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Project Title:	Soda Mountain Solar
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Document Title:	Section 3-4 Biological Resources
Description:	This Section evaluates the direct, indirect and cumulative impacts the Project may have on biological resources and identifies any required Applicant-Proposed Measures (APM) and any required Mitigation Measures.
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3.4 BIOLOGICAL RESOURCES

This section evaluates impacts to biological resources that may result directly or indirectly from implementation of the project. The analysis in this section describes applicable federal state, and local regulations, presents an overview of existing conditions, identifies the criteria used for determining the significance of environmental impacts, lists applicant-proposed measures (APMs) that would be incorporated into the project to avoid or substantially lessen potentially significant impacts to the extent feasible, and describes the potential impacts to biological resources that may result from implementation of the project. The analysis is based on a review of existing resources, technical data, and applicable laws, regulations, plans, and policies, as well as the following technical reports prepared for the project:

- *Soda Mountain Solar Project Biological Resources Technical Report*, San Bernardino, County, California (BRTR) prepared by SWCA Environmental Consultants (2024) (Appendix D-1)
- *Desert Bighorn Sheep Study for the Soda Mountain Solar Project*, prepared by Dudek (2024) (Appendix D-2)
- *Aquatic Resources Delineation Report for the Soda Mountain Solar Project*, San Bernardino County, California (ARDR) prepared by SWCA Environmental Consultants (2024) (Appendix E-1)
- *Preliminary Aquatic Resources Impact Assessment for the Soda Mountain Solar Project*, San Bernardino County, California prepared by SWCA Environmental Consultants (2023) (Appendix E-2)

3.4.1 Regulatory Setting

3.4.1.1 Federal

FEDERAL LAND POLICY AND MANAGEMENT ACT (43 USC 170-1787)

The Federal Land Policy and Management Act (FLPMA) establishes public land policy; and guidelines for administration; and provides for the management, protection, development, and enhancement of public lands. FLPMA Section 202 requires the BLM to develop land use plans, also known as resource management plans (RMPs), to guide the BLM's management of public lands. FLPMA Title V, Section 501, establishes the BLM's authority to grant a right-of-way (ROW) for the generation, transmission, and distribution of electrical energy (FLPMA, as amended, 2001). The BLM is responsible for responding to requests regarding the development of energy resources on BLM-administered lands in a manner that balances diverse resource uses and considers the long-term needs for renewable and non-renewable resources for future generations.

ENDANGERED SPECIES ACT (16 USC 1531-1543)

The Endangered Species Act (ESA) (16 USC §1531 et seq.) designates threatened and endangered species, both animal and plant species, and provides measures for their protection and recovery. "Take" of listed wildlife, and of listed plant species located on federal land, is prohibited without obtaining a federal permit. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Harm includes any act that kills or injures fish or wildlife, including significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife. Activities that damage the habitat of (i.e., harm) listed wildlife species require approval from the USFWS or the National Marine Fisheries Service. The ESA also generally requires the

determination of critical habitat for listed species. If critical habitat has been designated, impacts to areas that contain the primary constituent elements identified for the species, whether or not it is currently present, is also prohibited. ESA Section 7 and Section 10 provide two pathways for obtaining authority to take listed species.

For projects proposed on federal lands, federal agencies such as the BLM are required by the ESA to ensure that any action they authorize, implement, or fund, including energy developments, will not jeopardize the continued existence of any federally threatened or endangered species or destroy or adversely modify designated critical habitat. Under ESA Section 7 consultation, the lead agency (e.g., BLM) prepares a Biological Assessment (BA) that analyzes whether the project is likely to adversely affect listed wildlife or plant species or their critical habitat, and proposes suitable avoidance, minimization, or compensatory mitigation measures. If the action would adversely affect the species, the USFWS then responds to the BA by issuing its Biological Opinion (BO) determining whether the project is likely to jeopardize the species or result in adverse modification of critical habitat.

If a "non-jeopardy" or "no adverse modification" opinion is provided by the USFWS, the federal agency may proceed with the action as proposed. If a jeopardy or adverse modification opinion is provided, the USFWS may prepare a BO with reasonable and prudent measures to minimize take and associated mandatory terms and conditions that describe the methods for accomplishing these prudent measures and/or also develop mandatory reasonable and prudent alternatives to the project.

The USFWS provided BLM with a draft BO on October 23, 2015, and issued a final BO on January 13, 2016. The BLM issued a ROW for the Soda Mountain Solar Project on March 25, 2016, as part of the ROD. The NEPA requirements for the environmental analysis of the project were completed through the preparation of an EIS (BLM 2016).

EXECUTIVE ORDER 13112 – INVASIVE SPECIES

Executive Order 13112 was signed in February 1999 and established the National Invasive Species Council. This Order requires agencies to identify actions that may affect the status of invasive species. It also directs federal agencies not to authorize, fund, or carry out actions that they believe are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that the agency has prescribed, it has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize the risk of harm will be taken in conjunction with the actions.

PLANT PROTECTION ACT OF 2000

The Plant Protection Act of 2000 (7 USC Ch. 104) established a federal program to control the spread of noxious weeds. The Secretary of Agriculture is authorized to publish a list of plants designated as noxious weeds (7 USC §7712(f)). The movement of all such weeds in interstate or foreign commerce is prohibited except under a permit.

LACEY ACT, AS AMENDED

The Lacey Act (16 USC §§3371-3378) protects plants and wildlife by creating civil and criminal penalties for a wide variety of violations including illegal take, possession, transport, or sale of protected species.

BALD AND GOLDEN EAGLE PROTECTION ACT

The Bald and Golden Eagle Protection Act (BGEPA) prohibits the take, possession, and commerce of bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*). Under the act and subsequent rules published by USFWS, "take" may include actions that injure an eagle or affect reproductive success (productivity) by substantially interfering with normal behavior or causing nest abandonment. USFWS can authorize incidental take of bald and golden eagles for otherwise lawful activities.

CLEAN WATER ACT

The Clean Water Act (33 USC §1251 et seq.) is intended to restore and maintain the quality and biological integrity of the nation's waters. It prohibits the discharge of pollutants into waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit from the USEPA. Waters of the United States and navigable waters do not occur on the Project site (USACE 2013); therefore, permitting under the federal Clean Water Act is not required for the Project.

USACE Jurisdictional Determination History

An Approved Jurisdictional Determination (AJD) reviewed by the USACE under *Rapanos Guidance* (2008c) for the Soda Mountain Solar Project, File Number SPL-2010-01042-SLP, was issued on June 5, 2013, covering 411 acres of delineated features within a larger study area than the current revised project. The AJD found that flows on-site extend both northeast and southeast into Soda Dry Lake. In the AJD, USACE used jurisdictional report information submitted by Panorama Environmental Inc. dated November 2009 and 2013. USACE found acreages of the drainage areas (active floodplain) were "accurately calculated using GIS data and polygons". The USACE concluded the drainages were isolated non-relatively permanent waters that are tributary to an isolated, intrastate dry lake, and not ultimately tributary to a TNW. USACE concluded all 411 acres of delineated features as non-jurisdictional.

In addition to the AJD, USACE issued an associated *Approved Jurisdictional Determination regarding presence/absence of geographic jurisdiction* letter, and *Determination regarding requirement for department of the Army Permit* letter, both dated August 21, 2013, which expired 5 years later in 2018.

BLM SENSITIVE SPECIES

BLM Sensitive Species are designated by the BLM State Director. This list includes species that may be federally listed, proposed, or candidate species, or state-listed. The BLM's policy is to "ensure that actions authorized, funded, or carried out do not contribute to the need to list any of these species as threatened or endangered" (BLM 2014). Various offices of the BLM maintain a list of special-status plant and wildlife species that are to be considered as part of the management activities carried out by the BLM on the lands that they administer.

MIGRATORY BIRD TREATY ACT

Migratory Bird Treaty Act (MBTA) prohibits take of any migratory bird, including eggs or active nests, except as permitted by regulation (e.g., licensed hunting of waterfowl or upland game species). Under the MBTA, "migratory bird" is defined as "any species or family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle" and applies to most bird species native to the United States.

CALIFORNIA DESERT CONSERVATION AREA PLAN

The CDCA Plan (BLM 1999) covers approximately 25 million acres of land in southern and southeastern California, with approximately 10 million acres being administered by the BLM. The CDCA Plan is a comprehensive, long-range plan with goals and specific actions for the management, use, development and protection of the resources and public lands within the CDCA and is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality.

WEST MOJAVE PLAN

The West Mojave Plan (WEMO or Plan) includes a 9.3-million-acre planning area in an area located to the north of the Los Angeles metropolitan area. As an amendment to the CDCA Plan that was implemented in 1980, the WEMO Plan is one of the largest federal land use plan amendments ever put in place in the United States.

The WEMO provides a comprehensive strategy to conserve and protect the desert tortoise, Mohave ground squirrel, and nearly 100 other sensitive plants and animals and the natural communities of which they are a part.

Key focal areas of the WEMO Plan include protecting large blocks of high-quality habitat, avoiding human impacts on conservation areas, accommodating particularly vulnerable species, and preserving biodiversity. As a major component of the Plan, large areas of relatively low conservation value lands have become available for development, recreation, and resource extraction. The WEMO determined that projects that include solar development will have adverse impacts on the remaining protected areas and associated sensitive species.

DESERT RENEWABLE ENERGY CONSERVATION PLAN

In September 2016, BLM adopted the Desert Renewable Energy Conservation Plan (DRECP) LUPA to the CDCA Plan, Bishop Resource Management Plan, and Bakersfield Resource Management Plan (BLM 2016). The DRECP addresses solar, wind, geothermal energy generation, and transmission projects on 10.8 million acres of BLM-administered lands in the desert regions of southern California. The LUPA eliminates the Multiple Use Classes (MUCs) in the CDCA Plan and replaces them with specific land use designations (California Energy Commission 2024).

The DRECP establishes several land use classifications, including Development Focus Areas (DFAs), Variance Process Lands (VPLs), Recreation Management Areas, General Public Lands, and various conservation land use designations. In DFAs, renewable energy projects are incentivized, and permitting is streamlined. VPLs are carried over from the Western Solar Plan[1] designations and have moderate to low ecological value and uncertain renewable energy potential. Renewable energy projects may be implemented on VPLs, but they must first be evaluated under a variance process and then approved by BLM to proceed through NEPA environmental review. BLM Conservation Areas include National Landscape Conservation System lands, Areas of Critical Environmental Concern (ACECs), and Wildlife Allocations. Recreation Management Areas are designated for recreation actions. This designation includes Extensive Recreation Management Areas, which entail management specifically to address recreation use and demand; and Special Recreation Management Areas, which are high-priority areas for recreation and have unique value and importance for recreation. General Public Lands are BLM administered- lands that do not have any of the above designations.

[1] The BLM's 2012 Approved Resource Management Plan Amendment/ROD for Solar Energy Development in Six Southwestern States.

The DRECP includes a list of over 200 Conservation and Management Actions (CMAs) that prescribe avoidance, minimization, and compensatory mitigation actions that are applicable to new projects on BLM-administered lands in the DRECP plan area. The CMAs address siting, design, preconstruction, construction, maintenance, implementation, operation, and decommissioning activities of renewable energy projects. The applicability of each CMA to a particular project depends on the BLM land designation(s) at the project area, project type, and resources present at the site.

Most of the project area is located on DRECP General Public Lands, and the gen-tie route is within an ACEC. The project ROD was issued before the DRECP was adopted, and mitigation requirements for the project as described in the ROD are written as project-specific mitigation measures (MMs) rather than CMAs.

FISH AND WILDLIFE COORDINATION ACT

The Fish and Wildlife Coordination Act (16 USC §§661-666) applies to any federal project where the waters of any stream or other body of water are impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with the USFWS and the appropriate state wildlife agency. These agencies prepare reports and recommendations that document project effects on wildlife and identify measures that may be adopted to prevent loss or damage to wildlife resources. The term "wildlife" includes both animals and plants. Provisions of the Act are implemented through the Section 404 permit process.

NOXIOUS WEED ACT OF 1974

The Noxious Weed Act of 1974 (7 USC 2801 et seq.), under the authority of the Secretary of Agriculture, establishes a federal program to control the spread of noxious weeds. The Noxious Weed Act gives the Secretary of Agriculture authorization to work with other federal, state, and local agencies; agricultural organizations; and private individuals to implement measures to control, eradicate, and/or prevent the spread of noxious weeds.

3.4.1.2 State

CALIFORNIA ENDANGERED SPECIES ACT

The CESA (Fish and Game Code §2050 et seq.) provides protection and prohibits the take of plant, fish, and wildlife species that are listed or candidates for listing by the State of California. Unlike FESA, state-listed plants have the same degree of protection as wildlife, but insects are not listed by the State. Take is defined similarly to but more narrowly than FESA and is prohibited for listed species. Take authorization for listed and candidate species may be obtained by the project applicant from the California Department of Fish and Wildlife (CDFW) under CESA Sections 2081 or 2080.1 if incidental to otherwise lawful development projects. In this case, private developers consult with CDFW to develop a set of measures and standards for managing the listed or candidate species, including full mitigation for impacts, funding of implementation, and monitoring of mitigation measures.

CALIFORNIA FISH AND GAME CODE SECTIONS 3511, 4700, 5050, AND 5515 (FULLY PROTECTED SPECIES)

Sections 3511, 4700, 5050, and 5515 of the Fish and Game Code outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. CDFW cannot issue permits or licenses that authorize the "take" of any fully protected species, except under certain circumstances such as scientific research

and live capture and relocation of such species pursuant to a permit for the protection of livestock. Furthermore, it is the responsibility of the CDFW to maintain viable populations of all native species. To that end, the CDFW has designated certain vertebrate species as Species of Special Concern because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.

CALIFORNIA FISH AND GAME CODE SECTIONS 3503, 3503.5, AND 3513

California Fish and Game Code Section 3503 prohibits take, possession, or the needless destruction of the nest or egg of any bird, except as otherwise provided by the code or regulation made pursuant thereto. Section 3503.5 provides it is unlawful to take, possess, or destroy birds of prey, or to take, possess, or destroy the nest or eggs of any such bird, except as otherwise provided by the code or related regulation. Section 3513 prohibits take or possession of any migratory nongame bird, as designated in the federal MBTA and its implementing regulations, except as provided by rules and regulations adopted by the U.S. Secretary of the Interior under the federal act.

CALIFORNIA NATIVE PLANT PROTECTION ACT

The Native Plant Protection Act (CNPPA) of 1977 directs the CDFW to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The CNPPA gave the California Fish and Game Commission the power to designate native plants as "endangered" or "rare" and protect endangered and rare plants from take. The CESA expanded on the original CNPPA and enhanced legal protection for plants, but the CNPPA remains part of the Fish and Game Code. To align with federal regulations, the CESA created the categories of "threatened" and "endangered" species. It converted all "rare" animals into the Act as threatened species but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. Because rare plants are not included in the CESA, mitigation measures for impacts to rare plants would be specified in a formal agreement between CDFW and the project proponent.

