impact on burrowing owl habitat. Permanent loss of burrowing owl habitat would also result from construction of access roads (including at water crossings), the battery energy storage system, substation, switchyard, and the footprint of support poles (i.e., pole risers) used to support the gen-tie and overhead medium voltage collection lines. Temporary construction areas outside the solar array field perimeter fence line, such as inside work areas, earthwork limits, laydown areas, and work area corridors associated with the overhead electrical system (gen-tie and medium voltage lines) (refer to Plate BR-5) would all be restored to suitable habitat, per implementation of the Agricultural Management Plan, that could be used by burrowing owl post-construction.

Table BR-9: Project Impacts on Burrowing Owl Nesting and Foraging Habitat

Habitat Type[1]	Permanent (Acres)[2]	Temporary (Acres)[3]	Total (Acres)
Nesting and Foraging Habitat	1,064.03	220.99	1,285.02

1 Suitable nesting (and foraging) habitat for this species within the solar development area includes: valley and foothill grassland and blue oak woodland. The following additional seasonally inundated features were included as potentially suitable foraging habitat: ditch, ephemeral channel, intermittent channel, upland swale, seasonal wetland, seasonal wetland swale, vernal pool, and vernal swale.

2 Permanent impacts on burrowing owl habitat were assessed for the following project components: the battery energy storage system, substation, switchyard, access roads (including at water crossings), fence posts, inverters, solar panel piles, PV modules, fenced area, exclusion areas (where they occur within the fenceline of the solar array fields), and the poles supporting electrical infrastructure (i.e., pole risers).

3 Temporary impacts on burrowing owl habitat were assessed for the following project components: earthwork limits, inside work areas, laydown areas, gen-tie corridor, the overhead medium voltage transmission line corridor, and exclusion areas (where they occur outside the fenceline of the solar array fields).

The project-related permanent loss of suitable nesting/foraging habitat for burrowing owl (see Table BR-9) would be approximately 1,064 acres, representing approximately 2 percent of suitable habitat (59,433 acres) for this species in the regional project analysis area (see Plate

BR-4). Project indirect impacts could also cause habitat degradation for this species similar to that described under "Special-status Plant Species," above.

Construction-related ground disturbance could destroy potentially active and/or occupied burrows during site clearing and grading (such as through crushing and entombing immobile eggs or juveniles if present during the breeding season), injure or kill individuals from equipment strikes, or harass individuals near occupied burrows to the extent that it causes reduced survival or nest success from construction noise or activity that agitates nesting birds. Project surveys identified three potentially active burrows/complexes (with sign) and 37 additional suitable burrows/complexes in or within 500 feet of the solar development area that could be impacted in one or more of these ways if burrowing owl are active within any of these burrows during construction.

Since it is assumed that burrowing owl would not be likely to use the solar field facility once developed, potential impacts on burrowing owl during project operations would most likely be limited to indirect harassment and or displacement of individuals in adjacent areas from increased human presence, specific operation and maintenance activities (e.g., mowing, panel washing), and facility lighting.

Injury to or mortality of burrowing owls, their nests, or young, or the direct removal of occupied burrow(s) would be considered a **potentially significant** impact. To reduce impacts to burrowing owl to less than significant, the following Mitigation Measure BR-1e shall be implemented as part of the proposed project.

Mitigation Measures

BR-1e: Avoid, Minimize, and Mitigate for Impacts on Western Burrowing Owl and Occupied Nesting Habitat.

- *Implement Mitigation Measure AG-1 (see Chapter 4, "Agricultural Resources").*
- *Implement Mitigation Measure BR-1a (Construction Best Management Practices).*
  - *This species shall be included in the WEAP discussed under "Training of Construction Staff" in Mitigation Measure BR-1a.*
- *A qualified biologist shall conduct a preconstruction survey for burrowing owl no more than 30 days prior to ground-disturbing activities to provide updated information on owl locations and occupied burrows for impact avoidance, minimization, and mitigation planning. The survey shall cover the limits of ground disturbance and potentially suitable habitat within 500 feet. The survey shall be consistent with CDFG (2012), or more current CDFW guidelines. If ground-disturbing activities are delayed, then additional surveys shall be conducted such that no more than 7 days elapse between the survey and ground-disturbing activities.*
- *A Burrowing Owl Mitigation and Management Plan shall be developed in consultation with CDFW and consistent with CDFG's Staff Report on Burrowing Owl Mitigation (March 2012), or more current CDFW guidelines prior to project construction. The CDFW-approved Burrowing Owl Mitigation and Management Plan shall be submitted to the County of Sacramento for review prior to the start of construction. The plan shall address long-term ecological sustainability and maintenance of the site for burrowing owls, where*

feasible in the solar development area (i.e., temporary impact areas) and in adjacent areas. The Plan shall require the applicant to achieve a performance standard of no net loss of burrowing owl nesting and foraging habitat acreage, function, and values and shall include the following elements:

- *A description of the preconstruction distribution and abundance of burrowing owls and existing habitat conditions at the project site.*
- *Avoidance and minimization measures to be implemented during project construction to avoid direct and indirect impacts on burrowing owls (e.g., establishment by a qualified biologist of a minimum of 50 meters, up to 500 meters, non-disturbance buffers around active burrows depending on the time of year and type of activity, consistent with CDFW's 2012 Staff Report guidelines), including a discussion of any proposed passive relocation activities, if necessary (e.g., non-breeding season active burrows that cannot feasibly be avoided).*
- *Proposed management of burrowing owl nesting and foraging habitat during project operation and maintenance to achieve the goal of no net loss of existing habitat value for burrowing owls within temporary impact areas.*
- *A monitoring and reporting plan addressing implementation and success of the management plan and identifying actions needed to maintain foraging and nesting habitat and reduce stressors on wintering and nesting burrowing owls.*
- *An adaptive management plan that includes additional measures described below if the performance standards of no net loss of burrowing owl nesting and foraging habitat value are not being met.*
- *If CDFW determines that off-site compensatory mitigation is necessary to comply with the performance standard of no net loss of habitat acreage, function, and values for burrowing owls, compensation shall be implemented consistent with the SSHCP goals of preserving and linking high-quality habitat, preserving and reestablishing natural land covers that provide suitable habitat, and maintaining or expanding the existing distribution of the species within the SSHCP Plan Area. The applicant may provide off-site compensatory mitigation to achieve the no net loss performance standard through acquisition of a conservation easement or mitigation credits from an appropriate mitigation bank, or another form of mitigation, as approved by CDFW. Compensation may be layered with other mitigation requirements, such as for Swainson's hawk foraging habitat (see Mitigation Measure BR-1f, if acceptable by CDFW).*

SWAINSON'S HAWK

NESTING HABITAT

Fourteen Swainson's hawk records are documented within five miles of the project site, five of which were within the last 20 years; the nearest are northwest of the project site and south of the project site at the confluence of Deer Creek and Carson Creek (CDFW 2024e, Plate BR-2). Project surveys from 2021 through 2023 confirmed use of the solar development area and vicinity by this species. During 2023 surveys, several courting pairs of Swainson's hawks were observed in proximity to potential nest sites (i.e., trees with nest structures present) within the

solar development area; but no confirmed active Swainson's hawk nest sites were located within the solar development area. A total of 24 Swainson's hawk individuals were observed foraging, perching, and displaying courtship within the solar development area; primarily within the southwestern portion of the solar development area near the confluence of Coyote Creek and Carson Creek and scattered elsewhere along these two drainages within the solar development area. Trees within and adjacent to the solar development area (see Section "Native and Non-Native Trees," above) may provide additional potential nesting habitat for this species within and outside of the project site. Suitable nesting habitat for this species within the solar development area includes blue oak woodlands, blue oak woodlands (forest), and riparian woodland/forest; much of which occurs in proximity to or along drainage corridors (Table BR-1, Plate BR-1). Development of the project would result in permanent and temporary impacts to potential nesting habitat, and potentially to nesting Swainson's hawks, if active nests are present within and adjacent to the solar development area during construction and/or operations, as described below.

Project construction would result in the direct permanent removal of five potential nest sites (i.e., trees with raptor nest structures present) in the southern portion of the solar development area. Removal of a known active nest site could reduce future reproductive success of Swainson's hawk that return to breed the following season(s) after nest site removal because the pair(s) must search for, possibly compete for, and potentially build new nest sites before they can breed. Furthermore, the project would result in the permanent loss of additional potential nesting habitat in the amounts shown in Table BR-10. Permanent loss of nesting habitat would result from the permanent removal of all trees from the entire solar development area prior to project development, including areas subject to temporary construction impacts and long-term development, operations and maintenance (see also Impact BR-5). Many of the trees proposed for removal from the solar development area are large and potentially suitable for Swainson's hawk nesting (refer to Appendix BR-1, Project Arborist Report for tree data). Temporary noise and visual disturbances during the approximately 18-month construction period could temporarily reduce the quality and use of adjacent nesting habitat, especially when Swainson's hawk are present in the region during the nesting season.

Table BR-10: Project Impacts on Swainson's Hawk Nesting and Foraging Habitat.

Habitat Type[1]	Permanent (Acres)[2]	Temporary (Acres)[3]	Total (Acres)
Nesting Habitat	291.45	0.0	291.45
Foraging Habitat	911.10	187.65	1,098.75
Total	1,202.55	187.65	1,390.20

1 Suitable nesting habitat for this species within the solar development area includes: blue oak woodland, blue oak woodland (forest), and riparian woodland/forest. Suitable foraging habitat within the solar development area includes: valley and foothill grassland, ditch, ephemeral channel, intermittent channel, upland swale, seasonal wetland, seasonal wetland swale, vernal pool, and vernal swale.

2 Permanent impacts on nesting habitat for Swainson's hawk were assessed for all project components associated with the site plan, except exclusion zones, because permanent tree removal would occur from all areas of the project footprint, except from exclusion zones. Permanent impacts on foraging habitat for Swainson's hawk were assessed for the following project components: the battery energy storage system, substation, switchyard, access roads (including at water crossings), fence posts, inverters, solar panel piles, PV modules, fenced area, exclusion zones (where they occur within the fenced solar array fields), and the poles supporting electrical infrastructure (i.e., pole risers).

3 Temporary impacts on foraging habitat for Swainson's hawk were assessed for the following project components: earthwork limits, inside work areas, laydown areas, gen-tie corridor, the overhead medium voltage transmission line corridor, exclusion zones (where they occur within the fenced solar array fields).

In addition, project construction, including grading and grubbing, near suitable nesting habitat (e.g., riparian or woodland/forest habitats) could indirectly disturb Swainson's hawk nest sites, if active nests are located within 0.5 mile of work activities within the solar development area during project construction. Increased levels of noise and human activity within 0.5 mile of an active nest could result in nest abandonment or forced fledging and subsequent incidental loss of fertile eggs, nestlings, or juveniles; or the harassment of adults. In particular, blasting could cause elevated noise levels above the 50-60 dBA noise threshold, within 0.5 mile, as described under "Impact Summary," above. During operations, noise from operating facilities would not be expected to exceed 62 dBA beyond 50 feet from project inverters, the primary source of onsite noise (see Chapter 12; Table NOI-16); therefore, Swainson's hawk may avoid nesting within approximately 50 feet of these locations during the 35-year operation of the facility.

The project-related permanent loss of nesting habitat for Swainson's hawk (Table BR-10) would be approximately 291 acres, which represents 21 percent of suitable nesting habitat (1,362 acres) within the regional project analysis area.

FORAGING HABITAT

The project site and vicinity provide suitable foraging habitat for Swainson's Hawk, as directly observed during project surveys. Two active raptor (not Swainson's hawk) nest sites located in and within 0.5 mile from the solar development area during project surveys highlights the potential suitability of the solar development area and vicinity as foraging habitat for locally nesting Swainson's hawk. Additionally, 29 Swainson's hawk nests or presumed nest sites (none reportedly active in the last five years) have been documented since 1962 within 10 miles of the project site, primarily along the Cosumnes River corridor (CDFW 2024e); and further highlighting the potential regional value of grasslands and other open habitats in and near the project site as foraging habitat for this species. Suitable foraging habitat for this species within the solar development area includes valley and foothill grassland and other seasonally inundated open habitats that offer seasonal foraging opportunities in summer and fall (e.g., seasonal wetlands, swales, etc.) (Table BR-1). Development of the proposed project would result in permanent and temporary impacts to grassland and additional seasonal foraging habitat for Swainson's hawk, as described below.

The permanent loss of Swainson's hawk foraging habitat is assumed to result from construction of the solar facility within the full extent of the area within the proposed facility fence line (e.g., fenced solar array fields), and including other permanent development areas outside the fenced solar array fields (See Plate BR-5). Specifically, construction of the substation, battery energy storage system, switchyard, access roads, and overhead electrical transmission poles would permanently convert foraging habitat to non-habitat (i.e., unvegetated condition) outside the fenced solar array fields. Within the fenced solar array fields, construction of project components like solar panel supports (i.e., piles), inverters, and perimeter fence posts would also permanently convert foraging habitat to non-habitat. There is some recent research related to whether Swainson's hawk and other raptors would make foraging use of solar array fields in Sacramento County, including the spaces between the solar panel supports. A study in 2013 and an update in 2021 commissioned by Dudek and prepared by Jim Estep suggests that Swainson's hawk and other raptors have used and foraged within managed solar array fields.[1]

[1] Estep Environmental Consulting. 2021 (November). Swainson's Hawk and Other Raptor Foraging Use of Solar Array Fields within an Agricultural Landscape in Sacramento County, Year 2.

However, because it is not definitively known whether Swainson's hawk would use vegetated areas beneath solar panels or between solar array rows or blocks, and consistent with the requirements of the Sacramento County Swainson's Hawk Ordinance, it has been conservatively assumed that all potential foraging habitat within the solar array field would be permanently converted to non-habitat and would result in a permanent loss of Swainson's hawk foraging habitat. Similarly, areas between solar array blocks and the adjacent proposed facility fence line may be too fragmented to support foraging Swainson's hawk; therefore, it has been conservatively assumed that all potential foraging habitat within the fenced solar facility would no longer function as Swainson's hawk foraging habitat after project construction and throughout operations. Table BR-10 identifies the total acres of potential foraging habitat for Swainson's hawk that would be permanently converted to non-habitat as a result of the proposed project.

Temporary disturbances to foraging habitat would result from construction-related ground disturbances and earthwork occurring outside the solar facility fenceline that are necessary to support construction of the project, including work within the earthwork limits, inside work areas, laydown areas, and within the gen-tie and medium voltage overhead transmission corridors. Total acres of temporary disturbance to potential foraging habitat as a result of the proposed project is shown in Table BR-10. All temporary disturbance areas would be restored to grassland upon completion of construction and managed primarily through a grazing program during operations to maintain low grass heights throughout the year, as required by Mitigation Measure AG-1 (see Mitigation Measure AG-1 in Chapter 4, "Agricultural Resources"). Indirect impacts from long-term facility operations within the solar array fields or other facilities (substation, battery energy storage system, switchyard) could occur in areas adjacent to the solar development area, including areas subject to temporary disturbance after these areas are restored, such as from noise or visual disturbances during maintenance activities that might temporarily alter use of these adjacent restored areas by Swainson's hawk.

Implementation of the Agricultural Management Plan (Mitigation Measure AG-1) would be expected to restore and maintain function to temporary impact areas as grassland foraging habitat for Swainson's hawk after project construction and throughout the operational life of the proposed solar facility because restored temporary disturbance areas would be located outside the facility fenceline and contiguous with adjacent suitable foraging habitat for this species.

Construction-generated disturbances could also cause Swainson's hawk to temporarily avoid foraging in areas adjacent to the project site.

Annual grassland is abundant in eastern Sacramento County. Swainson's hawk foraging habitat in the vicinity of the project site is not considered high value foraging habitat because of the relatively lower density of Swainson's hawk in eastern Sacramento County compared to that in the western part of the County (Sacramento County et al. 2018). The project-related permanent loss of foraging habitat for Swainson's hawk (Table BR-10) would be approximately 911 acres, representing 2 percent of 57,088 acres of non-high value foraging habitat potentially available to this species within the regional project analysis area.

While annual grassland that can serve as foraging habitat is regionally abundant and grasslands in the vicinity of the project site are not considered high value for this species regionally, the permanent loss of grassland within the solar development area could decrease available foraging habitat for locally nesting Swainson's hawks in the vicinity of the solar development area. Depending on the intensity of Swainson's hawk use of the affected foraging habitat, the

project-related loss of foraging habitat could result in displacement of nesting pairs, reduction in reproduction potential, or decreased survival rates, particularly for hawks nesting within 0.5 mile of the project site.