CALIFORNIA DESERT NATIVE PLANTS ACT

The purpose of the California Desert Native Plants Act (CDNPA) is to protect certain species of California desert native plants from unlawful harvesting on both public and privately owned lands. The CDNPA only applies within the boundaries of Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego Counties. Within these counties, the CDNPA prohibits the harvest, transport, sale, or possession of specific native desert plants unless a person has a valid permit or wood receipt, and the required tags and seals.

PORTER-COLOGNE WATER QUALITY CONTROL ACT

The Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code) provides the basis for water quality regulation within California and defines water quality objectives as the limits or levels of water constituents that are established for reasonable protection of beneficial uses. The Porter-Cologne Act requires the Regional Water Quality Control Boards (RWQCBs) to establish a regional basin plan with water quality objectives while acknowledging that water quality may be changed to some degree without unreasonably affecting beneficial uses. Beneficial uses, together with the corresponding water quality objectives, are defined as standards, per federal regulations. Changes in water quality are allowed if the change is consistent with the maximum beneficial use of the state, does not unreasonably affect the present or anticipated beneficial uses, and does not result in water quality less than that prescribed in the water quality control plans.

CALIFORNIA WATER BOARD CODE SECTION 13050 (WATER BOARD WASTE DISCHARGE REQUIREMENTS)

The California Water Boards regulate discharges of waste to protect the quality of waters of the State, broadly defined as "the chemical, physical, biological, bacteriological, radiological, and other properties and characteristics of water which affect its use" (California Water Code Section 13050). All surface waters and groundwaters are considered waters of the State. All waters of the State are also managed for beneficial uses under California law. Examples of discharge of waste may include any deleterious material such as earthen materials (soil, silt, sand, clay, rock, or other organic or mineral material) and any other waste as defined.

The Water Board regulates "waters of the State" under both the CWA and the state Porter-Cologne Water Quality Control Act (California Code of Regulations Title 23). Because federally regulated WOUS are not present at the project site under Section 404 of the CWA, fill activities to waters of the State are regulated under the Porter-Cologne Water Quality Control Act, making the applicable permit the Waste Discharge Requirement.

Although federally regulated WOUS are not present, the Water Board and Lahontan Regional Water Quality Control Board (Lahontan RWQCB) apply methods in USACE delineation manuals to assess aquatic features. It is common practice for the Water Board to rely on the USACE's review and verification of delineations including AJDs. An AJD request for the project may be submitted to the USACE for re-verification that federal jurisdiction is absent, which if obtained would be shared with the Water Board.

The project is located in the South Lahontan Basin area of the Mojave River Hydrologic Area, in Bulletin 118 Groundwater Basin 6-033 (Soda Lake Valley) (Water Board 2015). The Lahontan RWQCB implements the Water Quality Control Plan for the Lahontan Region (Basin Plan) and is a responsible agency pursuant to the CEQA.

Water Board Permit History

A previous delineation was conducted in 2009 by URS and 2012 by Panorama Environmental Inc. The 2012 map shows waters of the State. Note, that the prior 2013 project had included a groundwater draw component, which is no longer part of the current project. It is not known whether a Waste Discharge Requirement permit was drafted by the Water Board at the time.

Previous letter correspondence in 2012 from the Lahontan RWQCB indicates several Beneficial Uses of Water occur in the subject basin, including municipal and domestic supply, agricultural supply, groundwater recharge, freshwater replenishment, water contact recreation, non-contact water recreation, warm freshwater habitat, cold freshwater habitat, wildlife habitat, preservation of biological habitats of special significance, rare threatened and endangered species, spawning reproduction and development, water quality enhancement, and flood peak attenuation/flood water storage.

FISH AND GAME CODE SECTION 1600 ET SEQ.

CDFW in practice takes jurisdictional authority under the California Fish and Game Code (FGC) Sections 1600–1616 et seq. of the bed and bank of lakes and streams that may support wildlife, aquatic life, and riparian habitat. The streambed is interpreted by CDFW to include the top of bank extending on one side of the aquatic feature to its opposite top of bank, and if riparian vegetation is present, extends to the riparian vegetation edge (drip line).

In dryland systems where sediment transport is high and flow conditions are variable, episodic channel configurations with multiple interconnected features occur across broad flat areas where the outer bounds of a defined bed and bank forms are typically subtle and lack topographic relief. In addition, the bed and bank bounds of single and compound channels may be shared or different depending on conditions. In these arid systems, it is common for channels to become abandoned and not be reengaged by flow events for years or decades. Relic channels, which may exhibit a topographic low relative to their surroundings, are evident by the lack of fluvial indicators and/or having transitioned into uplands.

Section 1602 of the FGC requires an entity to notify CDFW before commencing an activity that will "substantially divert or obstruct the natural flow, or substantially change or use any material from the bed, channel or bank of any river, stream, or lake." Following notification, CDFW determines whether a Lake and Streambed Alteration (LSA) Agreement is required.

California Department of Fish and Wildlife Permit History

A CDFW LSA Agreement (File Number 1600-2016-0237-R6) was previously issued for the former project (slightly different scope), for 372.67 acres of impacts to jurisdictional streambed. No work was completed, and the LSA expired March 24, 2022. The project scope has since been reduced.

3.4.1.3 Local

SAN BERNARDINO COUNTY GENERAL PLAN

The following policies identified in the Natural Resources element of the San Bernardino County General Plan are relevant to this analysis (San Bernardino County 2020).

Goal NR-5 Biological Resources – An interconnected landscape of open spaces and habitat areas that promotes biodiversity and healthy ecosystems, both for their intrinsic value and for the value placed on them by residents and visitors.

- **Policy NR-5.1 Coordinated habitat planning**. We participate in landscape-scale habitat conservation planning and coordinate with existing or proposed habitat conservation and natural resource management plans for private and public lands to increase certainty for both the conservation of species, habitats, wildlife corridors, and other important biological resources and functions; and for land development and infrastructure permitting.
- **Policy NR-5.2 Capacity for resource protection and management**. We coordinate with public and nongovernmental agencies to seek funding and other resources to protect, restore, and maintain open space, habitat, and wildlife corridors for threatened, endangered, and other sensitive species.
- **Policy NR-5.3 Multiple-resource benefits**. We prioritize conservation actions that demonstrate multiple resource preservation benefits, such as biology, climate change adaptation and resiliency, hydrology, cultural, scenic, and community character.
- **Policy NR-5.4 Off-base recovery efforts**. We coordinate with military installations to facilitate off-base recovery of threatened and endangered species and landscape-scale conservation.
- **Policy NR-5.5 Mitigation and future responsibilities**. We require that new development satisfy habitat conservation responsibilities without shifting conservation responsibilities onto military property.
- **Policy NR-5.6 Mitigation banking**. We support the proactive assemblage of lands to protect biological resources and facilitate development through private or public mitigation banking.

We require public and private conservation lands or mitigation banks to ensure that easement and fee title agreements provide funding methods sufficient to manage the land in perpetuity.

- **Policy NR-5.7 Development review, entitlement, and mitigation**. We comply with state and federal regulations regarding protected species of animals and vegetation through the development review, entitlement, and environmental clearance processes.
- **Policy NR-5.8 Invasive species**. We require the use of non-invasive plant species with new development and encourage the management of existing invasive plant species that degrade ecological function.

San Bernardino County Development Code

Division 8 (Resource Management and Conservation) provides regulations and guidelines for the management and conservation of natural resources in the unincorporated areas of the County on property or combinations of property under private or public ownership.

Section 88.01.060 (Native Desert Plant Protection) provides regulations for the removal of specified native desert plants to preserve and protect the plants and to provide for the conservation and wise use of desert resources. This section requires a Tree or Plant Removal Permit to remove the following plants:

- Smoketrees (*Psorothamnus spinosus*) and mesquites (*Prosopis* spp.) with a stem measuring 2 inches or more in diameter, or 6 feet or more in height
- All species of the family Agavaceae
- Creosote rings (*Larrea tridentata*) with diameters of 10 feet or more
- All Joshua trees (*Yucca brevifolia*)
- Any part, living or dead, of desert ironwood (*Olneya* spp.), mesquites, or palo verdes (*Parkinsonia* spp.)

Section 88.01.080 (Regulated Riparian Plants) provides for the protection of riparian plants and habitats. San Bernardino County defines riparian vegetation as vegetation within 200 feet of the bank of a stream. Any removal of riparian vegetation requires a Tree or Plant Removal Permit and is subject to environmental review.

3.4.2 Methods

The study area is defined as the 2,670-acre project site, including the proposed gen-tie route (approximately 35.75 acres). A comprehensive literature and database search was performed to identify biological resources that may occur in the study area and/or within 10-miles of the project. These sources included species records from wildlife studies completed at or near the project, published literature, databases, coordination with CDFW, and SWCA biologists' professional judgment based on past work in the Mojave Desert. Following the desktop review, field surveys were performed to assess existing habitat conditions in the study area. The field surveys included surveys for special-status species, and were performed according to existing protocols, guidelines, and methodologies, and in coordination with CDFW.

3.4.3 Environmental Setting and Results

3.4.3.1 Regional Setting

The project is located within the central Mojave Desert, a region that occurs between the southern, low-elevation, hot Sonoran Desert and the northern, high-elevation, relatively cool Great Basin. This approximately 25,000-square-mile region occurs in southeastern California and portions of Arizona, Nevada, and Utah. The Mojave Desert's western boundary is formed by the convergence of the Tehachapi and San Gabriel Mountains, and its southern boundary extends east of the San Bernardino Mountains to the Salton Sea, where it transitions into the Sonoran Desert. Most of the Mojave Desert lies at roughly 3,000 to 6,000 feet amsl, and it is therefore considered a high desert. However, the Mojave Desert encompasses a broad elevation range, including peaks that exceed 11,000 feet amsl and Death Valley, which has the lowest recorded elevation in North America, at 282 feet below mean sea level (bmsl).

Much of the Mojave Desert consists of typical mountain and basin topography where basin-to-mountain transition zones support high levels of biodiversity and endemic species. Flatter portions of the desert floor are characterized by expansive playas, dry lakes, and other ephemeral waters interspersed with dunes. This geomorphology is referred to as pan and dune complexes, which are characterized by yucca species (*Yucca* spp.), saltbush species (*Atriplex* spp.), and Great Basin sagebrush (*Artemisia tridentata*). Fine wind-blown sand from dry lakebeds and river channels can create hummocks and dunes that support unique species of insects, plants, and reptiles. Slopes and bajadas in the region are covered with creosote bush (*Larrea tridentata*), saltbush, bursage (*Ambrosia* spp.), and bladdersage (*Salazaria mexicana*). In years with sufficient rainfall, the desert floor vegetation communities will include an abundance of annual wildflowers. Most cactus species are found in areas with coarse, sandy soils, and higher elevations support blackbrush (*Coleogyne ramosissima*), Mojave yucca (*Y. schidigera*), and banana yucca (*Y. baccata*).

The Mojave Desert is characterized by hot summer temperatures (average daily highs above 100 degrees Fahrenheit) and low annual precipitation (approximately 5 inches). Daily temperature ranges of 40 degrees Fahrenheit can occur, with lows in the winter below or near freezing. Precipitation extremes are also common, with variations of 80% in annual precipitation and occasional high-volume storm events. Summer monsoons can drop more precipitation on a site in one event than the mean yearly precipitation for that location. High winds can occur, with velocities that regularly exceed 50 miles per hour (mph) in some areas and that can reach 100 mph on rare occasions (U.S. Geological Survey [USGS] 2004).

Deserts in general are defined by low levels of precipitation, and the Mojave Desert's latitude and location east of the southern Sierra Nevada and north of the Transverse Ranges result in a rain shadow on the desert side of the mountains where precipitation is far less than on the coastal side. During the summer, the western edge of the Mojave Desert is heavily influenced by the dry southwest airflows resulting in typically very dry weather. The influence of the southwest winds diminishes toward the eastern Mojave Desert, and the central portion of the Mojave Desert experiences a more continental influence and monsoon weather patterns (USGS 2004).

3.4.3.2 Project Site

The project would occupy the alluvial valley dividing the northern and southern portions of the Soda Mountains in the Mojave Desert. The project is located in the Mojave Desert Air Basin and within a sub-basin of the Soda Lake Valley Groundwater Basin.

The project area is composed of desert land and is almost entirely undeveloped. Rasor Road, an unimproved BLM public access road, runs from the southwest corner of the site and forks to the north and east-southeast within the project area. One section of the road continues from west to east through the project to the Rasor Road OHV area, and the other fork runs north through the project area. Elevations within the project area fall between approximately 1,200 and 1,600 feet above mean sea level (amsl). The project is immediately surrounded by the Soda Mountains, with I-15 directly west; the southern portion of the project area is bounded by Rasor Road, including a gas station, and the Rasor OHV area (see Figure 2-2).

3.4.3.3 Vegetation Communities

Vegetation in the study area and along the gen-tie options consists of intermittent native shrubs. Five vegetation communities were identified on-site as defined in *A Manual of California Vegetation Online* (CNPS 2023): Rigid Spineflower – Hairy Desert Sunflower (*Chorizanthe rigida – Geraea canescens* Desert Pavement Sparsely Vegetated Alliance), California Joint Fir – Longleaf Joint-fir Scrub (*Ephedra californica – Ephedra trifurca* Shrubland Alliance), Cheesebush – Sweetbush Scrub (*Ambrosia salsola – Bebbia juncea* Shrubland Alliance), Creosote Bush Scrub (*Larrea tridentata* Shrubland Alliance), and Creosote Bush – White Bursage Scrub (*Larrea tridentata – Ambrosia salsola* Shrubland Alliance). Additionally, maintained dirt roads and other disturbed sites were mapped as Developed/Disturbed landcover type (Appendix D, Figure 8).

3.4.3.3.1 *Riparian Habitat and Sensitive Natural Communities*

Sensitive vegetation communities are defined by CDFW as those "communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of Projects" (CDFW 2018). Vegetation communities with a State Rank of 1, 2, or 3 are considered sensitive by CDFW. No sensitive alliance-level vegetation communities were mapped on-site. However, two sensitive associations were identified on-site: Rigid Spineflower – Hairy Desert Sunflower (*Chorizanthe rigida – Geraea canescens* Desert Pavement Association) and California Joint Fir – Longleaf Joint-fir Scrub (*Ephedra californica – Ephedra trifurca* Shrubland Alliance). Neither of these associations mapped onsite have a state rank rarity. No riparian habitat or DRECP Special Vegetation Features were observed.

Many ephemeral washes flow through the study area and are generally dominated by Creosote Bush – White Bursage Scrub, Cheesebush – Sweetbush Scrub, and California Joint Fir – Longleaf Joint-fir Scrub (See Appendix D, Figure 8).

3.4.3.4 Special-Status Plants

SWCA conducted focused pedestrian surveys for special-status plants with the potential to occur in the study area consistent with the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW 2018). Point and polygon data were recorded using GPS equipment with submeter accuracy. Confirmation of current year germination and/or life cycle stage (e.g., blooming or fruiting) was obtained by visiting local reference populations prior to conducting field surveys. Reference populations are known locations of rare plant species, typically visited during the blooming period when characteristics for identification are present. Based on the habitat conditions observed during the December 2021 reconnaissance visit and a preliminary desktop review performed by SWCA in December 2022, one spring survey was deemed sufficient to fulfill survey requirements because all the special-status plants that might potentially occur would be detectable and identifiable during that time.

A team of seven SWCA biologists surveyed the entire study area from April 10 to May 2, 2023, to search for special-status plants throughout the entire study area (see Figure 2). SWCA performed focused rare plant surveys for the following eight species: small-flowered androstephium (*Androstephium breviflorum*), Borrego milkvetch (*Astragalus lentiginosus* var. *borreganus*), Emory's crucifixion-thorn (*Castela emoryi*), Harwood's eriastrum (*Eriastrum harwoodii*), Utah vine milkweed (*Funastrum utahense*), ribbed cryptantha (*Johnstonella costata*), winged cryptantha (*Johnstonella holoptera*), and desert winged rockcress (*Sibara deserti*). SWCA biologists also surveyed for DRECP Special Vegetation Features which include yucca clones, creosote rings, saguaro cactus, Joshua tree woodland, microphyll woodland, crucifixion thorn stands (BLM 2016). The survey was timed to coincide with the appropriate blooming species for the rare plants that might occur, specifically in April and May. Alkaline meadows and seeps were determined to be absent, therefore, a summer or fall rare plant survey was not performed for alkali marsh aster (*Almutaster pauciflorus*).

The survey confirmed the presence of one rare plant species, Utah vine milkweed (See Appendix D, Figure 9). The preliminary (pre-field) potential for occurrence determinations and additional detailed information can be found in *Rare Plant Survey and Vegetation Mapping Results for the Soda Mountain Solar Project* (See Appendix D).

3.4.3.5 Special-Status Wildlife

Based on the results of the literature and database review, 22 species of special-status wildlife were found to have occurrences within the literature and records query area. These species were evaluated for their potential to occur in the study area based on considerations of local records, habitat conditions, and environmental requirements, and a presence/absence determination was made for most based on field survey results (Appendix D-1). After this assessment, eight species were considered to have the potential to occur at the project area, each of which is discussed in detail below. Six special-status animals and/or their diagnostic sign were observed during the surveys: desert tortoise, burrowing owl, loggerhead shrike (*Lanius ludovicianus*), desert kit fox, American badger, and desert bighorn sheep. Individuals of burrowing owl, desert kit fox, and loggerhead shrike were observed directly.

SWCA conducted focused pedestrian surveys for special-status wildlife with the potential to occur in the study area. The field surveys were performed according to existing protocols, guidelines, and methodologies, and in coordination with CDFW. Species and resources survey methods included:

- Crotch's bumble bee (*Bombus crotchii*), *Survey Protocols for the Rusty Patched Bumble bee* (Bombus affinis) *Version 2.2* (USFWS 2019b).
- Mojave fringe-toed lizard (*Uma scoparia*), *Coachella Valley Fringe-toed Lizard Survey Protocol* (USFWS 2007).
- Desert tortoise, *Preparing for Any Action that May Occur within the Range of the Mojave Desert Tortoise (*Gopherus agassizii*)* (USFWS 2019a).
- Burrowing owl (*Athene cunicularia*), desert kit fox (*Vulpes macrotis arsipus*), and American badger (*Taxidea taxus*), *Staff Report on Burrowing Owl Mitigation* (CDFW 2012).
- Avian use survey protocol adapted from the 2013 Panorama Environmental, Inc. *Biological Resources Technical Report for the Soda Mountain Solar Project* (Panorama Environmental 2013).
- Golden eagles and other large birds, *Eagle Conservation Plan Guidance* (USFWS 2013).
- Bats, *Caltrans Bat Mitigation: A Guide to Developing Feasible and Effective Solutions* (H.T. Harvey & Associates 2019), *A Plan for the North American Bat Monitoring Program*

(NABat) (Loeb et al. 2015), and *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Collins 2016).

CROTCH'S BUMBLE BEE

Crotch's bumble bee is a candidate for listing as endangered under CESA. This species occurs primarily within California throughout southern coastal areas, western desert, Central Valley, and neighboring foothills around most of the southwestern part of the state.

Prior to the field surveys, a desktop assessment for Crotch's bumble bee was performed, which included a review of the nesting, foraging, and overwintering requirements for the species. In addition, data collected from the earlier spring 2023 surveys were used to assess areas that were likely to contain suitable habitat for Crotch's bumble bee and co-occurring pollinator species. The methods for focused surveys for Crotch's bumble bee were developed in coordination with CDFW and were based on the USFWS's *Survey Protocols for the Rusty Patched Bumble bee (Bombus affinis) Version 2.2* (USFWS 2019b). On June 6, 2023, CDFW published new survey guidance for Crotch's bumble bee, *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species* (CDFW 2023). However, SWCA maintained the use of the CDFW-approved in-progress methods for consistency. The purpose of the surveys was to identify the availability of nesting, foraging, and overwintering habitat, and to search for Crotch's bumble bee within the study area.

Teams of three to four SWCA biologists performed four focused surveys during the colony active period (April–August) to allow for the highest probability of detection. Surveys were performed on May 22–26, June 14–16, July 16–18, and August 14–26, 2023. The surveys were focused on areas with the highest abundance of plants that may provide nectar for foraging bumble bees, specifically along the largest washes (See Appendix D, Figure 4). Nectar plants were recorded using a handheld GPS unit. No bumble bees were captured or handled during survey efforts.

Potentially suitable foraging and nesting habitat for Crotch's bumble bee is present with the study area, though it is not within the known range for this species. The nearest CNDDB occurrence is approximately 40 miles north of the study area and nearly 30 years old. There was no evidence of Crotch's bumble bee or other bumble bee species during the four surveys. Based on this evidence, Crotch's bumble bee is considered absent from the study area and would not be impacted by the project. The detailed methods, results, and species observations can be found in *Crotch's Bumble Bee Focused Survey Report for the Soda Mountain Solar Project* (See Appendix D).

DESERT TORTOISE

The desert tortoise is a federally and state threatened species, as well as a CESA candidate for endangered.

Qualified SWCA and Aardvark Biological Services, LLC, biologists performed protocol desert tortoise surveys between April 5 and May 26, 2023. The surveys were performed in accordance with the USFWS's *Preparing for Any Action that May Occur within the Range of the Mojave Desert Tortoise (Gopherus agassizii)* (USFWS 2019a). The purpose of the surveys was to determine the presence of desert tortoise, assess the habitat quality and conditions, and identify potential burrows on-site.

A team of four biologists walked parallel transects spaced approximately 10 m apart throughout the entire study area. Live desert tortoise and sign, including carcasses, scat, burrows, pallets, and drinking depressions, were recorded using handheld GPS units. Surveys were performed during the spring and when temperatures were below 95 degrees Fahrenheit, when tortoises were most likely to be observed aboveground. Each potential desert tortoise burrow was assigned a condition class as described in the

Desert Tortoise (Mojave Population) Field Manual (USFWS 2009). The condition classifications are as follows:

Class 1: currently active, with desert tortoise or recent desert tortoise sign

Class 2: good condition, definitely desert tortoise; no evidence of recent use

Class 3: deteriorated condition that includes collapsed burrows; definitely desert tortoise

Based on the 2019 USFWS survey protocol, desert tortoise is considered present at the site based on observations of sign, and scat was detected on-site (See Appendix D, Figure 11). All the tortoise burrows found were collapsed and/or showed no sign of recent activity. No other tortoise sign, such as carcasses, pallets, tracks, drinking depressions, courtship rings, or signs of ephemeral plant herbivory, was observed on-site. Desert tortoise is considered present at the study area due to the observations of scat and Class 2 and 3 burrows. However, no desert tortoise individuals or other signs were directly observed, and the desert tortoise population within and near the project is likely very low. The detailed methods, results, and species observations are provided in *Desert Tortoise Survey Report for the Soda Mountain Solar Project* (See Appendix D).

MOJAVE FRINGE-TOED LIZARD

The Mojave fringe-toed lizard is listed as a Species of Special Concern by CDFW and as sensitive by BLM. The desktop review of the 2013 Biological Resources Technical Report shows that surveys were performed for Mojave fringe-toed lizard in 2009 and 2012. Areas with suitable habitat were mapped in the report along a wash that is outside and to the southeast of the current project study area. There is currently no survey protocol for Mojave fringe-toed lizard; therefore, the survey methodology was based on a combination of the *Coachella Valley Fringe-toed Lizard (Uma inornata) Survey Protocol* (USFWS 2007) and the BLM-recommended methods used during the 2009 and 2012 surveys for the project. This survey protocol was established for the federally and state-endangered Coachella Valley fringe-toed lizard, which occurs in similar habitat conditions but in a geographically distinct area.

Based on the vegetation mapping and data from the rare plant survey, the project area remained largely unchanged since the surveys in 2009 and 2012. SWCA mapped two small areas of aeolian sand deposits (2.1 acres and 4.8 acres) within washes in the southern portion of the project area. These sand deposits were not identified in the 2013 Biological Resources Technical Report (see Appendix D). This area may be suitable for Mojave fringe-toed lizard, but they are not connected to other nearby sand deposits. Given the lack of connectivity and small size, Mojave fringe-toed lizard populations are unlikely to persist in these locations. Mojave fringe-toed lizard surveys were not conducted in these areas.

Two survey replicates were performed in 2023 during the Mojave fringe-toed lizard active season (March–October) during appropriate weather conditions. Ideal weather conditions include little to no wind, and non-shade ground temperatures between 82.4- and 122.0-degrees Fahrenheit (28–50 degrees Celsius). The surveys were focused outside of the study area where suitable habitat was previously mapped in the 2013 Biological Resources Technical Report. In addition, the biologists also surveyed the wash south of the study area where a population of Mojave fringe-toed lizards had been previously documented (See Appendix D, Figure 5). The biologists walked 10-meter (m) transects throughout areas with suitable habitat. Binoculars were used to observe lizards at a distance to confirm the species. Detections of Mojave fringe-toed lizard were recorded using a GPS unit.

A total of five Mojave fringe-toed lizards were observed during the surveys, two during the April survey and three during the July survey, within the sandy wash outside of the southern project boundary, the nearest observation approximately 1,000 feet south of the project boundary (see Appendix D, Figure 120).

This result was similar to the findings of the 2009 and 2012 surveys. The lizards were found when temperatures ranged between 82.9 to 96.4 degrees Fahrenheit.

AVIAN USE

SWCA biologists conducted four replicate avian use surveys during each quarter in 2023. The avian use surveys used point-count methodology to tally all birds detected by sight and sound by a single observer at a fixed position, which can be used to evaluate avian use and diversity in an area. The surveys were conducted solo or in pairs by SWCA biologists. Winter avian use surveys were performed January 14–26 during the non-breeding season. Spring avian use surveys were performed on March 23 and 24, 2023, during spring migration. Summer avian use surveys were performed on July 12, 13, and 14, 2023, during the breeding season. Fall avian use surveys were performed on October 9, 10, and 11, 2023, during fall migration.

Survey methods were developed in coordination with CDFW. In total, 24 point-count locations within the study area were selected along existing roads in 2023 (See Appendix D, Figure 6). Each survey consisted of a 20-minute unlimited-radius point count at each point-count location. Under coordination with CDFW in early 2024, 22 new point-count locations were surveyed in the spring of 2024 to cover more representative habitats within the study area and the gen-tie (see Appendix D, Figure 6). The methods for the 22 new point count locations included two replicate 10-minute unlimited-radius surveys at each location on April 29–30, 2024, and May 20–21, 2024.

In total, 16 avian species were detected by sight and/or sound within the study area (excluding the gen-tie) during the winter, spring, summer, and fall avian point-count surveys. Four additional species were detected in the spring 2024 avian point count surveys that took place at 22 new point count locations within the study area (including the gen-tie). An additional 13 species were detected incidentally during surveys for other biological resources, bringing the total number of bird species recorded within the study area to 33. Two CDFW Species of Special Concern were observed on-site during the surveys: loggerhead shrike and burrowing owl. Multiple loggerhead shrikes were detected on-site during the spring avian use survey, and an individual was observed incidentally southeast of Rasor Road in the eastern portion of the study area. A burrowing owl was observed during the burrowing owl breeding season survey in the southeastern portion of the study area. The bird species most frequently detected during the avian point-count surveys and incidentally were common raven, horned lark, verdin (*Auriparus flaviceps*), black-throated sparrow, and house finch (*Haemorhous mexicanus*).

Additional details can be found in the following technical memorandums: *Winter Avian Use Survey Report for the Soda Mountain Solar Project*, *Spring Avian Use Survey Report for the Soda Mountain Solar Project*, *Summer Avian Use Survey Report for the Soda Mountain Solar Project*, *Fall Avian Use Survey Report for the Soda Mountain Project*, and *Spring Avian Use and Raptor Survey Report for the Soda Mountain Project* (see Appendix D).

BURROWING OWL

Burrowing owl is listed as a Species of Special Concern by CDFW and as sensitive by the BLM. SWCA biologists conducted surveys for burrowing owl, desert kit fox, and American badger burrows in the study area in three survey efforts from March 27 to April 5, May 8 to May 12, and May 22 to May 25, 2023. The study area included the 2,670-acre project area and the gen-tie route (approximately 35.75 acres) including a 150-m buffer around the study area. A burrow survey and subsequent burrowing owl breeding season surveys consisted of a total of six visits.

The purpose of the burrow survey was to determine suitable areas capable of supporting burrowing owl, record all potentially suitable burrows within the entire study area, and identifying burrows of other

fossorial species, specifically desert kit fox and American badger. Following the burrow surveys, three burrowing owl breeding season surveys were performed during peak breeding season for burrowing owls, between April 15 and July 24. The purpose of the breeding season surveys was to determine the occupancy status of each potential burrowing owl burrow. The occupancy status for desert kit fox and American badger potential burrows or dens was also evaluated. Each burrow identified during the burrow survey was revisited during the breeding-season surveys. Biologists documented signs of occupancy, such as fresh signs of digging, feathers, whitewash, pellets, prey remains, and other signs that would indicate the presence of these species. Burrows and dens that collapsed or had extensive debris and dirty cobwebs in the entrance after repeated visits were determined to be inactive.