The permanent loss of grassland foraging habitat for Swainson's hawk in proximity to potential nest sites within or adjacent to the solar development area would be considered a significant impact. Therefore, the permanent loss of an estimated 911.10 acres of Swainson's hawk foraging habitat as a result of project development would be considered a potentially significant impact to this species. Compliance with the Sacramento County Swainson's Hawk Ordinance would require the project to mitigate for this permanent loss of foraging habitat at no net loss of the existing foraging habitat value based on the agricultural land use zoning designation of the site. Being located on property with the AG-80 zoning designation, the project would likely be required by Sacramento County to mitigate foraging habitat losses to attain a value of 100 percent of the existing foraging habitat area, or the equivalent of 911.10 acres – the final determination would be based on final approved construction design plans.

Indirect impacts on adjacent foraging habitat from construction or operations and maintenance activities that introduce weeds or create dust could reduce habitat quality.

IMPACTS ON INDIVIDUALS

In addition to impacts on nesting Swainson's hawk described under "Nesting Habitat," above, construction of the approximately 1.3-mile-long gen-tie powerline from the substation to the existing SMUD regional distribution facilities located within the Prairie City State Vehicle Recreation Area and approximately 4.6 miles of medium-voltage overhead transmission lines could pose a collision and/or electrocution risk to Swainson's hawk in the vicinity of the project site.

CONCLUSION

Potential injury to or mortality of Swainson's hawk (including loss of an active nest) or the substantial permanent loss of nesting or foraging habitat (including loss of a recently active nest site/tree) would be considered a **potentially significant** impact. To reduce impacts to Swainson's hawk and their foraging habitat to less than significant, the following Mitigation Measure BR-1f shall be implemented as part of the proposed project.

MITIGATION MEASURES

BR-1f: Avoid, Minimize, and Mitigate for Impacts on Swainson's Hawk and their Nesting and Foraging Habitat.

- *Implement the Agricultural Management Plan (see Mitigation Measure AG-1 in Chapter 4, "Agricultural Resources").*
- *Implement Mitigation Measure BR-1a (Construction Best Management Practices).*
  - *This species shall be included in the WEAP discussed under "Training of Construction Staff" in Mitigation Measure BR-1a.*
- *During the two survey periods immediately preceding commencement of construction occurring during the nesting season (e.g., March 1 through September 15), a qualified biologist shall conduct preconstruction surveys in accordance with Recommended Timing*

and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Tech. Advisory Committee 2000).

- *Consistent with CDFW's recommendations identified in their Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (Buteo swainsoni) in the Central Valley of California (CDFG 1994), if nesting Swainson's hawk are identified within 0.5 mile of the project site during preconstruction Swainson's nesting surveys described above, preconstruction nesting bird surveys (see Mitigation Measure BR-1l, below), or at any point during project construction, ongoing monitoring by a qualified biologist shall be required to ensure there are no unauthorized impacts to this species and its habitat; typically a 0.25- to 0.5-mile buffer of an active nest site shall be implemented during the nesting season (e.g., March 1 through September 15) until the young have fledged to avoid agitation to the nest. The requirement for monitoring shall be determined in consultation with CDFW biologists after they are notified of any nesting Swainson's hawk within 0.5 mile of the project site during construction.*

- *If impacts on SWHA individuals cannot be fully avoided, obtain an incidental take permit from CDFW for anticipated take of SWHA nesting sites and foraging habitat and for potential project-related take of individuals.*

- *To minimize potential for collision by or electrocution of nesting raptors, including Swainson's hawk, or migratory birds from project-related electrical infrastructure, the electrical collection infrastructure shall conform with the most current edition of the Avian Power Line Interaction Committee (APLIC) guidelines to prevent collisions and electrocutions, found at: https://www.aplic.org/mission.*

- *Compensation shall be provided for the permanent loss of Swainson's hawk foraging habitat (e.g., grassland and other seasonal open areas) to achieve a performance standard of no net loss of habitat acreage, function and values to Swainson's hawk. The project may achieve the performance standard through the County of Sacramento Swainson's Hawk Mitigation Program or other compensatory programs (e.g., mitigation banks; conservation easements) that provide permanent protection of mitigation lands. Under the County of Sacramento program, mitigation for permanent loss of foraging habitat is required for the change in habitat value from the existing condition (100 percent of foraging habitat value remaining based on the AG-80 zoning) to the post-project habitat value. Permanent impacts to foraging habitat from the proposed project would be determined once final approved construction design plans are completed and shall be compensated for at 100 percent of the acres of permanent impact; at the time of writing of this document, the total permanent impact on foraging habitat was estimated at 911.10 acres corresponding to a compensatory mitigation requirement of 911.10 acres.[2] For permanent impacts to Swainson's Hawk foraging habitat totaling greater than 40 acres, the County Swainson's Hawk Mitigation Program would require the project to provide mitigation lands (i.e., via title and/or easement). For permanent impacts to foraging habitat totaling less than 40 acres, an impact mitigation fee (per acre fee plus administrative fee)*

[2] If, at any point prior to final approval of the project by the County, CDFW recognizes any portion of solar array fields as providing foraging habitat value for Swainson's hawk during operations, the permanent impact on grassland foraging habitat from the proposed project, and associated required compensation, may be modified accordingly.

may be paid to the County in-lieu of providing mitigation lands or paid for acquisition of credits from a mitigation bank approved by CDFW. If compensation for foraging habitat is achieved outside the Swainson's Hawk Mitigation Program, it shall at minimum meet the mitigation requirement of the Program.

- *The project applicant shall avoid removal of known active Swainson's hawk nest trees[3] to the maximum extent practicable. Compensation shall be provided for the permanent loss of occupied Swainson's hawk nesting habitat, (i.e., removal of known active nest sites/trees to achieve a performance standard of no net loss of habitat acreage, function and values to Swainson's hawk through implementation of a Tree Resource Revegetation Plan (see Mitigation Measure BR-2). A Tree Resource Compliance and Mitigation Memorandum prepared by the Applicant shall be updated to meet the requirements identified herein for the Tree Resource Revegetation Plan for approval of the County prior to project-related tree removal.*
- *Incorporate measures into the Tree Resource Revegetation Plan that shall:*

  1) *ensure mitigation be directed to lands identified on the Open Space Vision Diagram and associated component maps in the Sacramento County General Plan (per General Plan Policy CO-60),*

  2) *ensure mitigation lands are permanently protected (per General Plan Policy CO-62) and have a monitoring and management program with established funding (per General Plan Policy CO-66),*

  3) *ensure compensatory mitigation has similar nesting habitat value for Swainson's hawk (e.g., occupied nesting habitat or adjacent to occupied nesting habitat; occupied being equivalent to having one or more nests active in the past five years and adjacent being equivalent to being within 10 miles from known active nest sites for this species),*

  4) *ensure removal of known nest sites/trees occurs outside the Swainson's hawk nesting season and when the nest site/tree is not active as determined by a qualified biologist (generally between October 1 and February 1), and*

  5) *replace known active nest sites/trees[2] in kind at a minimum ratio of 3:1 and include monitoring annually for five years to assess the effectiveness of tree replacement. The performance standard for nest tree replacement shall be 65 percent survival of all replacement plantings after five years. The Tree Resource Revegetation Plan shall be reviewed and approved by CDFW and the County prior to removal of any trees, including those containing raptor nest structures.*

TRICOLORED BLACKBIRD

Three previously documented occurrences of this species overlap or are immediately adjacent to the solar development area and an additional 15 records of this species are documented within five miles of the project site. Furthermore, focused tricolored blackbird surveys for the project resulted in many observations of this species throughout the entirety of the project site, several were observed scattered along the east side of the Coyote Creek drainage west of Scott

[3] An active nest site/tree includes any nest site/tree that has been documented to be active by Swainson's hawk within the prior five years.

Road and a several were observed (including numerous potential nest sites) along the Carson Creek drainage east of Scott Road. Most observations were outside of the solar development area, but within 500 feet of the solar development area boundary. No nesting colonies were directly observed, but potential nest sites were identified between approximately 80 and 650 feet of the solar development area. Only three tricolored blackbird observations (i.e., individuals vocalizing) were recorded within the solar development area; two along the solar development area boundary closest to Coyote Creek in the southeastern portion of the site and the third along the northwestern edge of the site. Very little potentially suitable nesting habitat (i.e., ponds, fringe wetlands, seasonal wetlands with riparian scrub vegetation, and perennial channel; see Table BR-1), and a much greater extent of foraging habitat (i.e., valley and foothill grasslands; seasonal wetlands; vernal pools; and upland, seasonal wetland, and vernal swales) for this species is present within the solar development area.

Project development could impact tricolored blackbird through the temporary or permanent removal of habitat in the amounts shown in Table BR-11, or injury/mortality of individuals if this species is present within or adjacent to the solar development area during project activities. However, individuals are mobile, and other than immobile nests, would be expected to move out of harm's way during project activities. While implementation of the Agricultural Management Plan would preclude re-establishment of the very small amount of nesting habitat impacted in the solar development area, it would restore areas of temporary impact to grasslands that would be expected to retain foraging habitat value for this species throughout operations.

Table BR-11. Project Impacts on Tricolored Blackbird Nesting and Foraging Habitat.

Habitat Type[1]	Permanent (Acres)[2]	Temporary (Acres)[3]	Total (Acres)
Nesting Habitat	0.42	0	0.42
Foraging Habitat	53.26	1,029.02	1,082.28
Total	53.68	1,029.02	1,082.70

1 Suitable nesting habitat for this species that is present within the solar development area includes: fringe wetlands, ponds, seasonal wetlands with dense riparian scrub vegetation, and potentially perennial channels. Suitable foraging habitat includes all remaining non-forested natural habitats on-site: valley and foothill grasslands; ditches, ephemeral channels, intermittent channels, seasonal wetlands (remaining areas), seeps, vernal pools, upland swales, seasonal wetland swales, and vernal swales).

2 Permanent impacts on tricolored blackbird foraging habitat were assessed for the following project components: the battery energy storage system, substation, switchyard, access roads (including at water crossings), fence posts, inverters, solar panel piles, poles supporting electrical infrastructure (i.e., pole risers).

3 Temporary impacts on tricolored blackbird foraging habitat were assessed for the following project components: earthwork limits, inside work areas, laydown areas, PV modules, fenced area, gen-tie corridor, the overhead medium voltage transmission line corridor.

Although there is a large amount of grassland and cropland available as foraging habitat in the region, the project-related temporary and permanent removal of foraging habitat could decrease foraging opportunities for locally nesting tricolored blackbirds which could in turn result in displacement of nesting pairs, reduction in reproductive potential, or decreased survival rates in the short-term and over the long-term operational life of the project.

Project construction could also impact tricolored blackbird nests, but only if active nests for this species become established in suitable nesting habitat in the solar development area or in close proximity (i.e., within 500 feet of the solar development area) prior to or at any time during construction. Increased levels of noise and human activity within 500 feet of an active nest colony could result in nest abandonment or forced fledging and subsequent loss of fertile eggs,

nestlings, or juveniles. Construction-related disturbances could also cause tricolored blackbirds to temporarily avoid foraging in the solar development area.

Project operations and maintenance could disrupt tricolored blackbird activities, such as causing temporary displacement or reduced foraging success within or near the solar development area, or reduced nesting success in adjacent areas from ground disturbing activities (e.g., mowing), human presence, noise, and light.

According to the most recent state-wide survey for this species (CDFW 2022), approximately 13 percent of the state-wide population of tricolored blackbirds occurs in Sacramento County across 15 occupied sites; Tulare County observed a similar percent of the state-wide population and only Merced and Kern counties observed greater percentages. Furthermore, two of the 10 largest nesting colonies reported were from Sacramento County (CDFW 2022), one approximately 6 miles southwest of the project site and the other approximately 8 miles to the southwest. Prior observations of nesting colonies within and adjacent to the solar development area were recorded most recently in 2015 and 2016 (CDFW 2024e). This highlights the potential importance of eastern Sacramento County, where the project site is located, to the statewide population.

Potential injury to or mortality of tricolored blackbirds (including loss of an active nest or reduced nesting success of a nearby colony) would be considered a **potentially significant** impact.

To reduce impacts to tricolored blackbird to less than significant, the following Mitigation Measure BR-1g shall be implemented as part of the project.

Mitigation Measures

BR-1g: Avoid, Minimize, and Mitigate for Impacts on Tricolored Blackbird.

- *Implement the Agricultural Management Plan (see Mitigation Measure AG-1 in Chapter 4, "Agricultural Resources").*
- *Implement Mitigation Measure BR-1a (Construction Best Management Practices).*
  - *This species shall be included in the WEAP discussed under "Training of Construction Staff" in Mitigation Measure BR-1a.*
- *To the maximum extent feasible, clearing, grubbing, removal, and/or disturbance (e.g., trimming) to any vegetation that is suitable tricolored blackbird nesting habitat shall be performed outside of the nesting season (September through March) to avoid impacts to nesting birds. If vegetation disturbance/removal cannot be avoided during the nesting season for this species, the following measures shall be implemented.*
- *A qualified biologist shall conduct a preconstruction survey for nesting tricolored blackbird approximately two days prior to vegetation or tree removal or ground-disturbing activities during the nesting season (approximately April through August). The survey shall cover the limits of construction and suitable nesting habitat within 500 feet.*
- *If any active nests are observed during surveys, a qualified biologist shall establish a suitable avoidance (i.e., non-disturbance) buffer from the active nest. The buffer distance for tricolored blackbird shall generally be 500 feet and shall be determined based on*

factors such as topographic features, intensity and extent of the disturbance, timing relative to the nesting cycle, and anticipated ground disturbance schedule. Limits of construction shall be established in the field with flagging, fencing, or other appropriate barriers to avoid active nests. Construction limits shall be based on the biologist-defined appropriate buffer distance and shall be maintained until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist.

- *If vegetation removal activities are delayed, additional nest surveys shall be conducted such that no more than 7 days elapse between the survey and vegetation removal activities.*
- *If an active nest is identified within 500 feet of the work area after construction has started, work within 500 feet of the nest shall be suspended until the qualified biologist can provide appropriate avoidance and minimization measures to ensure that the nest is not disturbed by construction. Appropriate measures may include a no-disturbance buffer until the birds have fledged, limitations on construction activities that generate substantial vibration and/or noise, and/or full-time monitoring by a qualified biologist during construction activities conducted near the nest.*

VALLEY ELDERBERRY LONGHORN BEETLE

Valley elderberry longhorn beetle has not been previously documented within the project site. However, five occurrences have been recorded within five miles, including several to the northwest along the American River and to the west and southwest of the project site; the nearest occurrence is documented between White Rock Road and Douglas Road approximately two miles to the west. A large proportion of known occurrences for this species in south Sacramento County are located along the Cosumnes River approximately five miles south of the project site (Sacramento County 2018); additional concentrations of occurrences are located to the north approximately 4 miles, north of U.S. Highway 50 along the American River corridor (Plate BR-2). Focused project surveys for this species identified 10 elderberry shrubs suitable for inhabitation by valley elderberry longhorn beetle (i.e., with stems one inch or greater in diameter) that are in or within 165 feet of the solar development area and could be affected by project implementation (Table BR-12; see also Appendix BR-1a, Figure 15); all of which are along the proposed gen-tie corridor.

Project implementation would not result in the removal of elderberry shrubs suitable for inhabitation by Valley elderberry longhorn beetle. Potential for direct impacts on elderberry shrubs suitable for inhabitation by Valley elderberry longhorn beetle, such as from limb trimming or from ground disturbances within 20 feet (e.g., grading, trenching) that could lead to shrub mortality, are not anticipated due to the general flexibility in siting of gen-tie project components which can typically be shifted to avoid such direct impacts (refer to Mitigation Measures, below). However, seven elderberry shrubs suitable for inhabitation by Valley elderberry longhorn beetle (i.e., potential habitat) and an additional three elderberry shrubs potentially occupied by Valley elderberry longhorn beetle (i.e. potentially occupied habitat) are located within the solar development area or within 165 feet from the solar development area and may be subject to indirect impacts from nearby project activities associated with construction of the proposed gen-tie (Table BR-12).