Habitat in the study area is generally suitable for this species due to the availability of burrows for roosting and nesting, as well as relatively short vegetation with sparse shrubs and taller vegetation. During the burrow survey, 50 burrows were identified as potential burrowing owl burrows (See Appendix D, Figure 15). Following the habitat assessment, breeding season surveys were conducted for burrowing owl due to the observation of a live burrowing owl and presence of sign at several potential burrows. Upon close examination of each burrow, it was found that only one of the burrows exhibited definitive recent sign of potential burrowing owl activity, with whitewash staining around the entrance (see Appendix D). A single burrowing owl was observed during the survey in the southern section of the study area just south of Rasor Road. No burrows were observed within the vicinity of the individual, and no reproductive or nesting behavior was observed. Subsequent follow-up visits to potentially active burrows were performed, and no burrows were determined to be active based on the lack of recent activity or sign at all 50 of the burrows. Based on this evidence, burrowing owl is considered present with the potential to nest or forage on-site, though at low quantities. Additional details can be found in *Burrowing Owl, Desert Kit Fox, and American Badger Survey Report for the Soda Mountain Solar Project* (see Appendix D).

BATS

The survey was performed in accordance with Caltrans Bat Mitigation: A Guide to Developing Feasible and Effective Solutions (H.T. Harvey & Associates 2019), A Plan for the North American Bat Monitoring Program (NABat) (Loeb et al. 2015), and Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins 2016). The surveys consisted of an initial daytime habitat assessment survey and three subsequent rounds of nighttime acoustic surveys consisting of dusk roost emergence and activity transect surveys.

A team of two SWCA biologists performed a daytime habitat assessment survey on July 27 and 28, 2023. The primary objective was to identify structures or environmental features within and immediately beyond the study area that could serve as suitable roosting, foraging, or commuting habitat for bats. In addition, the survey aimed to identify suitable locations for conducting nighttime transect surveys, focusing on areas that would account for all representative habitat types within the study area. Attention was focused on rock crevices, tree cavities, and human-made structures, where the biologists searched for specific signs indicating the presence of bats such as guano, insect carapaces, urine staining, or deceased specimens to determine the status of potential roost locations.

Following the daytime habitat assessment survey, a team of four SWCA biologists performed three nighttime acoustic surveys with the primary objective of confirming roost status, determining roost size, capturing entry and exit roosts, and determining the use of the study area by bats. Surveys were performed from July 23 through August 31, 2023. Nighttime acoustic surveys took place at four potential roosting locations within stormwater culverts passing underneath I-15 directly outside the study area, and along five transects within the study area (See Appendix D, Figure 7). Transects were distributed along areas that encompassed characteristics important for bat foraging and roosting, including rocky crevices, tree cavities, and human-made structures known to harbor suitable roosting features. Bat calls were

recorded using acoustic monitoring equipment including two Wildlife Acoustics Echo Meter Touch units with built-in species identifiers (connected to Android Galaxy tablets), a Pettersson u384 Ultrasonic Microphone (connected to a Lenovo IdeaPad laptop running BatSound), and an Anabat Scout standalone unit. Calls were analyzed to species level. All potential roost locations were recorded using a GPS unit.

No roost emergence behavior was observed. Bat behavior during all acoustic detections and visual observations were consistently categorized as either foraging or commuting. The potential roosting sites identified during the daytime habitat assessment survey and monitored acoustically during the nighttime surveys did not reveal any active roosting sites, as there were no evident bat emergences detected during the acoustic monitoring surveys. No other potential roosting locations were identified within the study area or immediate vicinity during the surveys.

Pallid Bat

The pallid bat (*Antrozous pallidus*) is a CDFW Species of Special Concern and a BLM sensitive species. This widespread, non-migratory species occurs as far south as Baja California and as far north as British Columbia. Populations of this species are severely fragmented but may be locally common. The pallid bat is typically found in a wide range of habitats including deserts, grasslands, shrublands, woodlands, and forests where they can be found year-round. They are most common in open, dry habitats for foraging with rocky areas for roosting. The pallid bat has been found to roost in mines, caves, and buildings. This species is sensitive to disturbance while roosting, and the main threats to the species include human activity such as vandalism, recreational activities, mine closures, and reclamation. The pallid bat is an insectivore that forages by gleaning insects off the ground. Habitat in the study area is suitable for foraging, but there is no potential roosting habitat for this species. The nearest CNDDB record from 2005 is approximately 12 miles west of the study area. During the 2023 bat surveys, pallid bat was not detected or observed, and is considered absent with regards to roosting, and with low potential to forage on-site. The detailed methods, results, and species observations can be found in *Bat Survey Report for the Soda Mountain Solar Project* (see Appendix D).

RAPTORS

Following technical document review for the project in early 2024, CDFW requested raptor observation surveys to detect golden eagles and other large birds within and adjacent to the project area. Accordingly, a qualified biologist visited five raptor observation points no earlier than 10:00 a.m. for 1-hour observation periods (see Appendix D, Figure 6). All large birds (raptors, ravens, etc.) detected within 800 m of the biologist were documented, along with their flight paths and behavior consistent with the methodological recommendations of the CDFW and the USFWS Eagle Conservation Plan Guidance (USFWS 2013). The raptor observation points were selected to afford a clear view of the mountains surrounding and the open valley/location of the project. The raptor survey point locations were visited twice for 1 hour each, concurrent with the point counts.

Incidental observations of birds and other wildlife outside the formal survey periods were documented to supplement the comprehensive species list for the project area. Patterns of use that may be relevant to the project, such as large flocks or concentrated movement around specific landscape features, were also recorded.

Golden Eagle

The golden eagle is a CDFW fully protected species, is protected pursuant to the federal BGEPA, and is considered sensitive by the BLM. This species has a global range that includes much of North America, Eurasia, and parts of northern Africa. The golden eagle is an uncommon but widespread resident in

California and is known to nest in the Mojave Desert. Territories regularly span 5 to 10 miles depending on the availability of prey, nest sites, and wind resources. Breeding adults in desert settings may range up to 10 miles from the nest while foraging. Golden eagles nest on cliffs, rock outcrops, or in large trees, none of which are present in the study area. Foraging golden eagles require large amounts of open space for hunting, such as grasslands, deserts, and savannahs. The entire study area provides suitable foraging habitat and may support a suitable prey base. Mid-sized mammals such as rabbits and marmots are preferred, but prey may be as small as California ground squirrels (*Otospermophilus beecheyi*) or as large as deer (rarely), and golden eagles will consume carrion when it is available. The study area supports at least one mid-sized mammalian prey species: black-tailed jackrabbit.

No golden eagles were observed by SWCA biologists in the study area, and there are no cliffs, rocky outcrops, or other suitable nesting habitat within the study area. The Soda Mountains to the south and north of the project may provide suitable nesting habitat. The study area is suitable for foraging.
The USFWS provided records of golden eagle nest sites within 10 miles of the study area (USFWS 2024) (See Appendix D, Figure 14). There is potential for golden eagles to forage within the study area.
No golden eagles were detected or observed during the 2024 spring raptor survey. All large bird data collected in 2024 can be found in *Spring Avian Use and Raptor Survey Report for the Soda Mountain Project* (see Appendix D).

DESERT BIGHORN SHEEP

The *Desert Bighorn Sheep Study Soda Mountain Solar Project* (Dudek 2024; Appendix D-2) was prepared to:

- Conduct a thorough literature review of studies regarding desert bighorn sheep as they pertain to development in the desert, particularly in relation to renewable energy development and the impacts this type of development may have on desert bighorn sheep.
- Discuss any implications the project may have on current and future wildlife linkages, corridors, and migration pathways, specifically as they pertain to desert bighorn sheep within the vicinity of the Soda Mountains.
- Provide a summary of previous studies of desert bighorn sheep collar/movement data collected within the vicinity of the Soda Mountains.
- Conduct and summarize a geographic information system (GIS) analysis of collar/movement data provided by CDFW.
- Discuss applicable mitigation measures previously discussed and proposed for the project.
- Provide recommendations to reduce any potential impacts to desert bighorn sheep from the project.

As mentioned in the bulleted list above, the 2024 study was based on collar/movement data provided by CDFW. The dataset provided by CDFW included a total of 261,868 points (Dudek 2024). The data include only a small subset of the actual desert bighorn sheep population in this area and only represent a narrow snapshot of weather and temperatures that desert bighorn sheep experience (Dudek 2024). Some desert bighorn sheep may use the resources differently than are depicted, and impending climate change will likely negatively affect these lower elevation sites, making all local forage resources more important (Dudek 2024). Of these data, 30 points (0.01%) are within the study area and these occurrences were collected from 11 individuals (7 females and 4 males) (Dudek 2024). These occurrences did not appear to be influenced by the sex of the animals, as approximately 57% were collected from females while

approximately 43% were collected from males (Dudek 2024). The occurrences within the study area have a strong seasonal component, as approximately 80% of the occurrences occur during the winter months (i.e., December through March), with the remaining few occurrences scattered evenly across spring, summer, and fall (i.e., two occurrences in each season) (Dudek 2024). See Appendix D-2 for details regarding the 2024 study.

3.4.3.6 Jurisdictional Waters

SWCA completed an aquatic resources delineation for the project. Desktop data, field data, remote sensing data, and modeling and machine learning were used to delineate aquatic resources potentially subject to regulation by the U.S. Army Corps of Engineers (USACE) pursuant to Clean Water Act (CWA) Section 404 (for discharge of fill material into "waters of the United States"), the California Water Boards by the Lahontan RWQCB pursuant to the CWA Section 401 (for discharge of fill material into "waters of the United States / waters of the State") and the Porter Cologne Water Quality Control Act waste discharge requirements (for discharge into "waters of the State"), and the CDFW pursuant to the California Fish and Game Code Section 1602 Lake and Streambed Alteration Program and its subsequent revisions (for substantial changes to "streambed").

The delineation was conducted in accordance with the *Corps of Engineers Wetland Delineation Manual* (USACE 1987) and regional supplements, including *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008a) and the *Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008b), and the *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams: Interim Version* (USACE 2022). In addition, guidance from *USACE Ordinary High Water Mark Identification* Regulatory Guidance Letter No. 05-05 (USACE 2005) was considered.

Potential federal jurisdiction was assessed pursuant to the current Waters of the United States (WOTUS) Conforming Rule, which took effect September 8, 2023 (USACE and U.S. Environmental Protection Agency 2023) and is currently in effect in the State of California. Aquatic features on-site were also evaluated to determine if they were potential waters of the State subject to RWQCB jurisdiction and/or CDFW Section 1600 jurisdiction.

Potentially regulated prominent and non-prominent aquatic resources within the 3,228-acre review area total approximately 611.6 acres non-wetland RWQCB waters of the State and CDFW Jurisdiction/1600. No potential WOUS occur on site (See Appendix E-1, Figure 26).

3.4.3.6.1 *Wetlands*

Aquatic resources mapped within the review area are all non-wetland waters. Potential wetlands were not present (Appendix E-2).

3.4.3.7 Wildlife Movement and Migratory Corridors

Wildlife movement corridors are defined on both a regional and local basis. Regionally, the study area lies between the northern and southern portion of the Soda Mountains within the Mojave Desert. The Wildlands Conservancy and BLM drafted *A Linkage Network for the California Deserts* to present an analysis of potential threats and impacts to wildlife mobility from development on public lands, including industrial-scale renewable energy development. Least-cost modeling evaluates the relative cost for a species to move between targeted "Landscape Blocks" (more specifically, potential cores and patches of breeding habitat within each block) based on how each species is affected by various landscape characteristics (Penrod et al. 2012). In *A Linkage Network for the California Deserts*, the Wildlands

Conservancy and BLM identified a least-cost corridor for desert tortoise to the north, east, and west, and a low-cost corridor for American badger to the east and west (Figure 10) (Penrod et al. 2012). The project is centrally located among these corridors but is not within or adjacent to any of them. I-15 runs directly north and west of the project, which creates barriers to wildlife movement for some species that have limited home ranges or low dispersal ability and may reduce the movement of wide-ranging species such as American badger, desert kit fox, and coyote. There are no terrain features such as canyons to concentrate wildlife movement.

Caltrans and CDFW commissioned the California Essential Habitat Connectivity Project because these agencies consider a functional network of connected wildlands to be essential to the continued support of California's diverse natural communities in the face of human development and climate change (Spencer et. al 2010).

On a local basis, the study area currently provides unrestricted wildlife movement, as there are no fences or other obstructions to wildlife passage. Migratory birds may utilize the study area and vicinity for breeding, nesting, and foraging, or as transient rest sites during migration flights. Desert kit fox, American badger, and coyote may travel across the study area in search of prey opportunities, and to access higher-quality habitat in the area for both prey and cover. Desert bighorn sheep may traverse the study area to travel between the southern and northern Soda Mountains.

3.4.3.8 Conservation Plans

The project gen-tie falls within the Soda Mountains Expansion ACEC as designated by the BLM. ACECs are designated where the BLM has determined that important historical, cultural, scenic, fish and wildlife, or other natural resources occur, and special protection is warranted. In addition, ACECs may be designated for safety in areas with natural hazards. The Soda Mountains Expansion ACEC abuts the northern edge of I-15 and encompasses 16,720 acres between I-15 and the Soda Mountain Wilderness Study area. It was designated to protect plant and wildlife connectivity between surrounding wilderness and wilderness study areas.

There are no other federal, state, or local designated conservation areas within or directly adjacent to the project area. Within 10 miles, there is no USFWS-designated critical habitat for ESA-listed species, no USFWS-authorized habitat conservation plans, and no CDFW natural community conservation plans.

3.4.4 Impact Analysis

This section describes the anticipated direct, indirect, temporary, permanent, and cumulative impacts to biological resources that may result from implementation of the project. This analysis was based on the results of the biological resources surveys performed within the defined study areas, information from literature and database resources, and the proposed project design and layout. Anticipated impacts would result from construction of the solar plant site (including panel arrays and mounting structures), gen-tie, operation and maintenance buildings and structures, stormwater infrastructure, the substation and switchyard, and the 300-MW BESS.

Project implementation would result in the direct, permanent removal of up to 2,645.4 acres of on-site plant communities and displacement of wildlife that depend on them for habitat (Table 6). When combined with non-vegetation community areas (e.g., developed areas), the total project area is 2,670 acres. The final project design is expected to have lesser impacts to vegetation communities. However, for the purposes of this report, and to ensure that all environmental impacts are considered, it is assumed that all vegetation communities in the study area will be directly and permanently impacted by construction of the project.

3.4.4.1 Thresholds of Significance

The determinations of significance of project impacts are based on applicable policies, regulations, goals, and guidelines defined by CEQA. Specifically, the project would be considered to have a significant effect on biological resources if the effects exceed the significance criteria described below:

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 the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
3. 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?
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.
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Each of these thresholds is discussed under Section 3.4.3.4 Impact Assessment, below.

3.4.4.2 Methodology

This analysis focuses on evaluating projected direct, indirect, temporary, and/or permanent impacts to biological and aquatic resources due to implementation of the project. Impacts are project-related actions that destroy, injure, modify, or otherwise affect biological resources. This may include damage, death, or nuisance to plant or wildlife species. Impacts may also include the destruction, modification, or disturbance of habitats for plant and wildlife species.