Table BR-12: Summary of Focused Surveys and Potential Impacts of the Proposed Project for Valley Elderberry Longhorn Beetle

Shrub ID	Habitat Context[1]	Distance from Solar Development Area (Feet)	Focused Survey Result	Potential Impact Type[2]
1	Upland	31	No relict bore/exit holes, no presence observed	Indirect (potential habitat)
2	Upland	38	No relict bore/exit holes, no presence observed	Indirect (potential habitat)
3	Riparian	13	No relict bore/exit holes, no presence observed	Indirect (potential habitat)
4	Riparian	0, within	No relict bore/exit holes, no presence observed	Indirect (potential habitat)
5	Riparian	0, within	No relict bore/exit holes, no presence observed	Indirect (potential habitat)
6	Riparian	11	***Relict bore/exit holes***, no presence observed	Indirect (potentially occupied habitat)
7	Upland	28	No relict bore/exit holes, no presence observed	Indirect (potential habitat)
8	Upland	0, within	No relict bore/exit holes, no presence observed	Indirect (potential habitat)
9[3]	Upland	0, within	***Relict bore/exit holes***, no presence observed	Indirect (potentially occupied habitat)
10[3]	Upland	0, within	***Relict bore/exit holes***, no presence observed	Indirect (potentially occupied habitat)

Notes:
[1] Riparian indicated by shrubs occurring along intermittent channels
[2] Potential Impact Type
Direct: Permanent physical damage leading to the loss of a shrub that is suitable for Valley elderberry longhorn beetle (i.e., stems one inch or greater in diameter) is likely from project activities. This typically would be assumed from the project-related removal of a suitable shrub, not for the purposes of translocation, and could result from actions of shrub trimming or from ground disturbing work within 20 feet from a suitable shrub.
Indirect: Reasonably foreseeable effect from project activities on adjacent suitable shrubs located more than 20 feet, but within 165 feet, from the project disturbance footprint, such as from dust or soil compaction.
No Impact: Shrub would not be affected directly or indirectly from project actions; shrub is greater than 165 feet from any project-related disturbance.
[3] Cluster of more than one elderberry shrub in one location. Shrub in fair condition; there are some minor structural or health problems that pose no immediate danger.
ID = identification

Any impact to valley elderberry longhorn beetle, or potentially occupied habitat for this species (e.g., elderberry shrubs with bore/exit holes present) would be considered a **potentially significant** impact.

To reduce impacts to valley elderberry longhorn beetle and its habitat to less than significant, the following Mitigation Measure BR-1h shall be implemented as part of the project.

MITIGATION MEASURES

BR-1h: Avoid, Minimize, and Mitigate for Impacts on Valley Elderberry Longhorn Beetle and Their Habitat.

- *Implement Mitigation Measure BR-1a (Construction Best Management Practices).*
  - *This species shall be included in the WEAP discussed under "Training of Construction Staff" in Mitigation Measure BR-1a.*
- *Project disturbances shall be avoided within 20 feet from elderberry shrubs potentially suitable for this species (i.e., with stems one inch or greater in diameter).*
- *Indirect impacts to individual elderberry shrubs potentially suitable for inhabitation by Valley elderberry longhorn beetle (i.e., with stems one inch or greater in diameter) and that are located between 20 to 165 feet of project ground disturbances shall be avoided by implementation of the following additional measures:*
  - *Avoidance and Fencing. Project activities that may damage or kill an elderberry plant (e.g., trenching, paving, etc.) shall be avoided or compensated through transplanting existing elderberry shrubs and/or planting new seedling elderberry plants in areas not subject to project disturbance at a performance standard ratio of 1:1. All areas to be avoided during construction activities shall be fenced and/or flagged as close to the project solar development area as feasible. Temporary construction fencing and flagging shall be installed at least 165 feet outside the edge of the driplines of the elderberry plants. Environmentally sensitive area signs shall be erected along the edge of the avoidance area. In areas where encroachment on the 165-foot buffer has been approved by USFWS, a minimum setback of at least 20 feet from the dripline of each elderberry plant shall be provided, as well as documentation of USFWS setback approval.*
  - *Transplanting. If full avoidance of elderberry shrub(s) in the development footprint is not possible, the project proponent will transplant shrub(s) using appropriate best management practices.*
  - *Timing. All project-related activities that could occur within 165 feet of an elderberry plant shall be conducted outside of the flight season of the valley elderberry longhorn beetle (i.e., March through July) to the maximum extent feasible.*
  - *Trimming. Trimming may remove or destroy valley elderberry longhorn beetle eggs and/or larvae and may reduce the health and vigor of the elderberry plant. Therefore, to avoid and minimize direct impacts to valley elderberry longhorn beetle, trimming shall occur between November and February and shall avoid the removal of any branches or stems that are greater than 1 inch in diameter. Measures to address regular and/or large-scale maintenance (trimming) shall be established and approved by USFWS.*
  - *Mowing. Mechanical weed removal within the dripline of any elderberry plant within the solar development area shall be limited to the season when adult valley elderberry longhorn beetles are not active (i.e., August through February) and shall avoid damage to the elderberry plant.*

- *Construction Monitoring. A qualified biologist shall monitor the solar development area if work would occur within the 165-foot avoidance buffer to ensure that all avoidance and minimization measures are implemented, as applicable. The amount and duration of monitoring shall depend on the project specifics and shall be discussed with USFWS.*

SPECIAL-STATUS AQUATIC INVERTEBRATES

Numerous records of special-status aquatic invertebrates (i.e., vernal pool fairy shrimp and vernal pool tadpole shrimp) are located within five miles of the solar development area, including records for both of these species that overlap the proposed gen-tie alignment and switchyard area in the northwest portion of the solar development area and in pools directly north of the solar development area (see Plate BR-2). The nearest designated critical habitat unit for both of these species is approximately five miles west of the project site (Plate BR-2) (USFWS 2023b). While protocol-level surveys for these species were not conducted, approximately 8.59 acres of vernal pool and other seasonally inundated habitats that provide potentially suitable habitat for special-status aquatic invertebrates is present and assumed to be occupied by these two species within the solar development area.

Refer to the impact discussion under Impact BR-3 below for a description of potential permanent, temporary, and indirect impacts to wetlands/other waters, which would be similar to impacts on potentially suitable habitat for special-status aquatic invertebrates. Implementation of the Aquatic Resources Mitigation Plan required as part of Mitigation Measure BR-3 (see "Impact BR-3," below), would compensate for the potential loss of aquatic habitats that could support these species, if they cannot be avoided.

Table BR-13 summarizes potential impacts associated with suitable aquatic habitat for special-status aquatic invertebrates in the solar development area, including impacts on suitable wetlands and other waters within the Mather Core Area identified in the 2005 Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (USFWS 2005). The total project-related impacts on special-status aquatic invertebrate habitat within the Mather Core Area (3.69 acres) represents approximately 16 percent of the 22.64 acres of suitable aquatic habitat present for this species within the portion of the project site that overlaps the Mather Core Area conversely, approximately 84 percent of suitable aquatic habitat would not be impacted within the Mather Core Area of the project site. Recovery Plan goals for the Mather Core Area identify a protection goal of 85 to 95 percent of suitable habitat for these species within the Mather Core Area (USFWS 2005). Therefore, the project would result in approximately 1 percent less than the target level of protection identified for this species in the vernal pool Recovery Plan, when evaluated at the scale of the project site.

Table BR-13. Project-Related Impacts on Suitable Aquatic Habitat for Special-Status Aquatic Invertebrates.

Habitat Type[1]	Permanent (Acres)[2]	Temporary (Acres)[3]	Indirect (Acres)[4]	Total (Acres)
Suitable aquatic habitat (outside Mather Core Area)	0.17	6.46	1.50	6.63
Suitable aquatic habitat (within Mather Core Area)	0.15	3.54	0.83	3.69
Suitable aquatic habitat (total impact)	0.32	10.00	2.34	10.32

1 Suitable habitat for special-status aquatic invertebrates that is present within the solar development area includes the following aquatic cover types: ditch, ephemeral channel, intermittent channel, pond, seasonal wetland, seasonal wetland swale, upland swale, vernal swale, and vernal pool.
2 Permanent impacts on suitable aquatic habitat for special-status aquatic invertebrates were assessed for the following project components: the battery energy storage system, substation, switchyard, access roads (including at water crossings), fence posts, inverters, solar panel piles, and the poles supporting electrical infrastructure (i.e., pole risers).
3 Temporary impacts on suitable aquatic habitat for special-status aquatic invertebrates were assessed for the following project components: earthwork limits, inside work areas, laydown areas, PV modules, fenced area, gen-tie corridor, the overhead medium voltage transmission line corridor, and exclusion zones.
4 Indirect impacts on suitable aquatic habitat for special-status aquatic invertebrates were additionally assessed for the following project components, which are categorized as both indirect and temporary impacts (as described under Impact BR-3): PV modules

Any impact to vernal pool fairy shrimp or vernal pool tadpole shrimp or their potential habitats would be considered a **potentially significant** impact. To reduce impacts to these species to be less than significant, the following Mitigation Measure BR-1i shall be implemented as part of the project.

Mitigation Measures

BR-1i: Avoid, Minimize, and Mitigate for Impacts on Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp.

- *Implement Mitigation Measure BR-1a (Construction Best Management Practices).*
  - *Federally listed vernal pool branchiopod species shall be included in the WEAP discussed under "Training of Construction Staff" in Mitigation Measure BR-1a.*
- *Unless a smaller buffer is approved through formal consultation with USFWS, construction fencing shall be installed a minimum of 250 feet from the delineated wetland edge of any potentially suitable aquatic habitats (e.g., vernal pools, seasonal wetlands) for vernal pool fairy shrimp and vernal pool tadpole shrimp. All construction and operations activities are prohibited within this buffer area. If total avoidance is achieved, no further action is required.*
  - *If avoidance, as described above, is not practicable, implement Mitigation Measure BR-3, Avoid, Minimize, Restore, and Mitigate for Impacts on State and Federally Protected Wetlands to achieve the performance standard of no net loss of State and Federally Protected Wetlands, including vernal pool habitat acreage, function, and values for vernal pool fairy shrimp and vernal pool tadpole shrimp. Direct and indirect effects to on-site suitable aquatic habitats that may support federally listed vernal pool branchiopods shall be offset through on-site preservation and/or the purchase of tadpole shrimp and fairy shrimp species preservation credits from a USFWS-approved in-lieu fee program or other USFWS-approved conservation or mitigation bank. These effects and compensation will be quantified in the Aquatic Resources Mitigation Plan*

provided by the project applicant. The mitigation ratios shall, at minimum, comply with applicable mitigation ratios in terms and conditions of biological opinion issued by U.S. Fish and Wildlife Service pursuant to section 7 of the Endangered Species Act.

- *As part of the Aquatic Resources Mitigation Plan to be implemented as part of Mitigation Measure BR-3, incorporate preservation of suitable aquatic habitat for special-status aquatic invertebrates that occurs within the Mather Core Area of the project site (i.e., Barton Ranch property) to the maximum extent practicable as a component of the compensatory mitigation, or otherwise compensate for the permanent, temporary, and indirect impacts on suitable habitat for special-status aquatic invertebrates within the Mather Core Area portion of the project site with mitigation lands that also occur within the Mather Core Area.*

AMERICAN BADGER

American badger has not been documented within the solar development area; however, one record (from 1990) is documented approximately 4.5 miles southwest of the project site (Plate BR-2) and suitable habitat is present in grasslands, open woodlands, and other seasonally inundated open habitats that offer seasonal foraging opportunities in summer and fall (e.g., seasonal wetlands, swales, etc.).

Project development could impact this species if the species is denning in or near the construction footprint during ground disturbance. If the species is present in the solar development area, impacts could include a loss of occupied habitat (i.e., annual grassland, blue oak woodland) within the solar development area similar to that described for burrowing owl in Table BR-9, destruction of potentially active and/or occupied burrows, injury/mortality of individual badger, and/or harassment from adjacent construction that agitates denning badger.

In addition, this species is largely nocturnal and generally avoids areas of human presence, so the operations and maintenance of the project could continue to impact the habitat quality of the solar development area and vicinity; the species may not use developed areas of the solar development area after construction (e.g., within fenced solar array fields, and other developed facilities).

Potential injury to or mortality of American badger (including loss of an occupied den) would be considered a **potentially significant** impact. To reduce impacts to American badger to less than significant, the following Mitigation Measure BR-1j shall be implemented as part of the project.

MITIGATION MEASURES

BR-1j: Avoid, Minimize, and Mitigate for Impacts on American Badger.

- *Implement Mitigation Measure BR-1a (Construction Best Management Practices).*
  - *This species shall be included in the WEAP discussed under "Training of Construction Staff" in Mitigation Measure BR-1a.*
- *A qualified biologist shall conduct focused surveys for American badger dens within two weeks prior to ground-disturbing activities in suitable habitat (i.e., undeveloped grassland, blue oak woodlands, and seasonally inundated wetlands/waters) within the solar development area. The survey shall cover the limits of ground disturbance and a 100-foot*

buffer. Any potentially active American badger dens located during the survey that show signs of recent activity shall be evaluated (typically with remote cameras) to determine activity status.

- *If an active American badger den is detected during the breeding season (typically from March through May), then prior to construction, the qualified biologist shall establish a 100-foot no-disturbance buffer (e.g., staking, flagging, or similar measures) around the den. The buffer shall be maintained until the qualified biologist determines that the den is no longer active, and the young are no longer dependent upon the den for survival. If a natal den site cannot be avoided throughout the life of the project (including operations and maintenance), destruction of the natal den burrow shall only proceed after the natal den is no longer active and no badgers are present within the burrow.*
- *If construction occurs during the non-breeding period (i.e., typically from June through February) and an active non-natal den is found in or immediately adjacent to the construction footprint, a qualified biologist shall attempt to trap or flush the individual (e.g., passive exclusion with one-way doors) and relocate it to suitable habitat away from construction. After exclusion/relocation is completed, the vacated or unoccupied den can be excavated, and construction can proceed.*

OTHER NESTING RAPTORS AND MIGRATORY BIRDS

Potential nesting habitat within the solar development area for migratory bird species includes grasslands that are primarily for ground-nesting species, such as northern harrier and grasshopper sparrow, as well as oak woodland/forest and riparian supporting trees suitable for several raptor species. Bald eagles and white-tailed kites were observed within the solar development area vicinity, but nesting habitat for bald eagle, and other large soaring raptors (e.g., golden eagle), is not present in the solar development area or vicinity.

Project development would remove vegetation in amounts shown in Table BR-12, and numerous trees (see Table BR-2), which have the potential to impact nesting birds protected by the federal Migratory Bird Treaty Act and CFGC. Direct construction-related impacts on nesting birds include destruction of nests or eggs from vegetation trimming, tree removal, and grading. Indirect impacts on nesting birds, including special-status species, include visual or auditory disturbance from construction noise and human presence, including during ongoing operations and maintenance activities. These types of disturbance could result in nest abandonment or failure by deterring birds from preferred nest and foraging sites, and/or distracting adults from tending to their eggs or young. Direct and indirect impacts on nesting birds, including special-status species, on and near the solar development area during construction could result in nest destruction, abandonment, and failure.

Solar panels and associated infrastructure can pose a risk of collisions and electrocutions. Birds inadvertently flying into solar panels may result in injury or mortality (Kagan et al. 2014), as discussed in detail under “Project Impacts and Mitigation Measures,” above. Solar panels may also create a risk of bird stranding (i.e., a water bird landing on a panel may not be able to fly off since they require a running start on the water’s surface) leaving stranded individuals subject to subsequent starvation, exposure, or predation-related mortality. Electric lines (i.e., gen-tie and medium voltage lines) present a potential electrocution and collision hazard, particularly for large raptors (Huso et al. 2016). However, the implementation of APLIC guidelines for electrical

infrastructure (see Mitigation Measure BR-1f [Swainson's Hawk]) and development of an Avian Protection Plan (see Mitigation Measures, below) would reduce these potential impacts.

The loss of potential foraging habitat for grassland- and woodland/riparian-associated birds could potentially contribute to a local reduction in nesting success. However, compliance with the County of Sacramento Swainson's Hawk Mitigation Program (see Mitigation Measure BR-1f [Swainson's Hawk]) and implementation of a Tree Resource Compliance and Mitigation Plan (see Mitigation Measure BR-5) would reduce these potential impacts because grassland habitats supporting these species would be preserved elsewhere in the County to mitigate for Swainson's Hawk foraging habitat impacts and woodland/riparian habitat would be preserved and re-established in proximity to the solar development area to mitigate for impacts on tree resources and Swainson's hawk nesting habitat.

The loss of an active nest site for any migratory bird covered under the Migratory Bird Treaty Act would be a violation of the provisions of the Migratory Bird Treaty Act and would be considered a **potentially significant** impact. To reduce impacts to nesting birds to be less than significant, the following Mitigation Measure BR-1k shall be implemented as part of the project.

Mitigation Measures

BR-1k: Avoid, Minimize, and Mitigate for Impacts on Nesting Raptors and Migratory Birds.