Direct impacts are impacts that occur concurrent with project activities, thus occurring at the same time and location of said activities. Direct impacts include the direct removal of plant and wildlife habitat and sensitive natural communities through preconstruction grubbing, grading and fill, and/or the incidental uprooting of plants or mortality of wildlife by vehicles during preconstruction activities.

Indirect impacts are those that do not have an immediate impact, but have the likelihood to result in the impact of a biological resource at a different time or location from the project-related activity. Indirect impacts include fugitive dust cover introduced during operation and maintenance activities, the introduction of new invasive plants and the spread of existing invasive plants via personnel or vehicles, and/or noise and lighting during construction adversely and indirectly affecting wildlife life cycles through disruption of foraging, breeding, and/or diurnal/nocturnal cycles.

Permanent impacts are defined as irreparable, or long-term impacts to biological resources. Permanent impacts include impacts include the direct removal of plant and wildlife habitat and sensitive natural communities through preconstruction grubbing, grading and fill.

Temporary impacts to biological resources are those that are repairable over time, with or without the implementation of mitigation measures. Temporary impacts include fugitive dust cover introduced during operation and maintenance activities, and/or noise and lighting during construction adversely and indirectly affecting wildlife life cycles through disruption of foraging, breeding, and/or diurnal/nocturnal cycles.

3.4.4.3 Applicant-Proposed Measures

The Applicant has identified and committed to implement the following APMs as part of the proposed Projects to avoid or substantially lessen potentially significant impacts to biological resources, to the extent feasible. The APMs, where applicable, are discussed in the impact analysis section below.

VEGETATION

APM BIO-1: The site shall be revegetated after decommissioning according to the Final Closure Plan described in MM BIO-21 and prepared in conformance with BLM requirements at the time of decommissioning.

APM BIO-2: The applicant shall prepare and implement a Vegetation Resources Management Plan that contains the following components:

- Vegetation Salvage Plans that discuss the methods that will be used to transplant cacti present within the proposed disturbance areas. Salvage and transplant methods used will be approved by CDFW. In addition, the Vegetation Salvage Plans will also include methods that will be used to transplant special-status plant species that occur within proposed disturbance areas.
- Restoration Plans discussing the methods that will be used to restore any of the four native plant community types (creosote bush-white bursage scrub, cheesebush scrub, and creosote bush scrub,) present within the project area that may be temporarily disturbed by construction activities. The applicant will obtain CDFW approval for any seed mixtures used for restoration.
- Vegetation Salvage and Restoration Plans that will specify success criteria and performance standards. The applicant will be responsible for implementing the Vegetation Salvage and Restoration Plan according to CDFW requirements.

APM BIO-3: Herbicides shall not be applied systemically over the entire project area. Herbicides shall be applied in focused treatments in areas where invasive weed infestations have been identified, such as where there is a clump or monotypic stand of invasive weeds. Herbicides shall not be applied within 100 feet of a special-status plant.

APM BIO-4: Only a State of California and federally certified contractor (i.e., Qualified Applicator), who is also approved by CDFW, and holds and maintains a Qualified Applicator License from California Department of Pesticide Regulation, shall be permitted to perform herbicide applications. Herbicides shall be applied in accordance with applicable laws, regulations, and permit stipulations. All herbicide applications must follow U.S. Environmental Protection Agency label instructions.

APM BIO-5: Herbicides shall not be applied during rain events, within 48 hours of a forecasted rain event with a 50% or greater chance of precipitation, or when wind velocity exceeds 10 mph (for liquids) and 15 mph for granular herbicides.

APM BIO-6: The applicant shall implement an Integrated Weed Management Plan (IWMP) to control weed infestations and the spread of noxious weeds in the study area.

APM BIO-7: After project construction, areas of temporary disturbance shall be closed and the restoration measures in the Vegetation Resource Management Plan shall be implemented.

APM BIO-8: Foundations shall be removed to a minimum of 3 feet below surrounding grade during decommissioning and covered with soil to allow adequate root penetration for native plants. Petroleum product leaks and chemical releases shall be remediated prior to completion of decommissioning.

APM BIO-9: Decommissioning methods shall minimize new site disturbance and removal of native vegetation.

SPECIAL-STATUS PLANTS

APM BIO-10: All special-status and rare plant (CRPR 1, 2, 3, and 4) occurrences within the project area will be documented during preconstruction surveys. The applicant will also provide a 100-foot buffer area surrounding each avoided occurrence in which no construction activities will take place, if feasible. If avoidance is not feasible, the applicant shall provide on-site mitigation (e.g., vegetation salvage) for impacts to special-status and rare plants.

APM BIO-11: Before construction of a given phase begins, the applicant shall stake and flag the construction area boundaries, including the construction areas for the solar arrays and associated infrastructure; construction laydown, parking, and work areas; and the boundaries of all temporary and permanent access roads. A CDFW-approved biologist shall then survey all areas of proposed ground disturbance for rare or special-status plant species and cacti during the appropriate period (blooming or otherwise identifiable) for those species having the potential to occur in the construction areas. All rare or special-status plant species and cacti observed shall be flagged for transplantation.

SPECIAL-STATUS WILDLIFE

APM BIO-12: The applicant shall implement a Worker Environmental Awareness Program (WEAP) to educate workers about the environmental issues associated with the project and the MMs that will be implemented at the site, including nest awareness and non-disturbance exclusion zones.

APM BIO-13: Preconstruction clearance surveys to identify active bird nests shall be conducted within 2 weeks of ground disturbance or vegetation removal in all active work areas during the breeding season (February 1–August 31). The work area will need to be resurveyed following periods of inactivity of 2 weeks or more. Active nests shall be avoided using non-disturbance buffer zones as shown below.

- Avian Awareness and Baseline Non-Disturbance Buffer Zones
- Starting Distance of Awareness or Type Non-Disturbance Exclusion Zones Passerines 300 feet from active nest Raptors 500 feet from active nest Golden Eagles 1 mile and line of sight from active nest Burrowing 250 feet from active burrows during nesting Owls1 season (February 1–August 31) 160 feet from active burrows during the wintering period (September 1–January 31)
- Implementation Notes: A qualified biologist may reduce or increase the buffer distance if there is sufficient evidence based on species, habitat, and other factors, that applicant activity would not impact nesting activity. Buffers would be maintained until a qualified biologist has determined that the nest is no longer active.

APM BIO-14: Monitoring of any active nests within or adjacent to the work areas shall be conducted until nestlings have fledged and dispersed. Ongoing breeding-season monitoring of work areas shall be conducted throughout the duration of construction. Nest monitoring results shall be recorded in a Nest Check Form. Typically, a nest check will have a minimum duration of 30 minutes, but it may be longer or

shorter, or more frequent than one check per day, as determined by the Designated Biologist (see MM BIO-5 for Designated Biologist) based on the type of construction activity (duration, equipment being used, potential for construction-related disturbance) and other factors related to assessment of nest disturbance (weather variations, pair behavior, nest stage, nest type, species, etc.). The Designated Biologist shall record the construction activity occurring at the time of the nest check and note any work exclusion buffer in effect at the time of the nest check. Non-project activities in the area should also be recorded (e.g., adjacent construction sites, roads, commercial/industrial activities, recreational use, etc.). The Designated Biologist shall record any sign of disturbance to the active nest, including but not limited to parental alarm calls, agitated behavior, distraction displays, nest fleeing and returning, chicks falling out of the nest or chicks or eggs being predated as a result of parental abandonment of the nest. Should the Designated Biologist determine project activities are causing or contributing to nest disturbance that might lead to nest failure, the Designated Biologist shall coordinate with the Construction Manager to limit the duration or location of work, and/or set other limits related to use of project vehicles and/or heavy equipment. Nest locations, project activities in the vicinity of nests, and any adjustments to buffer areas shall be described and reported in regular monitoring and compliance reports.

APM BIO-15: Preconstruction surveys for burrows containing suitable bat roosting habitat that could be used as individual bat roosts shall be conducted in all project work areas.

APM BIO-16: The connection from the substation to the transmission line shall be designed to meet the most recent Avian Power Line Interaction Committee guidelines to the extent practicable.

APM BIO-17: Roads, power lines, fences, and other infrastructure associated with the project shall be minimized to reduce habitat loss. Fencing will use wildlife compatible design standards.

APM BIO-18: Collector lines shall be placed underground to reduce avian collisions.

APM BIO-19: Federal and state measures for handling toxic substances shall be followed to minimize danger from spills to water and wildlife resources. Facility operators shall maintain Hazardous Materials Spill Kits on-site. Personnel shall be trained to use the Hazardous Materials Spill Kits.

APM BIO-20: The applicant shall clear vegetation outside of the bird breeding season to the maximum extent practicable. Preconstruction avian clearance surveys shall be conducted by a qualified biologist for vegetation clearing during the bird breeding season (February 1–August 31). If a nest(s) is identified in the preconstruction avian clearance surveys, a qualified monitor shall be on-site during vegetation removal in order to enforce non-disturbance buffers and stop activities as necessary should construction disturb nesting activity.

APM BIO-21: Trash shall be disposed of in covered containers and regularly removed from the site.

APM BIO-22: Surveys for burrowing owl shall be conducted in suitable burrowing owl habitat prior to construction and if construction is suspended for 2 weeks or more. Surveys shall be performed pursuant to the CDFW *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). If active burrows are found, they shall be avoided using non-disturbance buffer zones. Passive relocation shall be used as described above once the burrow is determined to be inactive.

APM BIO-23: A qualified biologist shall conduct a ground-based golden eagle clearance survey for active golden eagle nests in a 2-mile area surrounding the project, as accessible. Golden eagle clearance surveys shall be conducted annually for each year of construction during the golden eagle nesting season. If active nests are found in the study area, the applicant shall coordinate with BLM, USFWS, and CDFW to ensure that construction does not result in disturbance of the golden eagles.

APM BIO-24: Project personnel shall remove and dispose of roadkill near the study area to avoid attracting raptors and other scavengers to the site, and shall regularly remove vegetation around larger facilities (such as the substation) to reduce raptor foraging.

APM BIO-25: The project shall minimize the use of lighting that could attract migrating birds and bats (that could feed on concentrations of insects at lights). Lighting will be kept to the minimum level necessary for safety and security. High-intensity, steady burning, bright lights such as sodium vapor or spotlights will not be used on project facilities.

APM BIO-26: Project personnel and visitors shall be instructed to drive at low speeds (<15 mph) and be alert for wildlife, especially in low-visibility conditions.

APM BIO-27: Fencing shall be removed at the completion of decommissioning.

APM BIO-28: Desert tortoise exclusion fencing shall be installed at the perimeter of project construction areas (i.e., solar array areas, project buildings, substation/switchyard, earthen berms, and along the edge of access roads and collector line corridors). The fence locations will be determined during final design and will enclose areas of project activity. The fence line and a 30-foot-wide buffer shall be surveyed for desert tortoise before construction of the fence and according to USFWS protocol. Desert tortoise translocation will adhere to guidelines of the desert tortoise translocation plan for the project (see MM BIO-10). Tortoises found in the fence line study area or spotted within 50 m of the fence line study area shall be:

- Assigned a USFWS identification number.
- Given a health assessment.
- Fitted with a transmitter. Tortoises that are too small to accept a transmitter (i.e., no transmitter is available that is 10% or less of the tortoise's body weight) shall be treated as a translocatee and held in situ.
- Moved into habitat adjacent outside the fence line. The tortoise shall be moved into an empty burrow if clearance of the fence area takes place outside the tortoise active season (i.e., November–March and June–August).
- Any of the moved tortoises that return to the project area before completion of fence construction shall be treated as translocatees. Desert tortoises remaining outside the fence line prior to completion of the fence shall be deemed residents. The transmitter shall be removed from the resident tortoise, and no further action shall be taken for the resident tortoises. USFWS procedures shall be followed to clear and handle the desert tortoise.

APM BIO-29: The project area desert tortoise preconstruction clearance survey shall be conducted during the desert tortoise active season (April–May and September–October) unless otherwise agreed to by USFWS and CDFW. The survey shall be conducted according to USFWS protocol and preferably during early morning hours to increase the chance juvenile tortoises are found, per the Guidelines. Any tortoise scat shall be collected on each pass of a transect, per the Guidelines. USFWS procedures shall be followed to clear and handle the desert tortoise.

APM BIO-30: The linear facilities desert tortoise preconstruction clearance survey(s) can be conducted at any time throughout the year. Linear facilities for this project include the buried collector lines between arrays and connecting to the substation. Located desert tortoises shall be undisturbed and allowed to clear the site without assistance or interference. Tortoises shall be moved if necessary to reduce the potential for harm from construction activities but shall not be moved more than 500 m in such a scenario. USFWS procedures shall be followed to clear and handle the desert tortoise.

APM BIO-31: Data shall be collected during desert tortoise clearance surveys as described in this section. The same data shall be collected again on tortoises held in the interim in situ on the day that the tortoise is translocated from the study area. The data include:

- Date
- Time
- Temperature (°C)
- Project name
- Site type (project/recipient/control)
- Landowner (BLM)
- Permit/BO #
- Coverage #
- Field crew vendor
- Surveyor (first and last name)
- ID#
- Midline carapace length (MCL) (millimeters)
- Sex
- Universal Transverse Mercator (UTM) (Easting)
- UTM (Northing)
- Location (e.g., burrow)
- Transmitter manufacturer
- Transmitter serial #
- Transmitter frequency
- Transmitter install date
- Battery life (months)
- Status (alive/dead/lost)

APM BIO-32: Following installation of the desert tortoise exclusion fencing, the fencing shall be regularly inspected. Permanent fencing shall be inspected monthly and during and within 24 hours following all major rainfall events. A major rainfall event is defined as one for which flow is detectable within the fenced drainage. Any damage to the fencing shall be temporarily repaired immediately to keep tortoises out of the site, and permanently repaired within 72 hours between March 15 and October 31 and within 7 days between November 1 and March 14 of observing damage. Inspections of permanent site fencing shall occur while desert tortoise fencing is in place.

APM BIO-33: No construction, operation, or decommissioning activities shall occur in unfenced areas without a USFWS-approved desert tortoise biologist present. These activities include the construction phase (construction, revegetation), decommissioning phase, and maintenance activities during the operations phase that require new surface disturbance. An adequate number of trained and experienced monitors must be present during all construction and decommissioning activities in unfenced areas,

depending on the various construction tasks, locations, and season. A biologist shall be on-site from March 15 through October 31 (active season) during ground-disturbing activities in areas outside the exclusion fencing, and shall be on-call from November 1 through March 14 (inactive season). The biologist shall check all construction areas immediately before construction activities begin. The biologist shall inspect construction pipes, culverts, or similar structures 1) with a diameter greater than 3 inches, 2) stored for one or more nights, 3) less than 8 inches aboveground, and 4) within desert tortoise habitat (i.e., outside the permanently fenced area), before the materials are moved, buried, or capped. Alternatively, such materials may be capped before storing outside the fenced area or placing on pipe racks.