- *Implement Mitigation Measure BR-1a (Construction Best Management Practices)*
  - *Protection measures for nesting raptors and migratory birds shall be included in the WEAP described under "Training of Construction Staff" in Mitigation Measure BR-1a.*
- *A qualified biologist shall conduct a survey for nesting birds within one week prior to vegetation/tree removal or ground-disturbing activities within suitable habitat during the nesting season (i.e., February 1 through August 31). The survey shall cover the limits of construction and accessible suitable nesting habitat within 500 feet (and within 0.25 mile for potential raptor nests). If vegetation removal activities are delayed, additional nest surveys shall be conducted such that no more than seven days elapse between the survey and vegetation removal activities.*
- *If any active nests are observed during surveys, a qualified biologist shall establish a suitable avoidance buffer from the active nest. The buffer distance shall typically range from 50 to 500 feet (or more for some raptors) and shall be determined based on factors such as the species of bird, topographic features, existing background disturbance levels, intensity and extent of the disturbance, timing relative to the nesting cycle, and anticipated ground disturbance schedule. Limits of construction to avoid active nests shall be established in the field with flagging, fencing, or other appropriate barriers and shall be maintained until the chicks have fledged and the nests are no longer active, as determined by the qualified biologist. Typical nest buffers implemented are as follows:*
  - *50-150 feet for passerines and other non-raptors*
  - *500 feet for raptors and owls*
- *If an active nest is identified in or adjacent to the construction zone after construction has started, work in the vicinity of the nest shall be suspended as needed until the project*

biologist can provide appropriate avoidance and minimization measures to ensure that the nest is not disturbed by construction. Appropriate measures may include a no-disturbance buffer until the nest has fledged and/or full-time monitoring by a qualified biologist during construction activities conducted near the nest.

- *Vegetation or tree removal shall be restricted to the period of September 1 through January 31, to avoid the bird nesting season, including for Swainson's hawk (see Mitigation Measure BR-1f). If any vegetation or trees are to be removed during the nesting season (February 1 through August 31), preconstruction nesting bird surveys shall be conducted by a qualified biologist, as described above, and such vegetation or tree removal shall only be conducted if no nesting migratory birds are found or if removal is delayed until the nest site is no longer active, as determined by a qualified biologist. Tree removal must also conform to requirements stated in Mitigation Measure BR-1f, for Swainson's hawk, as applicable.*
- *An Avian Protection Plan (APP) shall be prepared and implemented in coordination with CDFW and USFWS to reduce/eliminate impacts to avian species during construction, operations, and maintenance. An Avian Protection Plan is often prepared in combination with a Bat Protection Plan (see Mitigation Measure BR-1l, for Bats) for solar facilities, becoming the Avian and Bat Protection Plan (ABPP). The APP (or ABPP, if combined) shall include the following elements:*
  - *A description of conditions for bird species present in and near the solar development area, including results of site-specific surveys.*
  - *An assessment of potential risks of project construction, operation, and maintenance on birds based on the proposed activities.*
  - *Conservation measures that shall be employed to avoid, minimize, and/or mitigate potential adverse effects to these species.*
  - *A description of the bird mortality monitoring and reporting that shall take place during project operation.*
  - *Remedial actions and an adaptive management process that shall be used to address potential adverse effects on bird species.*
  - *A discussion of the collection system which shall conform with the most current edition of the Avian Power Line Interaction Committee guidelines to prevent electrocutions, found at: https://www.aplic.org/mission.*

NATIVE BATS

Native bat roosting habitat within the solar development area, including for western red bat, is limited to isolated trees (and snags) near seasonal ponds or other aquatic habitat (see Table BR-1 and Plate BR-1) that provide nearby foraging opportunities, and roadway bridges adjacent to the solar development area. No active bat roosts or signs of occupation, such as guano or staining, were detected during the reconnaissance-level field surveys or incidentally during other surveys conducted on-site.

If bat maternity roosts or winter hibernacula are located in or adjacent to the solar development area, impacts could result from the permanent removal of roosting sites, such as the removal of trees and snags (see Table BR-2), or from construction-related noise or vibrations in proximity to an occupied roosting site that results in roost abandonment and potential bat mortality. In particular, blasting would cause elevated noise levels above 60 dBA within 0.5 mile, even with implementation of blasting mats and temporary noise barriers (See Chapter 12, "Noise"); this threshold has been identified by Caltrans (2020) to likely overestimate potential for roost displacement. Additional discussion of blasting impacts are discussed under "Project Impacts and Mitigation Measures," above. During operations, noise from operating facilities would not be expected to exceed 62 dBA beyond 50 feet from inverters (see Chapter 12; Table NOI-16); therefore, bat roosts if present within approximately 50 feet of the built project site may be displaced during the 35-year operation of the facility.

In addition, solar panels may pose a risk of bat collisions into solar panels that may result in injury or mortality (Kagan et al. 2014) as described under "Project Impacts and Mitigation Measures," above. A recent study at 19 PV solar facilities in southwest England found reduced bat activity at PV solar facilities compared to areas without such development (Tinsley et al. 2023). A meta-analysis of over 60 reports on fatality surveys at 18 renewable energy facilities in southern inland California, including at seven solar facilities, noted bat carcasses were rarely reported as found at solar facilities (Conkling et al. 2023).

Bats are protected by the State under CFGC Section 4150 for non-game mammals. The removal of a maternity roost or winter hibernaculum or the harm or mortality of bats as a result of project implementation would be considered a violation of the take provisions of Section 4150 of the CFGC and would be considered a **potentially significant** impact.

To reduce impacts to bats to be less than significant, the following Mitigation Measure BR-1l shall be implemented as part of the project.

Mitigation Measures

BR-1l: Avoid, Minimize, and Mitigate for Impacts on Bats.

- *Implement Mitigation Measure BR-1a (Construction Best Management Practices).*
  - *Native bats shall be included in the WEAP discussed under "Training of Construction Staff" in Mitigation Measure BR-1a.*
- *A qualified biologist shall conduct a preconstruction habitat assessment for potential communal bat roosts within the solar development area and a 300-foot buffer to the solar development area, ideally one year in advance of, but no less than 30 days prior to the start of construction. The habitat assessment should include a visual inspection of potential roosting features (e.g., hollows in trees, bridges), including looking for the presence of guano. If potential maternity roosts or winter hibernacula are found, their locations shall be mapped, and the project shall avoid all areas within a 300-foot buffer around the potential roost sites. The non-disturbance buffer shall remain in place during the maternity and winter hibernation seasons (May 1 through August 15, and November 1 through March 31) or until bats have vacated the roost, unless otherwise authorized by CDFW and USFWS, as relevant.*

- *A Bat Protection Plan (BPP) shall be prepared and implemented for approval by CDFW and USFWS prior to construction. The intent of the BPP is to reduce/eliminate impacts to native bat species during construction, operations, and maintenance. A BPP is often prepared in combination with an APP for solar facilities (see Mitigation Measure BR-1k, for Birds), referred to as an ABPP. The BPP (or ABPP, if combined) shall include the following elements:*
  - *A description of conditions for bat species present in and near the solar development area, including results of site-specific surveys.*
  - *An assessment of potential risks of project construction, operation, and maintenance on bats based on the proposed activities.*
  - *Conservation measures that shall be employed to avoid, minimize, and/or mitigate potential adverse effects to these species.*
  - *A description of the bat mortality monitoring and reporting that shall take place during project operation.*
  - *Remedial actions and an adaptive management process that shall be used to address potential adverse effects on bat species.*

CROTCH'S BUMBLE BEE

Crotch's bumble bee has not been previously documented within the solar development area and was not observed during focused project surveys for nesting habitat and nectar resources (i.e., foraging habitat) conducted in 2023. However, one occurrence (from 2020) of this species is documented within five miles of the project site, approximately 4.7 miles to the west, within the potential foraging range and queen dispersal distance from nest sites for some bumble bees [CDFW 2023]). In addition, a total of 462 potential nesting locations (e.g., existing burrows, down woody debris, tree cavities, etc.) and numerous suitable floral resources were identified throughout the solar development area and vicinity during focused surveys, primarily in grasslands and oak woodlands and forest with floral resources concentrated in the lower lying areas within grasslands. Based on these factors, this species has moderate potential to occur in the solar development area.

Ground disturbing construction of the project could destroy nesting colonies or overwintering gynes (i.e., future queens), if present in rodent burrows or in other ground surface features. Overwintering habitat for the majority of North American bumble bees is poorly understood; sloping areas or areas under trees insulated with moss or leaf litter have been found to support overwintering gynes. Permanent loss of grassland and woodland vegetation from the solar development area (see Table BR-6) could also reduce available floral food resources for this species in the solar development area or vicinity; however, implementation of mitigation measure AG-1 (Agricultural Management Plan) would incorporate pollinator plants into the seed mix that could benefit this species.

The potential destruction of nest sites or queen overwintering sites would be considered a **potentially significant** impact.

To reduce impacts to Crotch's bumble bee to less than significant, Mitigation Measure BR-1m (Avoid, Minimize, and Mitigate for Impacts on Crotch's bumble bee) shall be implemented as part of the project.

Mitigation Measures

BR-1m: Avoid, Minimize, and Mitigate for Impacts on Crotch's Bumble Bee.

- *Implement Mitigation Measure BR-1a (Construction Best Management Practices).*
  - *Crotch's bumble bee shall be included in the WEAP discussed under "Training of Construction Staff" in Mitigation Measure BR-1a.*
- *Prior to construction, a qualified biologist shall conduct (1) a habitat assessment and (2) focused surveys to detect foraging Crotch's bumble bees and potential nesting sites, that are consistent with CDFW's Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species (CDFW's Survey Considerations) (CDFW, dated June 6, 2023 or more current CDFW guidelines if available), in potential suitable habitat prior to construction (i.e., ground disturbing activities) within the solar development area during the peak Colony Active period (i.e., approximately April through September) when floral resources are present, ideally during the peak bloom. The habitat assessment shall include historical and current species occurrences; document potential habitat on site including foraging, nesting, and/or overwintering resources; and quantify which plant species are in bloom and their percent cover, and other items described in CDFW's Survey Considerations. Focused surveys for foraging bees and nesting sites shall be conducted on 3 separate occasions spaced 2-4 weeks apart during the Colony Active Period, in accordance with details specified in CDFW's Survey Considerations. Only individuals with appropriate handling authorizations shall be allowed to capture or handle bumble bees. Because bumble bees move their nests every year, focused surveys shall be conducted prior to project activities resulting from potential ground and vegetation disturbance in each year construction activities occur.*
- *Consistent with CDFW's Survey Considerations, if no Crotch's bumble bees are found during focused surveys, but the habitat assessment identified suitable nesting, foraging, or overwintering habitat within the solar development area, it is recommended that a biological monitor be on-site during vegetation or ground disturbing activities that take place during any of the Queen and Gyne Flight Period and Colony Active Period.*
- *If Crotch's bumble bee is detected, the qualified biologist shall notify CDFW, and survey data shall be submitted to CDFW via a written report and also via CNDDB. The written survey report will be submitted to CDFW within 30 days of the pre-construction survey. The report will include survey methods, weather conditions, and survey results, including a list of insect species observed and a figure showing the locations of any Crotch's bumble bee nest sites or individuals observed. If nests are observed, the survey report will also include the qualifications/resumes of the surveyor and qualified biologists for identification of photo vouchers, detailed habitat assessment, photo vouchers, and recommendations for avoidance. In addition, if Crotch's bumble bee is detected in the solar development area, then a site-specific Crotch's Bumble Bee Avoidance and Minimization Plan shall be prepared and implemented in coordination with CDFW to avoid take, or consult with CDFW to obtain an Incidental Take Permit (ITP) if take of Crotch's bumble bees may*

occur during project activities. The plan shall include a description of on-site habitat, potential nest and overwintering sites present, recommendations for avoidance and minimization (such as active nest avoidance buffers). If an ITP is sought, mitigation for the loss of potential nest sites will be fulfilled at a minimum 1:1 nesting habitat replacement of equal or better functions and values to those impacted by the project, and may include measures such as incorporation of appropriate native flower resources into the Agricultural Management Plan that would support this species throughout the flight period and promote development of queens (i.e., perennial plants), and reducing use of harmful pesticides. All the measures included in the approved plan and/or ITP shall be implemented during project activities.

Significance after Mitigation

In summary, for the reasons listed below, Mitigation Measures BR-1a through BR-1m would reduce potential project-related direct and indirect impacts on any species identified as a candidate, sensitive, or special-status. As a result, the impact would be reduced to **less than significant with mitigation**. These reasons include:

- construction BMPs and AMMs (e.g., speed limits, covering trenches or installing escape ramps, invasive weed spread prevention, etc.) would reduce the potential for harm and harassment to individuals by managing the construction site to minimize encounters with and reduce site hazards to special-status species, as well as minimize impacts to habitat by controlling work area limits with fencing and restoring/revegetating temporary disturbance areas;
- a WEAP training of on-site personnel would increase awareness and recognition of sensitive biological resources on site and requirements related to their protection;
- APLIC standards of design for project-proposed electrical infrastructure would serve to avoid and minimize potential for avian collisions and electrocutions;
- preconstruction surveys would identify up to date locations of special-status species within or adjacent to the solar development area;
- species-specific avoidance buffers would help ensure protection of individuals, nesting/denning sites and vulnerable young;
- various species-specific work windows would be applied to avoid active periods for certain special-status species that may be subject to greater potential for harm or harassment;
- construction monitoring would be provided by a qualified biologist under certain circumstances and in suitable habitat or near known occurrences, such as for special-status plants, western spadefoot, northwestern pond turtle, Swainson's hawk, tricolored blackbird, valley elderberry longhorn beetle, nesting birds, and Crotch's bumble bee to ensure no unauthorized impacts;
- compensation for the permanent loss of Swainson's hawk foraging habitat would be consistent with the County of Sacramento Swainson's Hawk Mitigation Program;
- an ABPP would be developed in coordination with resource agencies to reduce risk of injury and mortality of birds and bats from project construction, operation and maintenance, including remedial and adaptive management actions; and

- species-specific avoidance, minimization, mitigation and management plans would restore on-site habitats and compensate for unavoidable impacts on special-status species habitat, developed in coordination with appropriate resource agencies and that include specific performance standards of success.

MONARCH BUTTERFLY

The Monarch butterfly has a low to moderate potential to occur on the project site. Adult monarchs depend on diverse nectar sources and caterpillars are dependent on milkweed. There are some wind-protected tree groves, but there are limited suitable nectar sources according to the December 2024 Biological Technical Report by Dudek. As also noted by Dudek, milkweed has not been observed withing the project site and the species has not been documented within five miles of the project site. Therefore, the impact would be **less than significant**.

IMPACT BR-2: HAVE A SUBSTANTIAL ADVERSE EFFECT ON ANY RIPARIAN HABITAT OR OTHER SENSITIVE NATURAL COMMUNITY IDENTIFIED IN LOCAL OR REGIONAL PLANS, POLICIES, OR REGULATIONS, OR BY CDFW OR USFWS

The following sensitive natural communities, as defined in “Sensitive Natural Communities” under the “Environmental Setting” section above, are present in the solar development area: vernal pools that resemble Northern hardpan vernal pool habitat, potentially jurisdictional waters of the U.S. and of the State, grassland bird habitat, riparian habitat, valley needlegrass grassland (as a minor component of the valley and foothill grassland community), and oak woodlands. No designated critical habitat is located within the solar development area. Essential fish habitat (Central Valley steelhead/Chinook salmon) is not present within solar development area.

VERNAL POOLS AND POTENTIALLY JURISDICTIONAL WETLANDS (AND OTHER WATERS)

As indicated in Table BR-5, a trace amount of vernal pools would be permanently impacted (from construction of the perimeter fence) and temporarily impacted (in work areas associated with the solar array fields, exclusion zones, and along the gen-tie corridor) by the project up to 0.17 acres. Wetlands and other waters would be permanently impacted up to 0.43-acre, as detailed identified in Table BR-14. However, implementation of Mitigation Measure BR-3 would avoid, minimize and compensate for potential impacts on this sensitive resource, including other potentially jurisdictional waters of the U.S. and State.

GRASSLAND BIRD HABITAT

As described under Impact BR-1 for Swainson’s hawk, project development would result in the permanent loss of, and temporary disturbances to, annual grassland and associated open habitats (see Table BR-10; foraging habitat impacts); these grassland areas impacted could support regionally-important grassland bird species in addition to Swainson’s hawk foraging. However, temporary disturbances to annual grasslands and associated open habitats (i.e., Swainson’s hawk foraging habitat) would be restored upon completion of project construction as a result of required implementation of the Agricultural Management Plan (see Mitigation Measure AG-1 in Chapter 4, “Agricultural Resources”). Indirect impacts that degrade adjacent grassland could result from stormwater runoff, fugitive dust or pollution, or changes in hydrology from site development; however, these impacts are anticipated to be largely prevented and minimized through implementation of construction best management practices, the project stormwater

pollution and prevention plan, and other permits required by existing regulations (see Chapter 10, Impact HYD-1).

Riparian Habitat

Riparian habitat occurs primarily along Carson and Coyote creeks outside of, but adjacent to, the solar development area. The project would largely avoid riparian habitat, except in a few locations where roads and medium voltage overhead lines would cross these creeks or associated intermittent tributaries, and several locations where solar field developments (and adjacent temporary work areas) extend into the edge of riparian zones. A total of 4.19 acres of riparian habitat, including 173 riparian trees, at the northernmost and southernmost extents of Coyote Creek and at various points along Carson Creek within the solar development area would be permanently removed as a result of construction of the solar field arrays, access roads, and associated electrical infrastructure. This impact represents approximately 15 percent of the total 28.36 acres of riparian habitat present within the project site (see Table BR-1). Due to the rarity of this habitat in the Central Valley, any loss of riparian habitat would be considered a substantial impact on the environment without mitigation. Implementation of a Tree Resource Revegetation Plan would mitigate for the project-related loss of riparian habitat, including riparian trees.

Valley Needlegrass Grassland Community

Valley needlegrass grassland occurs in small patches along ridgetops of low-lying hills within the annual grassland vegetation community on-site; however, the specific locations of this sensitive natural community have not been mapped within the solar development area and, therefore, a quantification of the magnitude of potential impacts from the project on this sensitive community type has not yet been assessed. Implementation of the Agricultural Management Plan (i.e., Mitigation Measure AG-1), including reseeding of temporary impact areas to grassland conditions, would minimize impacts on this sensitive natural community.

Oak Woodlands

Approximately 607 acres of oak woodlands occur in the project site scattered throughout much of the eastern portion of the solar development area and project site, but primarily along the northern and southern portions of Coyote Creek, in the southwest near the confluence of Coyote and Carson creeks, and all along the eastern edge of the project site. The project would result in the permanent loss of approximately 287 acres of oak woodland/forest land cover (see Table BR-5), and the associated removal of up to 4,787 trees (4,450 of which are protected oaks), including some trees that are dead or in severe decline, representing a loss of 54.61 acres of oak canopy area from the solar development area during construction.

Approximately two-thirds or 10 million acres of California's oak woodlands remain intact across 54 of the 58 counties in the state; however, only 4 percent are protected from conversion. Over 30,000 acres are being lost to development each year (approximately 0.3 percent per year), statewide (Standiford and Scott 2001). According to the Sacramento County General Plan EIR, the eastern portion of the County supports extensive oak woodlands; this portion of the county is largely unfragmented, has experienced relatively low disturbance, and retains high wildlife values.

Sacramento County does not have a quantitative significance threshold for impacts to oak woodlands or native trees. Removal of 287 acres of oak woodlands from the solar development

area represents approximately 47 percent of oak woodland/forest within the project site. The project proposes to implement mitigation for the loss of oak woodlands consistent with the County General Plan policies (see also Impact BR-5).

Any impact on a sensitive natural community from project development would be **potentially significant.** To reduce impacts on sensitive natural communities, the following mitigation measures shall be implemented as part of the project.

Mitigation Measures

BR-2: Avoid, Minimize, and Mitigate for Impacts on Riparian Habitat and Other Sensitive Natural Communities.

- *Implement Mitigation Measure BR-1a (Construction BMPs).*
  - *Riparian habitat and other sensitive natural communities shall be included in the WEAP discussed under "Training of Construction Staff" in Mitigation Measure BR-1a.*
- *Implement Mitigation Measure BR-1f (Swainson's Hawk).*
- *Implement Mitigation Measure BR-3 (State or Federally Protected Wetlands and Other Waters).*
- *Implement Valley Needlegrass Grassland Protection Measures as follows:*
  - *A qualified biologist shall conduct a preconstruction survey in advance of ground disturbing activities and vegetation removal occurring in areas with potential for this sensitive community type, to map any occurrences of Valley needlegrass grassland within the solar development area. Surveys shall be conducted at an appropriate time of year for detection of purple needlegrass (Stipa [Nassella] pulchra).*
  - *If mapped occurrences of Valley Needlegrass Grassland are identified within the solar development area impact footprint, prior to project implementation, project designs shall be refined within the solar development area boundaries (e.g., location, orientation, and shape of solar arrays; perimeter fence alignment; location of pole risers supporting medium voltage electrical lines) to avoid and/or minimize potential impacts on mapped areas of this sensitive natural community to the maximum extent feasible without increasing impacts on other resources. Areas to be avoided will be fenced off or otherwise identified (e.g., with flagging, on site plan maps) for avoidance and a qualified biologist will be present to monitor all construction work activities within 100 feet from identified avoidance areas to ensure no unauthorized impacts occur.*
  - *If mapped occurrences of Valley Needlegrass Grassland are identified within the solar development area impact footprint and cannot be avoided, incorporate specific restoration and management prescriptions consistent with the long-term preservation of Valley Needlegrass Grassland occurrences on-site into the Agricultural Management Plan to be implemented as part of Mitigation Measure AG-1 (see Chapter 4, "Agricultural Resources"). This could include specific prescriptions such as plant or topsoil salvage for replacement after ground disturbing activities, incorporating purple needlegrass (Stipa pulchra) and other associated species seed into the restoration seed mix in areas where Valley Needlegrass grassland have been impacted by the project, mowing after seed set of purple needlegrass, prohibiting*

ground-disturbing operational activities in these areas, restricting operational activities to "drive and crush." A monitoring and adaptive management approach shall also be identified for implementation throughout the operational life of the project (including the first year post-construction and every five years on average thereafter) to confirm re-establishment and continued occupancy of the solar development area by Valley Needlegrass Grassland throughout the operational live of the project, at a performance standard of no net loss of mapped occurrences of this community type within the solar development area.

- *Implement Oak Woodland and Native Tree Mitigation, as follows:*
  - *The project applicant shall mitigate for impacts to oak woodlands (i.e., oak canopy loss), and for the loss of native oaks and other native trees species (i.e., native tree removal) by implementing the following three mitigation components: 1) avoidance and minimization of native trees retained within and adjacent to the solar development area, 2) preservation of oak woodlands at a 1:1 preservation to impact ratio of native oak tree canopy area lost, and 3) in-kind establishment plantings of native trees at a 1:1 tree replacement ratio, as further detailed below, and as described in a Tree Resource Mitigation Plan developed by the project applicant and subject to approval by Sacramento County prior to issuance of a grading permit.*

  1) *Avoidance and Minimization:*

     - *Retain and protect native trees within the solar development area that would not conflict with construction or operational activities of the project, as determined by a qualified arborist upon review of final construction drawings in collaboration with the project applicant. Retained and protected trees could include those located within identified exclusion zones or in temporary work areas outside of the facility fenceline (e.g., along the gen-tie and within earthwork limits).*

     - *Identify root protection zones (at a minimum inclusive of the tree dripline) for all native trees to be retained and protected within the solar development area. Root protection zones shall be clearly identified on final construction drawings. Temporary orange construction fencing or a similar protective barrier shall be installed one foot outside the root protection zones of retained native trees prior to initiating project construction. To the maximum extent feasible, soil disturbance (e.g., scraping, grading, trenching, excavation) is to be avoided within root protection zones. If work is necessary within identified root protection zones, a qualified arborist shall provide specifications for this work such as methods for root pruning, backfilling specifications, and irrigation management guidelines.*

     - *For native trees identified to be retained and protected within the solar development area (see above), retain a qualified arborist who shall:*

       - *Clearly designate an area within the solar development area that is outside the root protection zones of all trees where construction materials may be stored/stockpiled and where vehicle and equipment parking can take place. No materials storage/stockpiling or parking shall take place within the root protection zones of retained trees.*

- *Establish specifications for care of the retained trees within the solar development area. Implement recommended tree care or oversee the implementation of tree care if conducted by a construction contractor, and develop and implement a tree inspection schedule to ensure tree health is being maintained throughout the construction period and for one year post construction. Tree care specifications may be adjusted by the qualified arborist as needed to provide optimal tree health as a result of inspections. Potential tree care performance standards shall at minimum include:*
    - *Prior to any grading or other work within 50 feet of any tree to be retained, a qualified arborist shall determine whether irrigation needs to be installed from April through September and/or placement of a 4- to 6-inch layer of chip mulch over the root protection zone of any trees is required to minimize potential for impact.*
    - *All work to be performed inside the root protection zone shall have fencing (i.e., exclusion fencing) installed at the edge of construction in accordance with recommendations of a qualified arborist; the exclusion fencing shall be inspected by the qualified arborist prior to grading and/or grubbing to ensure it is functional; any fence deficiencies shall be corrected before associated work activities may begin.*
    - *The qualified arborist shall supervise any recommended clearance pruning, irrigation, fertilization, and placement of mulch and/or chemical treatments. Chemical treatments shall not occur without authorization by the qualified arborist.*
    - *Trenching inside the root protection zone, if necessary, shall be by a hydraulic or air spade, placing pipes underneath the roots, or boring deeper trenches underneath the roots.*
    - *Clearance pruning, if necessary, shall include removal of all the lower foliage that may interfere with equipment prior to having grading or other equipment on-site. A qualified arborist shall approve the extent of foliage removal in accordance with ANSI A300 standards and oversee the pruning to be performed by a contractor.*

- *Grading beneath trees to be retained shall be given special attention. A qualified arborist shall identify actions to avoid creating conditions adverse to any retained tree's health. The natural ground within the root protection zones of retained/protected trees shall remain undisturbed as determined by a qualified arborist to increase the likelihood of survival of the retained/protected trees. Grading within the root protection zones of native trees shall not be permitted unless specifically authorized by Sacramento County.*
    - *No grade cuts greater than one foot shall occur within the root protection zones of native trees to be retained, and no grade cuts whatsoever shall occur within five feet of their trunks.*
        - *Major roots two inches or greater in diameter encountered within any retained tree's root protection zone during excavation shall not be cut and shall be kept moist and covered with earth as soon as possible.*

- *Roots one inch to two inches in diameter encountered within any retained tree's root protection zone during excavation that are severed shall be trimmed and treated with pruning compound and covered with earth as soon as possible.*
- *Support roots encountered within any retained tree's root protection zone during excavation shall be protected. A qualified arborist shall be required to hand-dig in the vicinity of retained trees to prevent root cutting and mangling that may be caused by heavy equipment.*
- *All stumps within the root protection zone of trees to be retained shall be ground out using a stump router or left in place. No trunk within the root protection zone of retained trees shall be removed using a backhoe or other piece of grading equipment.*

– *No fill greater than one foot shall be placed within the root protection zones of native trees to be preserved and no fill whatsoever shall be placed within five feet of their trunks. Fill material shall not be placed in such a manner that encases the tree. Surface water drainage must be able to move away from the tree.*

– *No irrigation system shall be installed within the root protection zones of native tree(s) to be retained that may be detrimental to the preservation of the native tree(s) unless specifically authorized by Sacramento County.*

2) *Oak Preservation:*

- *Consistent with Sacramento County Policy CO-140, compensation for the unavoidable loss of native oak tree canopy area as a result of project construction shall be provided by the project applicant to achieve a performance standard of no net loss, defined as a minimum 1:1 preservation to impact ratio of native oak tree canopy area lost, through one or more of the following options. The removal of, and compensation for native oak tree canopy area shall be quantified in the Tree Resource Mitigation Plan, subject to Sacramento County review and approval:*

  – *On-site preservation of native oak tree canopy shall be considered as a first priority for fulfillment of this preservation mitigation requirement. For the purposes of this mitigation measure, "on-site" constitutes being within Adjacent Other Lands (Plate PD-2, Project Setting) of the project site, or immediately adjacent to the project site such that at least a portion of the boundary of the preservation area directly borders oak woodlands in the project site. On-site native oak tree canopy preservation shall preserve the main, central portions of consolidated and isolated groves constituting the existing canopy on-site, and provide an area on-site that compensates for canopy area lost. On-site preservation areas shall prioritize areas that provide connectivity between existing oak woodlands and forest and/or riparian habitat that may serve as potential wildlife movement corridors. The native oak canopy preservation area must be a single contiguous area on-site, adjacent to existing oak canopy to ensure opportunities for regeneration, and at least equal to the size of canopy area lost or else additional compensation as described below (i.e., off-site preservation, preservation bank credit purchase, or in-lieu fee to a tree preservation fund) shall be required to ensure no net loss.*

- *If on-site mitigation does not achieve the no net loss performance standard, off-site preservation may be considered in entirety or in combination with on-site preservation. The off-site preservation area shall meet all the following criteria to preserve, enhance, and maintain a natural woodland habitat in perpetuity. Protected woodland habitat could be used as a suitable site for establishment tree plantings (see 3, Establishment, below), if appropriate and approved by Sacramento County.*
    - *Be equal or greater in area to the total area that is included within a radius of 30 feet of the root protection zone of all trees to be removed;*
    - *Be adjacent to a protected stream corridor or other preserved natural areas;*
    - *Support a significant number of native broadleaf trees;*
    - *Offer good potential for continued regeneration of an integrated woodland community;*
    - *Be located within the boundaries of Sacramento County; and*
    - *Be within parcels immediately adjacent to and surrounding the project site parcels such that the boundary of the off-site preservation parcel(s) share a boundary, at least in part, with the project site parcel boundaries. If preservation of adjacent parcels is not feasible, then preservation shall be within mapped areas of Savannah and Blue Oak Woodland on the Habitat Component map of the Open Space Vision Diagram included in the Sacramento County General Plan.*
- *A combination of on-site or off-site preservation, as described above.*
- *Oak tree canopy area lost shall be calculated as the total collective area of contiguous canopy cover representing the downward projection of the crown or crowns of overlapping adjacent tree canopies (i.e., outer extent of leaves and small twigs) for all native oak trees to be removed according to the County-approved final project designs. Oak tree canopy area shall be calculated using a consistent method for determining canopy area impacts as for identifying a suitable mitigation area and may be calculated as described in the Arborist Report Coyote Creek Agrivoltaic Ranch Project, dated August 2023 (Dudek 2023). At the time of preparation of this environmental impact report, a total of 54.61 acres of native oak tree canopy area was estimated to be permanently lost and an equal amount would be required for preservation as described in this mitigation measure.*
- *If neither on-site nor off-site preservation is sufficient to achieve the no net loss performance standard, or if the full preservation mitigation requirement cannot be accomplished with on-site and off-site preservation alone, the project applicant shall fulfill any remaining preservation mitigation requirement through either:*
    - *a preservation bank credit purchase for an equivalent oak canopy area of blue oak woodland, or*
    - *a sum equivalent to the replacement cost for all unmitigated trees within the solar development area shall be paid by the project applicant as an "in-lieu fee" to the*

County's Tree Preservation Fund or another appropriate tree preservation fund (e.g., Sacramento Valley Conservancy). The total amount to be paid shall be based on the current cost per inch in DBH inch for all trees to be mitigated and shall be approved by Sacramento County.

- *Any on- and/or off-site preservation lands used or acquired to fulfill this compensatory mitigation requirement shall include legal protections for protection into perpetuity (e.g., conservation easement, restrictive covenant, or other Sacramento County-approved mechanism). In addition, the project applicant shall provide funding for (1) acquisition in fee title or any legal protections of the preservation lands, (2) initial habitat improvements (if needed), (3) long-term habitat maintenance and management of the preservation lands in perpetuity, and (4) preparation of a Preserve Management Plan that describes the preserved oak canopy resources on-site, responsible parties, management goals and objectives, management activities, and reporting requirements. The responsibilities for acquisition and management of the preservation lands may be delegated by written agreement to CDFW or to a third party, such as a non-governmental organization dedicated to habitat conservation, subject to approval by the County. Funding for on- and/or off-site preservation lands shall be estimated through preparation of a Property Analysis Record (PAR), or PAR-Equivalent Analysis, which is an itemized cost estimate of the initial and capital period costs and annual, ongoing costs of in-perpetuity land management.*

- *Preservation as described in this measure either through on-site or off-site means, a preservation bank credit purchase, in-lieu fee, or a combination thereof representing the full mitigation requirement as identified in this mitigation measure shall be completed within 24 months from the start of project-related tree removal activities; any extension must be approved by Sacramento County. If preservation is not completed prior to the start of tree removal activities, the project applicant shall provide financial assurances to guarantee that an adequate level of funding is available to implement the acquisition, initial improvements (if needed), and long-term maintenance and management of preservation lands and/or to cover any additional mitigation options (e.g., bank credit purchase, in-lieu fees). Financial assurance shall be provided to Sacramento County prior to the issuance of a grading permit and can be provided in the form of irrevocable letter of credit, bond, a pledged savings account, or another form of security as approved by the County. The total amount of financial assurances shall be determined by an updated appraisal and PAR or PAR-Equivalent Analysis as described above.*

3) *Additional Establishment and Enhancement:*

   - *In addition to the first two steps of this three-part mitigation measure described above, the effects of the removal of oak trees shall be further mitigated and compensated for by the project applicant through establishment and enhancement of oak trees and native trees other than oaks.*

   - *In consideration of the Sacramento County General Plan Policies CO-139 and CO-140, compensation for the loss of native oak trees, and native trees other than oaks, that are greater than 6 inches DBH shall be provided by the project applicant through in-kind establishment plantings of native tree species with a minimum*

performance standard of a 1:1 tree replacement ratio of surviving trees[4] at 7 years after replacement (i.e., planting) to those removed/lost. The removal of, and compensation for native trees shall be quantified in the Tree Resource Mitigation Plan, subject to Sacramento County review and approval.