APM BIO-34: A Raven Monitoring and Control Plan shall be prepared consistent with the most current USFWS-approved raven management guidelines. The purpose of the plan is to avoid any project-related increases in raven numbers during construction, operation, and decommissioning. The Raven Monitoring and Control Plan shall be submitted to BLM, CDFW, and USFWS for approval at least 30 days prior to the start of construction.

APM BIO-35: A Burrowing Owl Relocation Plan shall be prepared and submitted to CDFW for approval. Burrowing owls occupying burrows on-site shall be passively relocated outside the nesting season (February 1–August 31) or after a qualified biologist determines that the burrow does not contain eggs or chicks and after consultation with CDFW. Prior to construction and passive relocation, artificial burrows shall be installed in areas that would not be disturbed during construction at a ratio of 5:1 for each burrow that will be destroyed by project construction. Passive relocation shall be conducted prior to construction and according to guidelines from the California Burrowing Owl Consortium (1993).

APM BIO-36: Compensatory habitat mitigation shall be provided at a 1:1 ratio for impacts to suitable desert tortoise habitat during construction. A Habitat Compensation Plan shall be prepared to the approval of CDFW, USFWS, and BLM.

APM BIO-37: No pets or domestic animals shall be allowed on-site prior to or during construction, except kit fox scat detection dogs (with CDFW approval) used for preconstruction surveys or postconstruction kit fox mortality monitoring. The project will not authorize the housing or grazing of domestic animals on the project site. Feeding of animals will be prohibited to discourage the spread of non-native birds, to discourage the spread of disease and pathogens, etc.

3.4.4.4 Impact Assessment

Impact BIO-1: Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (Less than Significant with Mitigation)

Potential adverse effects to special-status plant and wildlife species could result from project construction, operation and maintenance, and future decommissioning. Construction is anticipated to occur over 18 months, thus including construction in the spring. Therefore, grubbing, grading, and filling during site preparation could impact special-status plants and associated seed banks during the growing season through direct removal and/or destruction of habitat. Construction of the project components, including the substation and switchyard, could result in vehicles crushing special-status plants. Several special-status plant and wildlife species were observed or have the potential to occur within the project study area.

SPECIAL-STATUS PLANTS

Special-status plants may be subject to direct and indirect impacts, including crushing and/or dust cover during operation and maintenance activities. Dust cover could inhibit vital physiological processes such as respiration or photosynthesis. Regular road maintenance could result in the direct removal of plants and/or seed beds, as well as significant habitat modification through repeated grading, compaction, berm construction, or installation of best management practices (BMPs). Special-status plants could be adversely affected by the introduction of new and spread of existing invasive plant species via personnel or vehicles. Also, altered hydrology as a result of construction could flood or dehydrate special-status plants and their associated seed banks. Finally, reduced wildlife activity could result in adverse effects on special-status plant species pollination and/or seed dispersal through zoochory.

One special-status plant species, Utah vine milkweed (California Rare Plant Rank 4.3), was identified in the study area, along the gen-tie. Direct, permanent impacts to Utah vine milkweed could occur through the removal of individuals through grubbing, grading, and/or filling during construction, operation, and maintenance, or future decommissioning of the project.

Temporary, direct impacts to Utah vine milkweed during construction could include the deposition of fugitive dust raised by vehicles and equipment, leading to a reduction in photosynthesis and other physiological processes. Permanent, indirect impacts to Utah vine milkweed could include permanent habitat destruction in project component locations, permanent removal of seed beds, increase in invasive plant species, permanent removal of pollinator host and/or nectaring plants, and/or altered hydrology. These impacts would be significant without mitigation.

Implementation of APM BIO-10, APM BIO-11, and APM BIO-12 as part of the project would avoid or substantially lessen potentially significant impacts to special-status plants, to the extent feasible. Impacts to Utah vine milkweed would be further reduced to less than significant through the implementation of the MM BIO-1, MM BIO-2, and MM BIO-3. MM BIO-1 would reduce indirect impacts such as dust and potentially harmful chemicals through the implementation of BMPs such as applying water to control dust and placing drip cans under vehicles and equipment when not in use. MM BIO-2 would ensure that workers are aware of where Utah vine milkweed is located, and how to identify Utah vine milkweed to avoid direct, indirect, temporary, permanent, and cumulative impacts to individuals or populations of the plant during construction. MM BIO-3 would provide guidance on how project personnel can avoid direct, indirect, temporary, permanent, and cumulative impacts to special-status plants on the project area.

The implementation of APM BIO-10, APM BIO-11, APM BIO 12, MM BIO-1, MM BIO-2, and MM BIO-3 would reduce potential impacts to special-status plant species to **less than significant with mitigation.**

CALIFORNIA DESERT NATIVE PLANTS ACT

CDNPA-regulated plant species identified within the study area include desert holly, blue paloverde (*Parkinsonia florida*), beavertail cactus, cottontop cactus, common fishhook cactus (*Mammillaria tetrancistra*), branched pencil cholla, and silver cholla. Native desert plants that are declared to be rare, threatened, or endangered species by federal or state law are not included under the provisions of the CDNPA. Additional regulated plant species in the Agavaceae (century plant [*Agave americana*], nolina [*Nolina microcarpa*], yucca, desert lily) and Cactaceae (cacti) families may be identified on-site prior to construction. Potential impacts to CDNPA-regulated plants would be similar to the special-status plants described above. Direct, indirect, temporary, permanent, and cumulative impacts to CDNPA-regulated plants would be reduced to less than significant by implementation of *MM BIO-3: Special-Status Plant Species and Cacti Impact Avoidance and Minimization*. MM BIO-3 will provide guidance on how project

personnel can avoid unintended direct, indirect, temporary, permanent, and cumulative impacts to special-status plants on the project area and provide for the salvage of CDNPA-protected cacti prior to construction.

The implementation of APM BIO-10, APM BIO-11, APM BIO-12, MM BIO-1, MM BIO-2, and MM BIO-3 would reduce potential impacts to special-status plant species to **less than significant with mitigation.**

WILDLIFE

Potential direct, indirect, temporary, permanent, and cumulative effects on special-status wildlife could result from the construction of the project, as well as from operation and maintenance. Future decommissioning of the project could also result in impacts to special-status wildlife and their habitats. Construction is anticipated to occur in the spring. Thus, grubbing, grading, and filling during site preparation could impact habitat (e.g., burrows, vegetation cover) necessary for special-status wildlife during their reproductive phases. All phases of construction, operation and maintenance, and decommissioning could result in the direct mortality or injury of special-status wildlife through vehicles, equipment, and increased predation through exposure or increased access by predators (e.g., predatory bird perches such as fence posts). Finally, noise and lighting during construction could adversely and indirectly affect wildlife life cycles through disruption of foraging, breeding, and/or diurnal/nocturnal cycles.

Four special-status wildlife species—loggerhead shrike, Mojave fringe-toed lizard, burrowing owl, and desert kit fox—were directly observed during the field surveys. However, the Mojave fringe-toed lizard observations were located outside of the project area. Signs of other special-status wildlife observed during the field surveys include desert tortoise, American badger, and desert bighorn sheep. An additional three species have the potential to occur within the study area, including golden eagle (foraging only), pallid bat, and Townsend's big-eared bat.

Desert Tortoise

Construction of the project components and gen-tie may result in direct impacts to desert tortoise, including the direct, permanent removal of up to 2,645.4 acres of habitat (all of the study area that is covered by native plant communities). Desert tortoise may be crushed by vehicles and/or equipment. Trenches dug for construction purposes could trap tortoise. And ground disturbance could result in the destruction of desert tortoise habitat. Construction and maintenance of the project also could directly impact desert tortoise if present, killing or injuring tortoises by crushing tortoises or burrows containing tortoises or eggs. These effects would be most likely to occur when tortoises are most difficult to detect, during the initial clearing of vegetation.

Indirect impacts to desert tortoise could result from human activities that increase the prevalence of invasive plants and the population of common ravens. Non-native plant seeds may be transported into the area with equipment, especially in tire treads. Non-native vegetation often becomes established in areas where the native vegetation has been disturbed, which may occur in the project's areas of temporary impacts. Many invasive grasses and forbs are highly flammable, and increase the risk of wildfire if not controlled, and adjacent desert tortoise habitat may be further degraded by invasion of weeds. Common ravens may be encouraged at the study area by food refuse inappropriately disposed of by construction or maintenance workers, and the project infrastructure may provide additional nest sites. In addition, the project fences and heliostats would provide additional perching and roosting sites for common ravens. Increases in common ravens may lead to higher rates of raven predation on desert tortoise.

The implementation of APM BIO-12, APM BIO-17, APM BIO-19, APM BIO-21, APM BIO-26, APM BIO-27, APM BIO-28, APM BIO-29, APM BIO-30, APM BIO-31, APM BIO-32, APM BIO-33, APM BIO-34, APM BIO-36, and APM BIO-37 as part of the project would avoid or substantially lessen potentially significant impacts to desert tortoise, to the extent feasible. Additional mitigation measures that would reduce the impacts to desert tortoise to less than significant include MM BIO-1, MM BIO-2, and MM-BIO-4 through MM BIO-13.

MM BIO-1 would reduce indirect impacts such as dust and potentially harmful chemicals through the implementation of BMPs such as applying water to control dust and placing drip cans under vehicles and equipment when not in use. MM BIO-2 would ensure that construction personnel are aware of where desert tortoise burrows are located and/or where desert tortoises are likely to take refuge or attempt movement during construction. MM BIO-4 would conduct pre-construction surveys and monitor protected species during ground disturbance, grading, construction, decommissioning, and restoration activities. The biological monitor will ensure compliance with avoidance and minimization measures for protected species. MM BIO-5 would require the applicant to assign at least one Designated Biologist approved by BLM, CDFW, and USFWS to the project. MM BIO-6 requires the applicant to install permanent site fencing around the project to allow for the passage of wildlife, to the extent feasible given the need for the fencing to prevent ingress by desert tortoise. MM BIO-7 would ensure compliance with all measures set forth in the BO and CESA Section 2081 take authorization, and project MMs.
The Designated Biologist is responsible for providing notifications for ground-disturbing activities and noncompliance issues to USFWS and CDFW and ensuring performance of compliance inspections during construction. MM BIO-8 defines appropriate speed limits to prevent desert tortoise mortality during construction. MM BIO-9 would instruct the applicant on how to undertake appropriate measures to manage the construction site and related facilities in a manner to avoid or minimize direct, indirect, temporary, permanent, and cumulative impacts to desert tortoise including protective fencing, exclusion fencing, clearance surveys, and monitoring. MM BIO-10 mandates that the applicant develop a DTTP that will provide instruction on how to relocate all desert tortoise from the project area to nearby suitable habitat; minimize and avoid direct, indirect, temporary, permanent, and cumulative impacts to resident desert tortoise outside the project area; minimize stress, disturbance, and injuries to relocated/translocated tortoises; and assess the success of the translocation effort through monitoring. MM BIO-11 requires that the applicant provide BLM, CDFW, and USFWS staff with unrestricted access to the project area and compensation lands to verify the applicant's compliance with, or the effectiveness of, adopted MMs. MM BIO-12 describes how the applicant will fully mitigate for habitat loss and potential take of desert tortoise through compensatory mitigation consistent with federal and state requirements. MM BIO-13 requires that the applicant implement measures to minimize the potential for desert tortoise and other wildlife species mortality along access and maintenance roads including speed limits, pedestrian access guidance and clear delineation of vehicle traffic, and parking and staging areas to avoid impacting habitat during operations.

Therefore, with the implementation of Mitigation Measures APM BIO-12, APM BIO-17, APM BIO-19, APM BIO-21, APM BIO-26, APM BIO-27, APM BIO-28, APM BIO-29, APM BIO-30, APM BIO-31, APM BIO-32, APM BIO-33, APM BIO-34, APM BIO-36, APM BIO-37, MM BIO-1, MM BIO-2, and MM-BIO-4 through MM BIO-13, the impacts to desert tortoise would be **less than significant with mitigation.**

Mojave Fringe-Toed Lizard

There is a total of 6.9 acres of potentially suitable windblown sand habitat within the study area for Mojave fringe-toed lizard, and focused surveys for Mojave fringe-toed lizard were not conducted in these areas as they had not been identified as potential habitat in the desktop review (see Appendix D, Figure 12). The aeolian sand deposits located in these areas have no connectivity to larger sand deposits that

support known existing populations. Mojave fringe-toed lizards were not observed in these areas during any of the surveys described in the 2013 Biological Resources Technical Report nor during the 2023 surveys for other types of biological resources, which occurred during the Mojave fringe-toed lizard active season.

The nearest known population of Mojave fringe-toed lizard is located outside of the project area in a sandy wash approximately 750 feet south-southwest of the study area. During focused surveys for Mojave fringe-toed lizard outside of the study area, five individuals were observed in this wash, the nearest of which was approximately 1,000 feet south of the project boundary. Based on the survey results, small area of potentially suitable habitat, and lack of connectivity to suitable habitat on-site, Mojave fringe-toed lizard is considered to have a low potential to occur within the study area.

Implementation of APM BIO-12, APM BIO-17, APM BIO-19, APM BIO-21, APM BIO-26, APM BIO-27, and APM BIO-37 as part of the project would avoid or substantially lessen potentially significant impacts to Mojave fringe-toed lizard, to the extent feasible.

Based on the presence of potentially suitable windblown sand habitat within the project area, construction of the solar plant site (including panel arrays and mounting structures), operation and maintenance buildings and structures, stormwater infrastructure, the substation and switchyard, and the BESS may result in indirect impacts to Mojave fringe-toed lizard. Potential indirect impacts include increased predation by raptors, ravens, and other birds; the potential introduction and spread of exotic vegetation species into off-site dune areas; and increased human activity causing Mojave fringe-toed lizards to avoid the study area and/or adjacent suitable habitat. Indirect impacts to Mojave fringe-toed lizards would be reduced to less than significant through the implementation of MM BIO-1, MM BIO-2, MM BIO-4, MM BIO-5, MM BIO-7, and MM BIO-14.

MM BIO-1 would reduce indirect impacts such as dust and potentially harmful chemicals through the implementation of BMPs such as applying water to control dust and placing drip cans under vehicles and equipment when not in use. MM BIO-2 would ensure that workers are aware of where Utah vine milkweed is located, and how to identify Utah vine milkweed to avoid direct, indirect, temporary, permanent, and cumulative impacts to individuals or populations of the plant during construction. MM BIO-4 would conduct pre-construction surveys and monitor protected species during ground disturbance, grading, construction, decommissioning, and restoration activities. MM BIO-5 requires the applicant to assign at least one Designated Biologist to the project. The Designated Biologist must be approved by BLM, CDFW, and USFWS. MM BIO-7 would ensure compliance with all measures set forth in the BO and CESA Section 2081 take authorization, and project MMs. The Designated Biologist is responsible for providing notifications for ground-disturbing activities and noncompliance issues to USFWS and CDFW, and ensure performance of compliance inspections during construction. MM BIO-14 requires a qualified biologist will conduct a focused survey for Mojave fringe-toed lizard prior to ground disturbance in suitable habitat (aeolian sand deposits) within all active work areas. Two survey replicates would be performed during the Mojave fringe-toed lizard active season (March–October) during appropriate weather conditions. Qualified biologists would walk transects spaced 10m apart throughout areas with suitable habitat within the study area.