- *The establishment planting area shall be described in the Tree Resource Mitigation Plan, including rationale demonstrating the value of the establishment planting area to oak woodlands conservation in Sacramento County and the region (e.g., wildlife movement corridor) and the characteristics that make the planting area well suited for successful establishment. The establishment planting area shall, at minimum, meet the following listed criteria:*
  - *be suitable for tree planting – in particular for native tree and oak species targeted for mitigation (consistent with Sacramento General Plan Policy CO-133),*
  - *be large enough to accommodate the planned establishment plantings,*
  - *be located within the boundaries of Sacramento County,*
  - *be within parcels immediately adjacent to, and surrounding project site parcels such that the boundary of the off-site preservation parcel(s) share a boundary, at least in part, with the project site parcel boundaries. If preservation of adjacent parcels is not feasible, then preservation shall be within mapped areas of Savannah and Blue Oak Woodland on the Habitat Component map of the Open Space Vision Diagram included in the Sacramento County General Plan or in areas which support the appropriate soil characteristics to support oak woodland growth and regeneration, and*
  - *Mitigation tree plantings within the establishment planting area shall not:*
    - *conflict with current or planned land uses,*
    - *require removal of existing natural habitats to accommodate establishment plantings (although removal of dead trees to facilitate plantings that serve to promote stand recruitment may occur),*
    - *create unnatural canopy closure that would reduce wildlife value or contribute to increased fire hazard.*

- *Establishment plantings shall be accomplished by any of the following approaches, or a combination thereof, and to be detailed in a Sacramento County-approved Tree Resource Mitigation Plan.*
  - *Stand infill plantings within on-site or off-site preservation areas serving as compensation for oak tree canopy area lost (see #1, Preservation, above). This could include actions such as replacing dead/dying trees or providing additional understory recruitment at natural densities in an otherwise healthy stand.*

[4] A surviving tree is any tree determined to be alive and with a health rating of fair or better, as assessed by a qualified arborist.

- *Restoration focused plantings on new lands acquired in fee title or for which an easement is obtained that historically supported but current lack presence of trees/woodland habitat in all or some areas that would be targeted for large-scale establishment plantings.*
- *Funding one or more tree planting projects in partnership with a local conservancy or existing preserve that would at minimum meet the required establishment performance standard. An example includes providing mitigation funding for blue oak woodland regeneration projects in Deer Creek Hills Preserve as identified in the Deer Creek Hills Preserve Master Plan.*
- *Any combination of above.*

- *Establishment plantings shall be accomplished through one or more of the following methods, to be detailed in the Tree Resource Mitigation Plan:*

  1) *for oak trees, acorn plantings, shall be completed by collecting acorns from on-site or nearby locations off-site (i.e., local sources) in accordance with published guidance specific to blue oak acorn regeneration (McCreary 2001),*
  2) *for native trees, container tree plantings may be used for establishment plantings.*
     - *This mitigation measure does not preclude over-planting such that the minimum performance standard (see above) shall be accomplished at the end of the 7-year maintenance and monitoring period.*

- *Establishment planting plans shall be developed by a qualified oak restoration specialist and detailed in the Tree Resource Mitigation Plan to be reviewed and approved by Sacramento County. Establishment planting plans shall address, at minimum, the following:*
  - *project-related impact on native tree resources, including oak trees and riparian trees.*
  - *establishment planting goals and performance standards (i.e., success criteria), including interim performance targets for evaluating progress towards success criteria.*
  - *suitability of the site for proposed tree plantings demonstrated with soil information, aerial photography, and/or other resources.*
  - *for native oak tree plantings, provide information on acorn collection, storage, planting methods, and planting schedule; for native tree plantings, other than for oak trees, provide information on tree container sizes targeted for planting, planting methods, and planting schedule*
  - *planting densities per species based on plant material type (e.g., acorn, size of tree container), accepted practice, current research, site-specific conditions, establishment goals, performance standards, and the recommendations of a qualified arborist.*
  - *consistency with accepted native tree planting standards, including those for oak trees outlined in Regenerating Rangeland Oaks in California (McCreary 2009), How to Grow California Oaks (McCreary 1995), How to Collect, Store and Plant Acorns (McCreary*

undated), and other applicable publications and protocols that may be established by the University of California, Division of Agriculture and Natural Resources.

- *maintenance (e.g., weed control/pest management, fertilization, tree/seedling protection, or other best management practices, etc.), monitoring, and reporting requirements and schedules to ensure performance targets are being met throughout the 7-year establishment period, calculated from the day of planting. At minimum, performance monitoring and reporting shall be required annually for 3 years post-planting and at the end of years 5 and 7.*
- *contingencies (i.e., adaptive management) if interim performance targets or success criteria at the end of the 7-year monitoring term are not met, such as additional or replacement plantings or payment of an "in lieu" fee similar to that described under 2-Preservation, above, based on the current cost per DBH inch[5] set by the County that remains unmitigated by the end of the 7-year monitoring term.*

- *Any on- and/or off-site mitigation lands used or acquired to fulfill this establishment mitigation requirement shall include legal protections for protection in perpetuity, including restrictions on land use (if necessary) to ensure compatibility with long term goals for tree establishment (e.g., conservation easement, restrictive covenant, or other Sacramento County-approved mechanism). In addition, the project applicant shall provide funding for 1) acquisition in fee title or any legal protections of mitigation lands, 2) establishment plantings necessary to meet performance standards, 3) long-term habitat maintenance and management of mitigation lands in perpetuity, and 4) preparation of a Preserve Management Plan that describes the mitigated tree resources established on-site, responsible parties, management goals and objectives, management activities, and reporting requirements. The responsibilities for acquisition and management of the mitigation lands may be delegated by written agreement to CDFW or to a third party, such as a non-governmental organization dedicated to habitat conservation, subject to approval by the County. Funding for mitigation lands shall be estimated through preparation of a PAR, or PAR-Equivalent Analysis, which is an itemized cost estimate of the initial and capital period costs and annual, ongoing costs of in-perpetuity land management.*
- *Establishment planting representing the full mitigation requirement as identified in this above mitigation measure shall be completed within 24 months from the start of project-related tree removal activities; any extension must be approved by Sacramento County. If establishment planting is not completed prior to the start of tree removal activities, the project applicant shall provide financial assurances to guarantee that an adequate level of funding is available to implement the acquisition, establishment plantings, and long-term maintenance and management of mitigation lands and/or to cover any additional mitigation options (e.g., contingency plantings, in lieu fees). Financial assurance shall be provided to Sacramento County prior to the start of tree removal activities and can be provided in the form of irrevocable letter of credit, bond, a pledged savings account, or another form of security as approved by the County. The total amount of financial*

[5] One inch DBH is equivalent to one seedling.

assurances shall be determined by an updated appraisal and PAR or PAR-Equivalent Analysis as described above.

Significance after Mitigation

Implementation of Mitigation Measures BR-1a (Construction BMPs), BR-1f (Swainson's Hawk), BR-3 (State or Federally Protected Wetlands), and measures for the protection of Valley Needlegrass Grassland, and Tree Resource Protection and Revegetation Plan would reduce potential project-related impacts on vernal pools, potentially jurisdictional wetlands and other waters, grassland bird habitat, and riparian habitat to a **less-than-significant** level because implementation of construction BMPs, compensation for loss of Swainson's hawk foraging habitat consistent with the County of Sacramento Swainson's Hawk Mitigation Program, implementation of an Aquatic Resources Mitigation Plan and Implementation of Valley Needlegrass Grassland protection measures into the Agricultural Management Plan to be implemented as part of Mitigation Measure AG-1, would minimize loss of, restore, and maintain on-site grasslands, including Valley Needlegrass Grassland, vernal pools and other jurisdictional aquatic habitats, and riparian habitat through project design refinements and avoidance (where feasible), re-vegetation, and vegetation management; and would compensate for residual losses of these sensitive natural community types to achieve no net loss of acreage, function, and values per specified performance standards of success and consistent with required project permits, where relevant.

With the implementation of required oak woodlands and native tree mitigation, the impact of the proposed project would be considered **less than significant** because the project is mitigating above and beyond County General Plan policy requirements. The project is required to avoid impacts to native trees retained within and adjacent to the solar development area, preservation of oak woodland canopy at a 1:1 ratio consistent with Sacramento County General Plan Policy CO-140 or equivalent preservation bank credit purchase. Additionally, the project would establish plantings of native trees at a 1:1 tree replacement ratio – all under the direction of a qualified arborist and subject to review, approval, monitoring, and adaptive management directed by Sacramento County, and with required financial assurances to guarantee that an adequate level of funding is available to implement the acquisition, establishment plantings, and long-term maintenance and management of mitigation lands and/or to cover any additional mitigation options.

Impact BR-3: Have a Substantial Adverse Effect on State or Federally Protected Wetlands (including, but not limited to, Marsh, Vernal Pool, Coastal) through Direct Removal, Filling, Hydrological Interruption, or Other Means

Based on the aquatic resources delineation conducted by Dudek in 2021 (see Appendix BR-1, Aquatic Resources Delineation Report), approximately 10.72 acres of aquatic resources are present in the 1,412-acre solar development area (see Table BR-1). Because jurisdiction has not been verified by the appropriate regulatory agencies, all aquatic features within the solar development area are considered to be potentially jurisdictional wetlands and other waters of the U.S. and waters (including wetlands) of the State.

While the project was designed to maintain existing drainage patterns and on-site hydrology and to avoid and minimize grading impacts on aquatic resources (see also Chapter 10, Hydrology

and Water Quality), residual project developments within or adjacent to wetlands/other waters could have adverse impacts on this protected resource. Direct permanent impacts could occur from the permanent modification (i.e., dredge and/or fill) of wetlands/other waters as a result of the placement of fill during grading/site preparation (but not from blasting), during installation of new equipment, or from mechanical driving of new support piles into the ground as part of construction of the following project components that overlap with wetlands/waters resources: switchyard, roads and associated water crossings, fence posts, solar array supports (i.e., piles), and utility poles (i.e., pole risers) associated with medium voltage lines.

Wetlands/other waters outside the direct permanent disturbance area may be subject to temporary and/or indirect impacts. Temporary impacts could result from overland travel by vehicles and heavy equipment and ground disturbances within construction-related work areas associated with installation of the solar facility both within and immediately outside the area enclosed by the perimeter fence, and installation of the overhead electrical infrastructure, where these work areas overlap wetlands/other waters (i.e., earthwork limits, inside work areas, fenced area, PV modules, and the gen-tie and overhead transmission corridors). Areas of temporary impact would be restored to approximate pre-project conditions with respect to vegetation and hydrology through implementation of Mitigation Measure BR-1a (in particular Soil Compaction and Revegetation) and the Agricultural Management Plan (see Mitigation Measure AG-1 in Chapter 4).

Indirect impacts on wetlands/other waters could result from the long-term shading of suitable aquatic habitat located under solar panels during project operations (i.e., within the PV Module portion of the proposed project); this could cause changes in water temperature, vegetation communities, and hydroperiod. Indirect impacts could also occur in offsite wetlands/other waters from increases in sedimentation and runoff from adjacent construction activities, or in some cases from construction activities that are within the same aquatic feature such as work occurring in upstream areas. Indirect impacts may also result from changes in the type and amount of pollutants entering wetlands/other waters from implementation of the Agricultural Management Plan (see Mitigation Measure AG-1 in Chapter 4) which would involve a change in land use within the solar development area from cattle grazing to primarily sheep grazing and possibly mechanical treatment (e.g., mowing). Implementation of construction best management practices (see Mitigation Measure BR-1a; in particular Erosion Control, Equipment Storage and Fueling, Dust Control), Temporary Channel Re-routing, and Design for Stream Channel Alterations, the project stormwater pollution and prevention plan, and other permits required by existing regulations (see Chapter 10, Impact HYD-1), would largely prevent indirect impacts from sedimentation, runoff, and pollutant related impacts to off-site wetlands and other waters.

Project development could result in the permanent and temporary loss of, and indirect impacts to, potentially jurisdictional wetlands and other waters of the U.S. and of the State in the amounts shown in Table BR-14.

Table BR-14: Project-Related Impacts on Potentially Jurisdictional Wetlands and Other Waters of the U.S. and of the State[1].

Habitat Type	Permanent[2] (Acres)	Temporary (Acres)[3]	Indirect (Acres)[4]	Total (Acres)
Wetlands	0.08	3.78	0.66	3.86
Other Waters	0.35	6.52	1.67	6.86
Total	0.43	10.30	2.34	10.72

CDFW = California Department of Fish and Wildlife

1 Acreages represent CDFW jurisdiction (i.e., top of bank or outer limits of riparian vegetation); representing the maximum potential impact on wetlands and other waters resources.

2 Permanent impacts on wetlands and other waters were assessed for the following project components: the battery energy storage system, substation, switchyard, access roads (including at water crossings), fence posts, inverters, solar panel piles, and the poles supporting electrical infrastructure (i.e., pole risers).

3 Temporary impacts on wetlands and other waters were assessed for the following project components: earthwork limits, inside work areas, laydown areas, PV modules, fenced area, gen-tie corridor, the overhead medium voltage transmission line corridor, and exclusion zones.

4 Indirect impacts on wetlands and other waters were additionally assessed for the following project components, which overlap entirely with temporary impacts: PV modules.

Any impact on State and/or federally protected wetlands would be considered a **potentially significant** impact. To reduce impacts to State and federally protected wetlands and other waters to less than significant, the following Mitigation Measure BR-3 shall be implemented as part of the project.

Mitigation Measures

BR-3: Avoid, Minimize, Restore, and Mitigate for Impacts on State and Federally Protected Wetlands and Other Waters, including Riparian Habitat, through the Development and Implementation of an Aquatic Resources Mitigation Plan.

- *Implement standard construction BMPs provided in Mitigation Measure BR-1a, in particular Construction Fencing, Erosion Control, Equipment Storage and Fueling, Dust Control, Soil Compaction, and Revegetation to protect adjacent wetlands and other waters from unauthorized encroachment and/or impacts outside the solar development area.*
  - *Jurisdictional aquatic resources shall be included in the WEAP discussed under "Training of Construction Staff" in Mitigation Measure BR-1a.*
- *Prior to project implementation, project designs shall be refined within the solar development area boundaries (e.g., location, orientation, and shape of solar arrays; perimeter fence alignment; location of pole risers supporting medium voltage electrical lines) to avoid and/or minimize potential impacts on State and federally-protected wetlands and other waters, including riparian habitat, and to maintain hydrological and biological connectivity through the solar development area without increasing impacts on other resources.*
  - *If the final approved project does not avoid all State and federally-protected wetlands and other waters (including riparian habitat), the applicant must submit a jurisdictional delineation of waters of the U.S. and/or State prior to project implementation in support of required project permit applications for approval by USACE and subsequently all necessary permits shall be obtained for residual impacts on jurisdictional features. These typically include the following permits: CWA Section 404 Nationwide or Individual Permit, CWA Section 401 Water Quality Certification, CFGC Section 1600*

Lake and Streambed Alteration Agreement, and Floodplain Encroachment Permit). All conditions of acquired permits shall be implemented to achieve the mitigation performance standards of the above-mentioned regulatory programs, including any compensatory mitigation, performance monitoring if required for on-site restoration, and reporting on the results of the monitoring to the appropriate agencies at the frequency and duration included in the permits. Concurrently, an Aquatic Resources Mitigation Plan shall be prepared and implemented that includes compensation for impacted jurisdictional resources to achieve the performance standard of no net loss of State and federally protected wetlands and other waters. The Aquatic Resources Mitigation Plan may include requirements such as:

- *Directing construction traffic along access roads until they reach active work sites to limit soil compaction and disturbance to the site.*
- *Minimizing site grading and maintaining the overall pre-project site drainage patterns across the solar development area.*
- *Restricting unavoidable temporary construction and maintenance activities within wetlands/other waters (e.g., driving vehicles/equipment through jurisdictional aquatic resources) to occur during the dry season or dewatered areas that have been dry for a minimum of 15 days, and implementing soil compaction prevention via use of rubber mats or other similar materials to protect the soil surface from and distribute the weight of equipment/vehicles when driving over wetlands/other waters for the purposes other than vegetation maintenance.*
- *Restricting use of heavy equipment within wetlands/other waters within the permanent construction footprint to occur under dry conditions (e.g., during dry season or so as not to form ruts of 6 inches or more) or dewatered areas.*
- *Delineation of the work site boundaries such that no work occurs outside the defined impact footprint of the solar development area.*
- *Hardpan/Duripan Protection: to protect the soil perched aquifer and the micro-watersheds supporting existing vernal pool hydrology, activities that have the potential to result in a puncture or other disruption to the soil hardpan or duripan, the puncture will be sealed using bentonite clay or other material that maintains the functionality of the soil's restrictive layer and associated perched aquifer once construction is complete.*
- *Restoring all temporary impacts to wetlands to pre-existing conditions.*
- *Establishing wetland avoidance buffers to the maximum extent feasible (e.g., typically a minimum of 50 feet although may be reduced to 10 feet in some circumstances) with flagging, staking, or other appropriate barriers.*
- *Developing final project designs to maintain existing on-site drainage patterns and ensure no reduction or increase in existing surface water flow off-site into adjacent lands.*

– *For all work conducted in or within 50 feet of aquatic resources, a qualified biologist shall be on-site to monitor construction activities to ensure avoidance and*

minimization measures are properly implemented to protect sensitive aquatic resources and that no un-authorized impacts occur.

- *Compensation shall be provided for project-related residual impacts (i.e., impacts after taking into account reductions in impact by mitigation measures) to State and federally protected wetlands and other waters to achieve a performance standard of no net loss of the acreage, function, and values of jurisdictional resources. Compensatory mitigation requirements shall apply to residual impacts on all wetland and water features, whether preliminarily identified as potentially jurisdictional or not. Potential compensation options include one or more of the following: on-site restoration, off-site preservation (such as within Adjacent Other Lands within the Barton Ranch property, or other areas within the same watershed as the solar development area), or purchasing mitigation credits from an agency-approved wetlands mitigation bank (e.g., Clay Station, Bryte Ranch, Laguna Creek, and Van Vleck Ranch), paying an agency-approved in-lieu fee, and/or developing conservation lands to compensate for permanent loss of resources. Mitigation ratios are expected to be no less than 1:1 and shall be determined during the permitting process.*

- *Jurisdictional wetlands within and adjacent to the solar development area provide habitat to special-status species (e.g., western spadefoot and large-listed branchiopods). Additional mitigation for potential direct and indirect impacts to special-status species habitat is required per Mitigation Measures BR-1c and BR-1i, and shall be included in the Aquatic Resources Mitigation Plan to achieve a no net loss of habitat acreage, function, and values at a mitigation ratio acceptable to the USFWS and CDFW for species within their respective jurisdiction and consistent with performance standards of applicable permits issued by USFWS and/or CDFW.*

Significance after Mitigation

Mitigation Measure BR-3 would reduce potential project-related impacts on State or federally protected wetlands to a **less-than-significant** level because project design refinements, securing required project permits, and implementation of an Aquatic Resources Mitigation Plan including required mitigation and compensation would minimize loss of, restore, and maintain on-site jurisdictional aquatic habitats; and would compensate for residual losses of these features to achieve no net loss per specified performance standards of success and consistent with relevant required USACE and CDFW project permits.

Impact BR-4: 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

The undeveloped grasslands in the solar development area provide nursery and migratory habitat for common wildlife species, and contribute some of the few remaining blocks of natural land identified within the Sacramento Valley, concentrated at the eastern edge along the foothills (Spencer et al. 2010). Additionally, the Coyote Creek corridor in the central-southern vicinity of the solar development area and the Carson Creek corridor passing through the southeastern portion of the solar development area provide habitat movement corridors through the project site and vicinity, native habitat for resident wildlife, and important linkages between native habitat in the surrounding area, such as between the Cosumnes River-Deer Creek corridor and other

existing preserves to the south-southwest, and the foothills to the northeast and existing Deer Creek Hills preserve to the east.

While 1,412 acres of the 2,704-acre project site would be developed for the proposed project, implementation of the Agricultural Management Plan (see Mitigation Measure AG-1) would re-establish grassland conditions in and around the solar panels within the solar development area. These areas of grassland that would remain available would be expected to retain some habitat connectivity throughout the solar development area and preserve access to nursery sites for common ground dwelling species, such as some passerines, ground squirrels, amphibians, and reptiles. In addition, mitigation measures required for project-related impacts on burrowing owl, Swainson's hawk, and State or federally protected wetlands (and other waters) (Mitigation Measures BR-1e, BR-1f, and BR-3) would require compensation that would minimize local and regional habitat losses and maintain habitat for connectivity within the project site's local and regional context.

Furthermore, the project has been designed to avoid development along the two main creek corridors in the project site vicinity, Carson and Coyote creeks, as well as some of their tributary drainages. As a result, project development would have limited impact on the riparian corridors surrounding the solar development area, which likely provide some of the most important local and regional habitat connections in the vicinity of the solar development area and nursery sites for aquatic, riparian, and terrestrial species, including for Swainson's hawk, western pond turtle, and potentially tricolored blackbird. Therefore, the functions along the identified Coyote Creek essential habitat connectivity area, including the Carson Creek corridor, would be maintained with project implementation. Riparian corridors along Coyote and Carson creeks will remain intact during and after project development activities; permanent developments of the project would avoid these two drainages by approximately 100 feet. Approximately 4.19 acres of riparian habitat along intermittent tributaries to these two main creek corridors would be impacted by the project (see Impact BR-2).

Proposed seven-foot-tall woven wire fencing around the solar facility portion of the solar development area may limit wildlife permeability for certain species outside of the two main creek corridors. Species such as birds, amphibians, and reptiles (e.g., snakes, lizards) would be able to pass through or over the proposed fencing and their movement through the solar development area would not likely be impeded. Medium to large sized mammals (e.g., coyote, possibly deer) would likely be excluded from the solar development area due to the tall height and likely small size of openings in the woven fencing; and their movements could be limited to outside the solar development area, along and around the fence line perimeter. Project fence line design would be expected to generally direct wildlife movement along natural drainages avoided by the project and should allow for generally unimpeded movements between natural areas around the site, with the possible exception of a few small dead-end pockets in the northern part of the solar development area. Wildlife may be encouraged to travel along Scott Road if maneuvering around the fence line in the southern and central portions of the solar development area which could expose them to greater risk of vehicle collisions in those areas. However, Scott Road does

not carry a high traffic volume[6] and agricultural fencing already exists along Scott Road in these areas, which may discourage wildlife from entering the roadway.

The potential Impact of project development on wildlife movement and access to nursery sites would be considered a **potentially significant** impact without implementation of Mitigation Measures BR-1e, BR-1f, and BR-3. To reduce impacts on wildlife movement to less than significant, the following mitigation measure shall be implemented as part of the project.

MITIGATION MEASURES

- *Implement Mitigation Measure AG-1 (see Chapter 4, "Agricultural Resources").*
- *Implement Mitigation Measure BR-1e (Burrowing Owl).*
- *Implement Mitigation Measure BR-1f (Swainson's Hawk).*
- *Implement Mitigation Measure BR-3 (State or Federally Protected Wetlands and Other Waters).*

SIGNIFICANCE AFTER MITIGATION

Implementation of Mitigation Measures AG-1 (Agricultural Management Plan), BR-1e (Burrowing Owl), BR-1f (Swainson's Hawk), and BR-3 (State or Federally Protected Wetlands and Other Waters) would reduce potential project-related impacts on wildlife movement to a **less-than-significant** level because implementation of the Agricultural Management Plan would retain and/or restore grassland vegetation throughout much of the solar development area that could facilitate wildlife movement within and across the project site, and because compensation for loss of Burrowing owl habitat, Swainson's hawk foraging and nesting habitat, and protected wetlands (and other waters) would protect and retain habitat regionally that would support regionwide wildlife connectivity and grassland nursery sites.

IMPACT BR-5: CONFLICT WITH ANY LOCAL POLICIES OR ORDINANCES PROTECTING BIOLOGICAL RESOURCES, SUCH AS A TREE PRESERVATION POLICY OR ORDINANCE

The Sacramento County Swainson's Hawk Ordinance (Sacramento County Code Chapter 16.130), General Plan Policies CO-58 to CO-62, CO-66, CO-87 to CO-92, CO-115, and CO-138 to CO-141, all identified in the Regulatory Setting Section of this chapter, are applicable to the proposed project.

The Swainson's Hawk Ordinance established the Swainson's Hawk Mitigation Program to provide additional means of mitigation for loss of Swainson's hawk foraging habitat for projects within the County that are within 10 miles of a Swainson's hawk nest. Projects impacting more than 40 acres of foraging habitat must provide direct preservation of mitigation land (i.e., fee title or easement) on a per-acre basis that is acceptable to CDFW and the County. One previously

[6] Measured 24-hour traffic volumes on Scott Road at White Rock Road (combined northbound and southbound) ranged from 2,621 to 2,860 daily vehicles during measurements taken from 2015 through 2019. No measurements are available that specify the time of day for traffic levels. However, if it assumed that 75% of this traffic happens during the hours of 6:00 a.m.–6:00 p.m., that daily traffic amounts to 1.5 cars per minute during the day (including both directions) and 0.5 cars per minute during the evening (again, including both directions).

documented by CNDDB active Swainson's hawk nest is located in and within 0.5 mile of the project site; approximately 1,098.75 acres of annual grassland and other suitable open foraging habitat for this species occur within the solar development area and could provide potential foraging habitat to Swainson's hawks in the region, of which approximately 911.10 acres would be permanently impacted by the proposed project (see Impact BR-1, Swainson's Hawk). Implementation of Mitigation Measure BR-1f would ensure that the project is consistent with the Sacramento County Swainson's Hawk Ordinance.

The Sacramento County General Plan Policies identified as applicable to the proposed project address three main topics of resource protection:

1. Policies CO-58 through CO-62 and CO-66 address mitigation standards for impacts on native habitat, including wetlands, riparian, and oak woodlands, and special-status species habitat. Consistency with these policies is demonstrated in the impact analysis and mitigation measures under Impact BR-1, Impact BR-2, and Impact BR-3 above; with the exception that consistency with the SSHCP is addressed in Impact BR-6, below.

2. Policies CO-87 through CO-92 and CO-115 address protection of riparian habitat; consistency with these policies as relevant to the proposed project is evaluated in the section below.

3. Policies CO-138 through CO-141 address the protection of native oak trees, landmark/heritage trees, riparian trees, and native oak woodlands/savannah (i.e., oak woodland/forest). Consistency of the proposed project with policies related to trees and oak woodlands is evaluated in the section below.

The project has been designed to largely avoid riparian habitat; for areas where impacts on riparian habitat cannot be avoided, the project would be required to mitigate at a ratio of 1:1 for preservation and 1:1 for establishment (see Impact BR-2). Therefore, the project would be consistent with CO-87 and CO-89 in that it would protect the majority of riparian habitat on-site. The project would be consistent with CO-91 through implementation of the measure "Prevent Invasive Species Spread" as part of Mitigation Measure BR-1a. The project would implement a minimum 100-foot avoidance buffer to the top of bank of Coyote and Carson creeks, with the exception of a few locations where roads and medium voltage overhead lines cross these creeks and several locations where the solar development area and adjacent temporary work areas extend closer than 100 feet. Trees removed from within the portions of the project footprint that are closest to Coyote and Carson creeks (i.e., where medium voltage lines cross Carson Creek) do not have canopies that overlap the creek, therefore, tree removal would not be expected to conflict with County policy CO-92. CO-115 establishes a minimum 100-foot functional setback from stream banks (prohibiting development, including agricultural) to protect vegetation and bank stability along the channel; an additional transitional setback of 50-feet beyond the function setback is also generally required to protect associated hydrology. While the proposed project generally implements a 100-foot avoidance buffer to Carson and Coyote creeks, several portions of the project footprint totaling 0.38 acre (as identified above) extend closer than 100 feet and would therefore conflict with CO-115. Project areas that occur within the additional 50-foot transitional buffer area required by CO-115 are not expected to conflict with the objective of the transitional buffer area because the project has been designed to retain on-site hydrology and drainage patterns. Therefore, without mitigation, the project would potentially conflict with Sacramento County General Plan policies related to riparian setbacks (CO-115).

The project proposes to remove 4,787 trees, a total of approximately 287 acres of oak woodland/forest, and 4.19 acres of riparian woodland/forest within the solar development area. Of trees proposed for removal, 4,394 are protected oak trees (greater than 6 inches in diameter or 10 inches aggregate diameter for multi-trunk trees measures at 4.5 feet above ground [i.e., DBH); 1,792 are heritage trees (greater than 16 inches in DBH); and 173 are riparian trees (trees within delineated sensitive riparian habitat). Furthermore, the removal of all aforementioned trees equates to the loss of 54.61 acres of contiguous canopy oak woodland and forest within the solar development area (refer to Appendix BR-1, Arborist Report). Oak woodland is scattered across the project site; however, concentrations of canopy area appear to occur at the far northern end of Coyote Creek, in the southwestern corner near the confluence of Coyote and Carson creeks, and along the eastern border. Without appropriate mitigation for the loss of protected trees and oak woodlands consistent with County policy and County approval to remove protected trees, the project would conflict with local policies protecting trees. The project would be required to implement a Tree Resource Revegetation Plan (see Mitigation Measure BR-2) that is consistent with the Sacramento County General Plan polices CO-140 and CO-141, as identified in the Draft Tree Resource Compliance and Mitigation Memorandum (Dudek 2024) and summarized below:

- The project has been designed to avoid portions of oak canopy area in each of the three oak canopy concentration areas identified within the project site, primarily along Coyote and Carson creek drainages and the project applicant would develop and implement a Tree Resource Protection and Revegetation Plan that identifies a mitigation area to replace any project-related canopy loss. As described in Mitigation Measure BR-2, on-site preservation of native oak tree canopy shall be considered as a first priority for fulfillment of this preservation mitigation requirement. For the purposes of this mitigation measure, “on-site” constitutes being within Adjacent Other Lands (Plate PD-2, Project Setting) of the project site, or immediately adjacent to the project site such that at least a portion of the boundary of the preservation area directly borders oak woodlands in the project site. On-site native oak tree canopy preservation shall preserve the main, central portions of consolidated and isolated groves constituting the existing canopy on-site, and provide an area on-site that compensates for canopy area lost. On-site preservation areas shall prioritize areas that provide connectivity between existing oak woodlands and forest and/or riparian habitat that may serve as potential wildlife movement corridors. The native oak canopy preservation area must be a single contiguous area on-site, adjacent to existing oak canopy to ensure opportunities for regeneration, and at least equal to the size of canopy area lost or else additional compensation as described in detail in Mitigation Measure BR-2 (i.e., off-site preservation, preservation bank credit purchase, or in-lieu fee to a tree preservation fund) shall be required to ensure no net loss. If on-site mitigation is not feasible, off-site preservation may be considered in entirety or in combination with on-site preservation. The off-site preservation area shall meet all the following criteria to preserve, enhance, and maintain a natural woodland habitat in perpetuity. Protected woodland habitat could be used as a suitable site for establishment tree plantings (as detailed in Mitigation Measure BR-2 under item 3, “Establishment” above), if appropriate and approved by Sacramento County. The project proposed mitigation would, therefore, be consistent with CO-140, using a combination of options 2 and 6.

The Tree Resource Protection and Revegetation Plan would include a performance standard for the mitigation area of a minimum canopy coverage of 30 percent for blue oak at 15 years post-

revegetation (see Mitigation Measure BR-2, above). Therefore, as described in the Tree Resource Compliance and Mitigation Memorandum (Dudek 2024), and summarized above, the project would be consistent with Sacramento County General Plan policies CO-138 through CO-141 related to the protection of trees and oak woodlands and associated mitigation.

The project would be consistent with local policies and ordinances protecting biological resources, except the potential for project development to conflict with the Sacramento County General Plan policies protecting riparian resources (as identified above) would be considered a **potentially significant** impact. To reduce impacts related to conflicts with local policies protecting biological resources to be less than significant, the following Mitigation Measure BR-5 shall be implemented as part of the project.