Therefore, with the implementation of APM BIO-12, APM BIO-17, APM BIO-19, APM BIO-21, APM BIO-26, APM BIO-27, and APM BIO-37, MM BIO-1, MM BIO-2, MM BIO-4, MM BIO-5, MM BIO-7, and MM BIO-14, the impacts to the Mojave fringe-toed lizard would be **less than significant with mitigation.**

Burrowing Owl

Burrowing owls were confirmed to be present and were observed during the 2023 survey (see Appendix D). One individual and one unoccupied burrow with burrowing owl sign were identified. Burrowing owls may overwinter or nest on-site.

Construction of the solar plant site (including panel arrays and mounting structures) and gen-tie, operation and maintenance buildings and structures, stormwater infrastructure, the substation and switchyard, and the 300-MW BESS may result in direct impacts to burrowing owls, including the direct, permanent removal of up to 2,645.4 acres of habitat. Construction and maintenance of the project could directly impact burrowing owl through vehicle collisions, crushing overwintering burrows or active nests. Indirect impacts from noise, night lighting, and the increase in human activity could cause burrowing owls to avoid the study area.

Implementation of APM BIO-12, APM BIO-17, APM BIO-19, APM BIO-21, APM BIO-22, APM BIO-26, APM BIO-27, APM BIO-35, and APM BIO-37 as part of the project would avoid or substantially lessen potentially significant impacts to burrowing owl, to the extent feasible. Impacts to burrowing owl would be further reduced to less than significant through the implementation of the MM BIO-1, MM BIO-2, MM BIO-4, MM BIO-5, MM BIO-7, MM BIO-18, and MM BIO-19.

MM BIO-1 will reduce indirect impacts such as dust and potentially harmful chemicals through the implementation of BMPs such as applying water to control dust and placing drip cans under vehicles and equipment when not in use. MM BIO-2 will ensure that workers are aware of where Utah vine milkweed is located, and how to identify Utah vine milkweed to avoid direct, indirect, temporary, permanent, and cumulative impacts to individuals or populations of the plant during construction. MM BIO-4 will conduct pre-construction surveys and monitor protected species during ground disturbance, grading, construction, decommissioning, and restoration activities. MM BIO-5 requires the applicant to assign at least one Designated Biologist to the project. The Designated Biologist must be approved by BLM, CDFW, and USFWS. MM BIO-7 will ensure compliance with all measures set forth in the BO and CESA Section 2081 take authorization, and project MMs. The Designated Biologist is responsible for providing notifications for ground-disturbing activities and noncompliance issues to USFWS and CDFW and ensure the performance of compliance inspections during construction. The Designated Biologist will submit a monthly compliance report to CDFW until construction is complete. MM BIO-18 requires that the applicant develop a BBCS to address potential direct, indirect, temporary, permanent, and cumulative impacts to special-status avian and bat species. The bird and bat conservation strategy (BBCS) will include an assessment of potential avian and bat impacts from lighting, noise, collision, electrocution, and attraction of ravens, as applicable, as well as measures to mitigate the effects to birds. MM BIO-19: requires that the applicant perform a preconstruction survey for burrowing owls no more than 14 days prior to the initiation of construction, and following periods of inactivity that last 2 weeks or more. Furthermore, MM BIO-19 prescribes protective buffers for occupied burrows and nesting pairs and mandates avoidance disturbance of occupied burrows during defined nesting and non-nesting periods, and compensatory mitigation should impacts to active burrows occur.

Therefore, with the implementation of APM BIO-12, APM BIO-17, APM BIO-19, APM BIO-21, APM BIO-22, APM BIO-26, APM BIO-27, APM BIO-35, and APM BIO-37, MM BIO-1, MM BIO-2, MM BIO-4, MM BIO-5, MM BIO-7, MM BIO-18, and MM BIO-19, the impacts to the burrowing owl would be **less than significant with mitigation.**

Desert Kit Fox and American Badger

Desert kit fox was confirmed to be present based on the presence of signs and the identification of six active dens during the field surveys. Five potential American badger dens were identified during the field surveys. However, all were determined to be inactive based on cobwebs or obstructions in the entrances and the lack of maintenance and signs of recent use. Nonetheless, habitat is suitable for American badger and the species could be present during project construction, operation, and decommissioning. Potential impacts to desert kit fox and American badger would be similar to the impacts experienced by fossorial species. Direct impacts include vehicle collisions and equipment and inadvertent entombment from collapsing burrows. Indirect impacts would result from noise and human activity, which may deter kit foxes and badgers from the study area. In addition, the project will result in the direct, permanent removal of up to 2,645.4 acres of habitat for desert kit fox and American badger.

Implementation of APM BIO-12, APM BIO-17, APM BIO-19, APM BIO-21, APM BIO-26, APM BIO-27, APM BIO-35, and APM BIO-37 as part of the project would avoid or substantially lessen potentially significant impacts to desert kit fox and American badger, to the extent feasible.

Significant impacts to desert kit fox and American badger would be reduced to less than significant by the implementation of the MM BIO-1, MM BIO-2, MM BIO-4, MM BIO-7, and MM BIO-20. MM BIO-1 will reduce indirect impacts such as dust and potentially harmful chemicals through the implementation of BMPs such as applying water to control dust and placing drip cans under vehicles and equipment when not in use. MM BIO-2 will ensure that workers are aware of where Utah vine milkweed is located, and how to identify Utah vine milkweed to avoid direct, indirect, temporary, permanent, and cumulative impacts to individuals or populations of the plant during construction. MM BIO-4 will require the applicant to conduct pre-construction surveys and monitor protected species during ground disturbance, grading, construction, decommissioning, and restoration activities. MM BIO-7 will ensure compliance with all measures set forth in the BO and CESA Section 2081 take authorization, and project MMs. MM BIO-20 will require preconstruction surveys, excavation of inactive dens subject to direct impacts, biological monitoring by the Biological Monitor, and agency notification should natal dens be detected within the project area.

Therefore, with the implementation of APM BIO-12, APM BIO-17, APM BIO-19, APM BIO-21, APM BIO-26, APM BIO-27, APM BIO-35, and APM BIO-37, MM BIO-1, MM BIO-2, MM BIO-4, MM BIO-7, and MM BIO-20, the impacts to desert kit fox and American badger would be **less than significant with mitigation.**

Desert Bighorn Sheep

Direct Impacts

There is some potential for desert bighorn sheep to be directly impacted by the project, primarily by collision with work vehicles. This is likely a minor risk. The larger direct impact is related to the permanent removal of forage within the project footprint. While most of their time is spent in the adjacent hills, there are some occurrences of desert bighorn sheep moving down into the flatter adjacent lands onto the project site. There is not enough known about the seasonal foraging use of certain plant species by desert bighorn sheep, and the importance of these plant species during drought years is not known. Further, only a fraction of the South Soda Mountain herd was collared; therefore, while the collar data provide good insights into how the herd selects and uses the habitat, there may be important segments of the South Soda Mountain population that utilize the surrounding habitat differently that are not identified with this dataset. The project would result in a direct loss of possible foraging habitat. These impacts would be significant without mitigation. With the implementation of APM BIO-37, MM BIO-2, MM

BIO-4, MM BIO-6, MM BIO-24, MM BIO-25, and MM BIO-26, these impacts would be l**ess than significant.**

Indirect Impacts

Short-term indirect impacts could occur to desert bighorn sheep due to construction noise and a general increase in human activity directly adjacent to occupied islands of habitat that support the full range of biological needs for the Soda Mountain population including foraging and breeding. Night work is not expected to occur; therefore, lighting is not a concern. Human activity is currently present in the form of off-highway vehicle use and camping; however, during construction, the entire northwestern face of the occupied habitat would be exposed to constant activity throughout the day. Construction would include a combination of extended lower-level noise, but there would also be periods of loud and/or abrupt noise, which can have particularly negative effects on desert bighorn sheep. Startling may cause ewes to briefly abandon lambs or may cause lambs to be knocked off or stumble off of ledges and steep slopes, among other effects, resulting in injury and mortality. This effect might also be considered a possible direct impact. Repeated startling noise events may cause desert bighorn sheep to artificially adjust their use of the habitat island to other locations within the South Soda Mountains that may not support the key resources needed or preferred by the desert bighorn sheep. These impacts would be considered significant without mitigation. With the implementation of APM BIO-37, MM BIO-2, MM BIO-4, MM BIO-6, MM-BIO-23, MM BIO-24, MM BIO-25, MM BIO-26, and MM-BIO-27, these impacts would be considered to be **less than significant with mitigation**.

Long-term indirect impacts could occur to desert bighorn sheep, primarily due to project fencing and proximity to occupied habitat. As currently planned, the project will fence the project site and leave relatively narrow corridors between the East Array and South Arrays 1, 2, and 3 (Figure 12, Project Distance to 10% Slope). These corridors are generally too narrow to be useful for desert bighorn sheep; however, individuals do move down to the flat alluvial fan areas and there is potential for individuals to find their way into these corridors, get disoriented, and find themselves stuck between the solar facility and I-15, which could then lead to a wildlife–vehicle collision. Similarly, the northern fence boundary and the fencing proposed for the new I-15 wildlife overcrossing structure just to the north will leave a large gap that could encourage desert bighorn sheep to pass through these two fenced areas and then lead to the narrow area between the western project fencing and I-15, leading to a wildlife–vehicle collision.

Minimal project lighting is anticipated and is confined to project buildings situated in the western portion of the site, away from montane desert bighorn sheep habitat and close to existing lighting from I-15. The 2023 BTR includes MM-BIO-16, Lighting Specifications to Minimize Bird and Bat Impacts, which calls for minimizing night lighting during construction by using shielded directional lighting that is pointed downward, thereby avoiding illumination of adjacent natural areas (SWCA 2023). Lighting will be directed internally and away from external habitat; therefore, no long-term indirect impacts due to lighting are anticipated.

Helicopters would not be used for construction, post-construction work, or monitoring; therefore, no short-term or long-term indirect impacts from helicopter use are anticipated. Likewise, blasting would not be required during this project's construction.

The project as proposed is situated closer to occupied habitat than historically recommended by species experts and CDFW. Previous guidance provided by CDFW, beginning in April 2013, recommended a 0.25-mile buffer between the project and the slope hinge point (defined as where the 10% slope angle changes) to minimize indirect effects, mountain habitat avoidance, and possible reduction in gene flow. Appendix D-2 includes a table detailing the history of guidance by CDFW for the project as it pertains to desert bighorn sheep.

Combined fencing and project proximity to key mountain habitat would result in long-term indirect impacts. These impacts would be considered significant without mitigation. With the implementation of recommended measures APM BIO-37, MM BIO-2, MM BIO-4, MM BIO-6, MM BIO-22, MM BIO-23, MM BIO-24, MM BIO-25, MM BIO-26, and MM-BIO-27, these impacts would be considered to be **less than significant with mitigation.**

BIRDS

Common and special-status bird species forage at the study area and have the potential to nest at the project area. Being highly mobile, birds can generally move out of harm's way and avoid direct injury and harm from grading, construction, and project operations. Birds can use the study area for nesting, foraging, and roosting.

Suitable nesting habitat is present on-site and within 500 feet of the study area boundaries. Construction performed during the nesting season could directly affect active bird nests through crushing or removal of vegetation supporting or camouflaging nests, or by disturbing adults so much that they abandon the nest. The project will also result in the loss of up to approximately 2,670.4 acres of nesting habitat due to permanent vegetation removal. The project may indirectly impact nesting birds within and adjacent to the study area during construction by making the area less suitable due to increased noise or visual disturbances.

The development of utility-scale solar energy facilities is a recent phenomenon, and the biological relevance of avian mortality at PV solar facilities is not well understood. Preliminary information suggests that the levels of avian mortality at solar facilities of all technology types are much lower than mortality from other known anthropogenic sources such as fossil fuel plants, communication towers, vehicle collisions, and buildings (Walston et al. 2016). Nevertheless, these impacts may be biologically significant, and many species of North American birds are protected under the MBTA, BGEPA, and/or ESA, and California has several comparable state regulations.

All large artificial structures pose some collision risk to birds in flight; this phenomenon has been most extensively documented for nocturnal migrants (Loss, Will et al. 2014). Most small birds migrate at night and large birds are more likely to migrate during the day, especially raptors; both day and night migration occur in waterfowl. Non-nesting birds are killed at high rates by collision with buildings, radio towers, and other structures, especially those with lighting (Longcore et al. 2012; Loss et al. 2014). Collision with aboveground wires, including both electrical transmission lines and guy wires on radio towers, is also a significant anthropogenic cause of bird mortality (Longcore et al. 2012; Loss et al. 2014).

Avian mortalities have been recorded at PV solar facilities, with high-end estimates ranging from 2.49 birds per MW per year (Kosciuch et al. 2020) to 9.9 birds per MW per year (Walston et al. 2016). Most data on the impacts of PV solar facilities have been collected at sites in the Desert Southwest, primarily Southern California, an area that contains a substantial fraction of the large-scale (>1,000 acres) solar facilities in the United States. At PV solar facilities, impact trauma is the most frequently recorded identifiable cause of death (e.g., Kagan et al. 2014; Kosciuch et al. 2020; Walston et al. 2016).

Evidence that birds collide with PV panels at higher rates than with other stationary infrastructure is lacking, as is evidence that collisions with PV panels at solar facilities are a biologically significant source of avian mortality. However, Conkling et al. (2022) demonstrated that avian mortalities found at solar facilities originated from both local and distant sites, based on stable hydrogen isotopic analysis of feathers collected from bird fatalities found at wind and solar energy generating facilities. Therefore, PV solar facilities have the potential to impact non-local bird populations.

It has been hypothesized that birds in flight mistake the reflective surfaces of PV and concentrating solar energy generating facilities for water bodies and are attracted to the facilities due to this water-like appearance, a phenomenon called the "lake effect" (Kagan et al. 2014; Upton 2014). Once attracted to reflective features at solar facilities, birds might then be injured or killed by collision with facility infrastructure while in flight or when landing. Injured birds may then be exposed to the elements, predators, dehydration, and starvation. Some waterbird species like loons and grebes can only take off into flight from a body of water, and therefore, stranding without access to water or rescue is inevitably fatal.