Mitigation Measures

BR-5: Address Inconsistencies with Local Policies Protecting Biological Resources.

- *A minimum buffer of 100 feet shall be maintained from the top of bank of Carson Creek and Coyote Creek to protect riparian functions consistent with the Sacramento County General Plan Policy CO-115, unless a Qualified Biologist determines that a buffer of less than 100 feet will sufficiently protect riparian habitat functions. If work is planned within this 100-foot avoidance buffer, then a site-specific Aquatic and/or Riparian Resource Avoidance Plan shall be developed and implemented that includes the following:*
  - *Flagging or fencing aquatic features under the oversight of a Qualified Biologist for avoidance and to clearly identify the limits of construction.*
  - *All crews will be provided with maps showing the locations of aquatic habitats in and near the work area.*
  - *Measures to minimize erosion and runoff, or altered surface flow during construction and ongoing operations, in accordance with Mitigation Measure BR-1a (in particular Erosion Control); and implementation of BMPs and pollutant source control measures, along with preparation of a SWPPP with associated BMPs designed to control construction-related erosion and pollutants as identified in Impact HYD-1 (see Chapter 10, "Hydrology and Water Quality").*
  - *Worker environmental awareness training (see Mitigation Measure BIO-1b) covering relevant laws, location(s) of wetlands and other waters, including riparian habitat in the work site, and project activity-specific avoidance and minimization measures.*

Significance after Mitigation

Mitigation Measure BR-5 would resolve potential project-related inconsistencies with local policies protecting biological resources to a **less-than-significant** level because it would require an assessment of potential losses of shaded riverine aquatic habitat from project implementation and mitigation to replace any such losses to achieve the no net-loss standard and because it would require an adjustment of final project designs to implement a 100-foot avoidance buffer to Coyote and Carson creeks in compliance with applicable USACE Clean Water Section 404 permitting standards and CDFW streambed alteration agreement standards.

Impact BR-6: Conflict with the Provisions of an Adopted HCP, Natural Community Conservation Plan, or other approved Local, Regional, or State HCP

The solar development area is located within the SSHCP Plan Area, primarily (89 percent) outside the SSHCP-defined UDA. Only limited development activities (i.e., infrastructure) are covered by the SSHCP in areas outside the UDA, not including solar development such as for the proposed project. The vast majority of species habitat preservation that would be accomplished under the SSHCP conservation strategy is planned for areas outside the UDA. The SSHCP does not apply to the project. A small portion of the project is within the SSHCP PPU 1 (approximately 160 acres) and PPU 5 (approximately 148 acres), see discussion below. The SSHCP also acknowledges the authority to approve non-Covered Activities pursuant to the regulatory programs of USFWS, USACE, CDFW, and RWQCB. Development of non-Covered Activities within the SSCHP Plan Area, especially those outside the UDA, have potential to be inconsistent with the conservation strategy of the SSHCP, including limiting the availability of lands for accomplishing species habitat preservation under the SSHCP. Therefore, an analysis of project consistency with this aspect of the SSCHP is provided below.

The SSHCP conservation strategy is based on a set of biological goals and objectives to be accomplished through implementation of a comprehensive suite of avoidance and minimization measures (AMMs), as well as the creation of an integrated preserve system. The project would be required to implement BMPs during construction (see Mitigation Measure BR-1a) that are consistent with those described in the SSHCP and would implement species-specific mitigation measures (see Mitigation Measures BR-1b through BR-1l) that are also consistent with AMMs for Covered Species described in the SSHCP. As currently designed, the project is also consistent with the following additional applicable design measure from the SSHCP:

- LID-3 (Natural Site Features): Incorporate preservation of a site's natural aquatic features (such as creeks and streams) into project design to retain natural hydrologic patterns and to retain habitat that might be used by Covered Species.

Furthermore, the project would avoid, minimize, and mitigate impacts on natural resources to comply with the regulatory standards of USFWS, USACE, CDFW, and RWQCB in order to obtain applicable permits and other approvals from these environmental resource agencies. These are the same regulatory standards applied to the review and approval of the SSHCP. Therefore, the project mitigation strategy is designed to achieve the same mitigation standards applicable to Covered Activities under the SSHCP.

The project also would not interfere with establishment of an integrated preserve system under the SSHCP. This conclusion is based, in part, on Dudek's analysis of project consistency with the SSHCP (Appendix BR-1; South Sacramento Habitat Conservation Plan Consistency Analysis). The SSHCP preserve system's goal is for a new integrated preserve system totaling 36,282 acres across eight identified preserve planning units (PPUs) covering a total of 294,326 acres within the SSHCP Plan Area (Plate BR-3). The preserve system is designed to incorporate minimal smaller preserves in PPUs within the UDA (totaling 7,071 acres) and focus on more and larger preserves in PPUs outside the UDA (totaling 29,211 acres). The majority of the solar development area (1,104 acres; 78 percent) occurs outside any PPU. The SSHCP has no specific preservation goals or objectives for areas outside PPUs and did not envision land acquisition outside PPUs; therefore, project development on the majority of the solar

development area that falls outside PPUs would not conflict with implementation of the SSHCP Conservation Strategy. However, the proposed project partially overlaps PPU 1 by approximately 160 acres (all within the UDA) and PPU 5 by approximately 148 acres (all outside the UDA). While the 308 acres that would be developed by the project within PPUs 1 and 5 would not be available for acquisition and inclusion in the SSHCP preserve system for the approximately 35-year operational life of the project, Dudek's analysis demonstrates that project-related impacts on SSHCP land cover types and habitat within PPU 1 and 5 would be a very small percentage of the inventory of those lands in each respective PPU (see Table BR-15 through Table BR-18); and that project-required compensation would supplement and bolster the function of the SSHCP preserve system and would not preclude the plan permittees from meeting the obligations of the SSHCP preserve system for the following reasons:

- While lands within the solar development area would not be available for acquisition as part of the SSHCP preserve system during the project's 35-year lifespan of the project, the solar development area may continue to provide some habitat value for SSHCP Covered Species.
- The SSHCP did not envision mitigation bank credit purchases as composing a substantial portion of the preserve system; as of December 2021, the nine preserves which have been identified under the SSHCP to date have been fee title dedications or easements (i.e., no bank credit purchases) (South Sacramento Conservation Agency 2021). Project-required compensation for impacts to aquatic resources, special-status species, and tree resources, would primarily be achieved with on-site habitat avoidance and enhancement, and/or with purchase of mitigation credits at an approved mitigation bank. The project site is within the service area for the following existing mitigation banks: Clay Station Mitigation Bank, Bryte Ranch Conservation Bank, Laguna Creek Mitigation Bank, and Van Vleck Ranch Mitigation Bank. Therefore, anticipated project compensatory credit purchases would not substantially interfere with the conservation strategy of the SSHCP.
- For a few sensitive species for which mitigation banks are not available or of limited availability, off-site preservation is included as a mitigation option for the proposed project (e.g., Mitigation Measures BR-1e [Burrowing Owl] and BR-1f [Swainson's Hawk]). However, even if it is assumed that all project-required compensation is to be accomplished via off-site preservation, the project would only impact (temporarily and permanently) a relatively small percentage of habitat for SSHCP Covered Species (up to 3 percent for PPU 1; less than 1 percent for PPU 5) and a smaller percentage of natural land cover types (up to 2 percent for PPU1; less than 1 percent for PPU 5) within SSCHP PPUs 1 and 5 that are available for the establishment of preserves under the SSHCP (Table BR-15 through Table BR-18). Acreages of natural land cover types and of Covered Species modeled habitat remaining available in PPUs 1 and 5 after project implementation would be more than sufficient to meet the SSHCP target of 3,756 acres of preserves in PPU 1 (3,537 acres within the UDA and 219 acres outside the UDA) and 1,691 acres of preserves within PPU 5.

Table BR-15: Potential Project-Related (Temporary and Permanent) Removal of Natural Land Cover Types Present within SSHCP Preserve Planning Unit 1

Land Cover Type	Estimated Project Impact – PPU 1 (Acres)	PPU 1 Total (Acres)	Project Percent of PPU 1	PPU 1 – Remaining After Project (Acres)	PPU 1 – Preserve Target Total (Acres)	PPU 1 – Preserve Target within UDA (Acres)	PPU 1 – Preserve Target outside UDA (Acres)
Terrestrial							
Annual Grassland	156	3,471	<1	3,315	3,471	3,267	204
Cropland/Irrigated Pasture	0	419	0	419	0	0	0
Blue Oak Woodland/Blue Oak Savannah	2	927	<1	925	0	0	0
Riparian							
Mixed Riparian Woodland/Mixed Riparian Scrub	0	0	0	0	0	0	0
Aquatic Features							
Freshwater Marsh	0	10	0	10	10	10	0
Seasonal Wetland	0	0	0	0	0	0	0
Swale	1.04	52	<1	51	52	49	3
Vernal Pool	0.41	145	<1	145	145	133	12
Open Water	0	51	0	106	51	51	0
Stream/Creek	0.01	10	<1	10	10	10	0
Stream/Creek (VPIH)	0	17	2	42	17	17	0

Source: County of Sacramento et al. 2018, adapted by AECOM in 2022.
PPU = Preserve Planning Unit
SSHCP = South Sacramento Habitat Conservation Plan
UDA = Urban Development Area
VPIH = Vernal Pool Invertebrate Habitat.

Table BR-16: Potential Project-Related (Temporary and Permanent) Removal of Natural Land Cover Types Present within SSHCP Preserve Planning Unit 5

Land Cover Type	Estimated Project Impact – PPU 5 (Acres)	PPU 5 Total (Acres)	Project Percent of PPU 5	PPU 5 – Remaining After Project (Acres)	PPU 5 – Preserve Target (Acres)
Terrestrial					
Annual Grassland	129	27,463	<1	27,334	750
Cropland/Irrigated Pasture	0	2,462	0	2,462	388
Blue Oak Woodland/Blue Oak Savannah	19	6,556	<1	6,537	0
Riparian					
Mixed Riparian Woodland/Mixed Riparian Scrub	0	1,401	0	1,401	440
Aquatic Features					
Freshwater Marsh	0	159	0	159	0
Seasonal Wetland	0	446	0	446	31
Swale	<1	89	<1	89	8
Vernal Pool	0	339	0	339	35
Open Water	0	365	0	365	6
Stream/Creek	0.41	481	<1	481	33

Source: County of Sacramento et al. 2018, adapted by AECOM in 2024.
PPU = Preserve Planning Unit
SSHCP = South Sacramento Habitat Conservation Plan

Table BR-17: Potential Project-Related Removal of Covered Species Modeled Habitat Present within SSHCP PPU 1

Land Cover Type	Estimated Project Impact – PPU 1 (Acres)	PPU 1 Total (Acres)	Project Percent of PPU 1
Wildlife			
Western spadefoot (Upland)	156	14,840	1
Western spadefoot (Aquatic)	1	799	<1
Northwestern pond turtle (Upland)	135	3,975	3
Northwestern pond turtle (Aquatic)	0	67	0
Burrowing owl (nesting/foraging)	156	15,265	1
Burrowing owl (foraging)	0	692	0
Swainson's hawk (nesting)	0	5	0
Swainson's hawk (foraging)	157	15,918	1
Tricolored blackbird (nesting/foraging)	156	15,293	1
Tricolored blackbird (foraging)	1	736	<1
Valley elderberry longhorn beetle	1	886	<1
Vernal pool tadpole shrimp/vernal pool fairy shrimp[1]	157	15,404	1
American badger	159	17,842	1
White-tailed kite (nesting/foraging)	158	19,147	1
Plants			
Dwarf downingia	9	979	1
Boggs Lake hedge hyssop	64	20,782	<1
Ahart's dwarf rush	21	9,792	<1
Legenere	21	11,623	<1
Pincushion navarretia	97	11,245	1
Slender Orcutt grass and Sacramento Orcutt grass	27	10,012	<1
Sanford's arrowhead	0	57	0

Source: Appendix BR-5, adapted by AECOM in 2024.
Notes:
[1] Estimated project impact and acres of habitat available in PPU 1 are likely grossly overestimated because suitable habitat modeled for this species includes all annual grassland mapped within the solar development area, whereas this species is restricted to seasonal aquatic habitats within annual grassland which are typically more limited.
PPU = Preserve Planning Unit
SSHCP = South Sacramento Habitat Conservation Plan

Table BR-18: Potential Project-Related Removal of Covered Species Modeled Habitat Present within SSHCP PPU 5

Land Cover Type	Estimated Project Impact – PPU 5 (Acres)	PPU 5 Total (Acres)	Project Percent of PPU 5
Western spadefoot (Upland)	148	34,019	<1
Western spadefoot (Aquatic)	0	1,381	0
Northwestern pond turtle (Upland)	148	29,256	<1
Northwestern pond turtle (Aquatic)	0	807	0
Burrowing owl (nesting/foraging)	129	32,907	<1
Burrowing owl (foraging)	0	874	0
Swainson's hawk (nesting)	0	1,342	0
Swainson's hawk (foraging)	129	32,129	<1
Tricolored blackbird (nesting/foraging)	129	30,617	<1
Tricolored blackbird (foraging)	0	2,996	0
Valley elderberry longhorn beetle	0	2,743	0
Vernal pool tadpole shrimp/vernal pool fairy shrimp[1]	0	13,456	0
American badger	129	29,097	<1
White-tailed kite (nesting/foraging)	148	40,012	<1
Plants			
Dwarf downingia	0	2,423	0
Boggs Lake hedge hyssop	0	4,715	0
Ahart's dwarf rush	0	1,915	0
Legenere	0	4,244	0
Pincushion navarretia	0	5,113	0
Slender Orcutt grass and Sacramento Orcutt grass	0	2,213	0
Sanford's arrowhead	0	6,710	0

Source: Appendix BR-5, adapted by AECOM in 2024.
Notes:
[1] Estimated project impact and acres of habitat available in PPU 5 are likely grossly overestimated because suitable habitat modeled for this species includes all annual grassland mapped within the solar development area, whereas this species is restricted to seasonal aquatic habitats within annual grassland which are typically more limited.
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The SSHCP preserve design focus in PPU 1 includes establishing a core preserve (C-1), several smaller minor and satellite preserves, and providing linkage preserves between both existing preserves and SSHCP developed preserves; the majority of the preserve system in PPU 1 is to be developed southwest of, and outside of the proposed project site and vicinity, with the exception of Linkage Preserve L-1, Carson Creek Linkage, which is intended to connect core preserve C-1 (southwest of the project site) to undeveloped lands east of the UDA where the project site is located (see Plate BR-3). The proposed project would retain an approximately 100-foot buffer, and in many cases larger buffer, to Coyote and Carson creeks that would allow for wildlife movement and habitat connectivity between undeveloped areas west and southwest of the project site to undeveloped lands east of the UDA, meeting the goals of Linkage Preserve L-1. Therefore, the proposed project would not interfere with meeting the preserve system goals of PPU 1.

The design focus of PPU 5 is primarily to provide habitat linkages among existing and future preserves, mostly along and connected to the Cosumnes River/Deer Creek Corridor. Approximately 1,482 of the 1,619 total acres of preserves to be established within PPU 5 would be preserved in the Cosumnes River/Deer Creek Wildlife Movement Corridor as part of the SSHCP and remaining preserves will connect the Laguna Creek Wildlife Movement Corridor Preserve from the northwest in PPU 3 to the Cosumnes River/Deer Creek Wildlife Movement Corridor. The proposed project would not affect the Cosumnes River/Deer Creek Wildlife Movement Corridor or its connections to the Laguna Creek Movement Corridor (see Plate BR-3) because it is not located within or between either of these two movement corridors, and would therefore not interfere with the establishment of preserves within PPU 5.

In summary, the project is consistent with provisions of the SSHCP because it includes mitigation measures that are consistent with all relevant general and Covered Species AMMs from the SSHCP; because project development would not substantially affect the ability to implement the Conservation Strategy as it would allow sufficient habitat acreages to remain regionally to meet the preserve planning needs of the SSHCP; because the preserve system targeted within PPU 5 would not be impacted by the proposed project (project site is northeast and away from areas to be preserved in PPU 5); because the preserve system targeted within PPU 1 would be largely avoided by project development (except for Linkage Preserve L-1) and project design would retain movement corridors along Coyote and Carson creeks that would connect undeveloped areas west of the project site (within PPU 1) to undeveloped lands east of the UDA, meeting the goals of Linkage Preserve L-1. Furthermore, the solar development area would be decommissioned after the project's 35-year lifespan and may return to existing conditions within the 50-year permit term of the SSHCP. Therefore, the potential conflict of project development with provisions of the SSHCP would be **less than significant.**