Bird injuries and mortalities documented at PV solar facilities to date have included both landbird and waterbird species, and there is very little evidence supporting or refuting the lake effect hypothesis (Kagan et al. 2014; Kosciuch et al. 2020; Kosciuch et al. 2021). In an effort to assess the hypothesis, Kosciuch et al. (2021) searched for aquatic bird carcasses in both PV solar facilities and reference sites in agricultural, desert, and grassland habitats; they found no aquatic birds in undeveloped desert or grassland reference sites but did find aquatic bird carcasses at PV solar facilities, suggesting that some characteristic of the facilities attracted or impacted aquatic birds. They also found that the species diversity of aquatic birds using a small desert lake was substantially higher than both 1) the diversity of aquatic birds observed using habitats in and adjacent to solar energy facilities, and 2) the diversity of aquatic birds found dead and injured at solar energy facilities, which suggests that if lake effect attraction occurs, not all aquatic birds are equally susceptible. For insects, there is evidence that PV solar panels are attractive: field experiments showed that some species of flying insects with aquatic larval stages laid their eggs on solar panels more often than on water (Horvath et al. 2009).

Direct project impacts to birds may result from collision with project infrastructure of all kinds, including panel arrays and mounting structures, operation and maintenance buildings, substation and switchyard, BESS, gen-tie poles and overhead conductor wire, and fencing.

Indirect project impacts to non-nesting birds would result from vegetation removal and the conversion of native foraging habitat to development. Construction of the solar plant (including panel arrays and mounting structures), operation and maintenance buildings, stormwater infrastructure, the substation and switchyard, and the BESS would result in indirect impacts through habitat conversion.

The study area is located in an area of relatively low use by avian species, is not within heavily used known migratory paths, and does not include features that would tend to attract or concentrate migrating birds, such as bodies of water, dense or riparian vegetation, or terrain that creates thermal uplift more than the surrounding area.

Avian impacts resulting from the project are expected to be comparable in type and levels to those documented at other PV solar facilities in the region. These include direct mortality of up to 2.49 or 9.9 birds per MW per year (Kosciuch et al. 2020; Walston et al. 2016). Extrapolating to this proposed 300-MW project, annual mortality of birds consistent with those examples would be approximately 747 to 2,970 birds per year. Indirect impacts will include the loss of up to 2,645.4 acres of foraging and nesting habitat.

Implementation of APM BIO 12, APM BIO 13, APM BIO 14, APM BIO 16, APM BIO 17, APM BIO 18, APM BIO 19, APM BIO 20, APM BIO 21, APM BIO 22, APM BIO 24, APM BIO 25, APM BIO 26, APM BIO 27, and APM BIO 37 as part of the project would avoid or substantially lessen potentially significant impacts to birds, to the extent feasible.

Direct mortality of up to 2,970 nesting and non-nesting birds per year and indirectly impact birds through conversion of approximately 2,645.4 acres of foraging and nesting habitat to development would be reduced to less than significant through the implementation of the MM BIO-15 through MM BIO-18.

MM BIO-15 directs the drafting of an avian monitoring and mitigation program (AMMP). The AMMP will be initiated and approved by BLM in consultation with CDFW and USFWS prior to construction, and will prevent substantial adverse direct, indirect, temporary, permanent, and cumulative impacts to special-status species. MM BIO-16 requires vegetation clearing to occur outside of the general avian breeding season (February 15–September 1) when feasible. This measure also includes preconstruction surveys for nesting birds should work occur during the breeding season, as well as nest monitoring and buffer implementation protocols. MM BIO-17 requires that the applicant minimize night lighting during construction by using shielded directional lighting that is pointed downward, thereby avoiding illumination to adjacent natural areas and the night sky. MM BIO-18 requires that the applicant develop a bird and bat conservation strategy (BBCS) to address potential direct, indirect, temporary, permanent, and cumulative impacts to special-status avian and bat species. The BBCS will include an assessment of potential avian and bat impacts from lighting, noise, collision, electrocution, and attraction of ravens, as applicable, as well as measures to mitigate for the effects to birds.

Therefore, with the implementation of Mitigation Measures APM BIO 12 through APM BIO 14, APM BIO 16 through APM BIO 22, APM BIO 24 through APM BIO 27, APM BIO 37, and MM BIO-15 through MM BIO-18, the impacts to common and special-status bird species would be **less than significant with mitigation.**

BATS

Special-status bat species with the potential for occurrence at the study area include Townsend's big-eared bat and pallid bat. Neither species was detected during the bat surveys performed for the project. Two bat species were detected by sight and/or sound within the study area during the nighttime acoustic survey period: canyon bat and Mexican free-tailed bat. Potential impacts to bats are typically related to lighting and project infrastructure. Nighttime lighting during construction and project operations could attract insects, which could attract foraging bats. Project infrastructure may pose a collision risk for bats.

Implementation of APM BIO 12, APM BIO 15, APM BIO 17, APM BIO 19, APM BIO 21, APM BIO 25, APM BIO 26, APM BIO 27, and APM BIO 37 as part of the project would avoid or substantially lessen potentially significant impacts to bats, to the extent feasible.

Impacts to bats would be further reduced to less than significant through the implementation of the MM BIO-16 and MM BIO-17. MM BIO-16 requires that the applicant minimize night lighting during construction by using shielded directional lighting that is pointed downward, thereby avoiding illumination to adjacent natural areas and the night sky. MM BIO-17 requires that the applicant develop a BBCS to address project impacts to special-status avian and bat species. The BBCS will include an assessment of potential avian and bat impacts from lighting, noise, collision, electrocution, and attraction of ravens. The BBCS will also include a description of the reporting requirements and reporting schedule and duration, and an adaptive management strategy.

Therefore, with the implementation of Mitigation Measures APM BIO-12, APM BIO-15, APM BIO-17, APM BIO-19, APM BIO-21, APM BIO-25, APM BIO-26, APM BIO-27, and APM BIO-37, MM BIO-16, and MM BIO-17, the impacts to bat species would be **less than significant with mitigation.**

Impact BIO-2: Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (Less than Significant with Mitigation Incorporated)

Two sensitive natural communities were identified within the study area: Rigid Spineflower – Hairy Desert Sunflower and California Joint Fir – Longleaf Joint-fir associations. No riparian habitat is present within the project boundary.

Direct impacts include permanent and temporary removal of the sensitive vegetation communities. At this time, it is assumed that all impacts to vegetation within the study area will be permanent. The permanent impacts within the study area are expected to affect 33.2 acres of the project site. Approximately 32 acres of Rigid Spineflower – Hairy Desert Sunflower and 1.2 acres of California Joint Fir – Longleaf Joint-fir associations would be impacted by the project. If areas of vegetation are temporarily disturbed during construction, they will be reseeded to facilitate restoration of the original vegetation communities.

Implementation of APM BIO-1, APM BIO-2, APM BIO-3, APM BIO-4, APM BIO-5, APM BIO-6, APM BIO-7, APM BIO-8, APM BIO-9, and APM BIO-12 as part of the project would avoid or substantially lessen potentially significant impacts to sensitive natural communities, to the extent feasible.

Direct permanent and temporary impacts to sensitive natural communities will be further reduced through the implementation of MM BIO-21 and MM BIO-22. MM BIO-21 directs the applicant to implement BMPs to manage the construction site and related facilities in a manner to avoid or minimize direct, indirect, temporary, permanent, and cumulative impacts to vegetation resources, including minimizing road and traffic impacts, monitoring during construction, revegetating temporarily disturbed areas, and integrating weed management. MM BIO-22 directs the applicant to prepare a Final Closure Plan to restore the site's topography and hydrology to a relatively natural condition and to establish native plant communities.

Therefore, implementation of Mitigation Measures APM BIO-1 through APM BIO-9, APM BIO-12, MM BIO-21, and MM BIO-22 would minimize potential impacts to sensitive natural communities resulting in impacts that would be **less than significant with mitigation.**

Impact BIO-3: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? (No Impact)

The aquatic resources delineation includes non-wetland waters of the State regulated under the Porter-Cologne Water Quality Control Act and the California Fish and Game Code. No federal waters of the United States occur on-site. As a result, the project would result in **no impacts** to state or federal wetlands.

Impact BIO-4: Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? (Less than Significant with Mitigation)

The Wildlife Linkage and Connectivity Modeling of the South Soda Mountains, including some small areas within the study area, are mapped as a patch of suitable desert bighorn sheep habitat (Penrod et al. 2012). One of the proposed I-15 Mojave wildlife crossing locations occurs at the northern portion of this mapped patch area and would provide a connection between this patch area and the less than a patch area

across I-15. This study did not model the North Soda Mountains as suitable desert bighorn habitat due to the lack of water resources; however, these mountains would be considered suitable habitat with the addition of a reliable water source and provide connectivity to the Avawatz Mountains, which were mapped as a core habitat for desert bighorn sheep (Penrod et al. 2012).

No identified wildlife corridors exist within the project property, nor is any part of the project property within a wildlife connectivity area as mapped in the BLM's *A Linkage Network for the California Deserts* or the *California Essential Habitat Connectivity Project* (Spencer et al. 2010). The habitat types at the project area are dominated by low vegetation, grasslands, and widely spaced shrubs, which do not pose a physical barrier to the movements of most wildlife species. There is little topographic relief within the project area that would serve to funnel or direct wildlife movement into any particular areas or in specific directions.

Washes present in the study area are landscape features that are the most likely to represent wildlife movement corridors locally; however, there is no evidence that they provide avenues for concentrations of wildlife. Further, there is no riparian vegetation to support concentrations of wildlife. Migratory birds passing through the area may utilize the site for breeding, nesting, foraging, or transient rest sites. However, there are no significant stopover sites in the vicinity of the project, as there are no riparian habitats or water bodies with abundant resources to attract concentrations of birds.

Finally, the site does not support wildlife nursery sites such as bat maternity roosts or nesting bird colonies. Thus, the project would not 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.

Implementation of APM BIO-12, APM BIO-17, APM BIO-19, APM BIO-21, APM BIO-26, APM BIO-27, APM BIO-35, and APM BIO-37 as part of the project would avoid or substantially lessen potentially significant impacts to wildlife movement, to the extent feasible. Additionally, the implementation of MM BIO-6 and MM BIO-17 would ensure that the project does not impede the movement of wildlife. Specifically, MM BIO-6 requires fences to be installed around the project that are designed to allow for the passage of wildlife. Depending on the fencing material, the bottom of the fence line should have gaps of approximately 4 to 6 inches and be knuckled back to create a smooth edge. Alternate designs may also be constructed with prior written approval from CDFW and USFWS. Further, MM BIO-17 establishes lighting specifications to minimize impacts to bird and bat habitats including minimizing night lighting during construction by using shielded directional lighting that points downward, thereby avoiding illumination to adjacent natural areas and the night sky.

Therefore, the implementation of Mitigation Measures APM BIO-12, APM BIO-17, APM BIO-19, APM BIO-21, APM BIO-26, APM BIO-27, APM BIO-35, APM BIO-37, MM BIO-6, and MM BIO-17 would minimize potential impacts to the movement of wildlife to **less than significant with mitigation.**

Impact BIO-4: Would the conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? (No Impact)

The project is located entirely on federally owned land managed by the BLM and is therefore not subject to local regulations and policies. However, to comply with CEQA and for informational purposes, San Bernardino County policies are included in Section 2.3 Local Regulations. Implementation of the APMs and the MMs identified in this EIR would ensure consistency with San Bernardino County regulations and policies adopted for the purpose of avoiding or minimizing environmental impacts. Therefore, the project would not result in a conflict with local policies and ordinances; there would be **no impact**.

Impact BIO-5: Would the conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? (Less than Significant)

The project gen-tie falls within the Soda Mountains Expansion ACEC. ACECs areas where the BLM has determined that important historical, cultural, scenic, fish and wildlife, or other natural resources occur; and special protection is warranted. In addition, ACECs may be designated for safety in areas with natural hazards. The Soda Mountains Expansion ACEC abuts the northern edge of I-15 and encompasses 16,720 acres between I-15 and the Soda Mountain Wilderness Study area. It was designated to protect plant and wildlife connectivity between surrounding wilderness and wilderness study areas.

Transmission activities are allowed in ACECs within the DRECP, as described in CMA ACEC-LANDS-1 (BLM 2016). Disturbance within each ACEC in the DRECP is limited to a specified percentage of the total ACEC area, as described in CMA ACEC-DIST-1; for the Soda Mountain Expansion ACEC the disturbance is capped at 1%.

The Soda Mountains Expansion ACEC was designated as a part of the DRECP LUPA in September 2016 (BLM 2016), after the project ROD was issued in March 2016. The project is consistent with that described in the project ROD, and therefore the project would not need to conform to the Conservation and Management Actions outlined in the DRECP that would otherwise apply to activities within this ACEC. Nevertheless, an analysis of the potential impacts is appropriate. Construction and operation of the project gen-tie would impact up to 36 acres of the Soda Mountains Expansion ACEC, approximately 0.22% of its total area. The gen-tie construction would temporarily disrupt wildlife activity in the area, and temporarily and permanently remove some habitat for plants and wildlife.

There are no other federal, state, or local designated conservation areas within or directly adjacent to the project area. Within 10 miles, there is no USFWS-designated critical habitat for ESA-listed species, no USFWS-authorized habitat conservation plans, and no CDFW natural community conservation plans.

Therefore, the project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan and the impact is **less than significant**.

3.4.5 Mitigation Measures

APMs specific to the proposed project are provided in Section 3.4.4.3. Additional mitigation measures with the potential to decrease the project's impact to biological resources are provided below:

MM BIO-1: Best Management Practices. To reduce indirect impacts to special-status plants and wildlife that may occur in the study area, BMPs shall be implemented prior to and during construction to control dust pollution, prevent discharge of potentially harmful chemicals, and prevent changes in hydrology. BMPs may include the installation of erosion and sedimentation control devices, applying water to control dust, placing drip pans under equipment when not in use, refueling in designated areas, and containing concrete washout properly, among other practices.

MM BIO-2: Worker Environmental Awareness Program. Prior to project initiation, the Designated Biologist shall develop and implement the WEAP (APM BIO-12), which will be available in English and Spanish. Wallet-sized cards summarizing the information shall be provided to all construction and operation and maintenance personnel. The WEAP shall include the following:

- An explanation of the sensitivity of the vegetation communities and special-status plant and wildlife species within and adjacent to work areas, and proper identification of these resources.

- Biology and status of the desert tortoise, golden eagle, burrowing owl, other nesting birds, desert bighorn sheep, kit fox, and American badger and measures to reduce potential effects on these species.
- Actions and reporting procedures to be used if desert tortoise, burrowing owl, other nesting birds, desert bighorn sheep kit fox, or American badger are encountered.
- An explanation of the function of flagging that designates authorized work areas.
- Driving procedures and techniques to reduce mortality of wildlife on roads.
- Discussion of the federal ESA and CESA, BGEPA, and MBTA and the consequences of non-compliance with these acts.
- The importance of avoiding the introduction of invasive weeds onto the project area and surrounding areas.
- A discussion of general safety protocols such as hazardous substance spill prevention and containment measures and fire prevention and protection measures.
- A review of mitigation requirements that are applicable to their work.

MM BIO-3: Special-Status Plant Species and Cacti Impact Avoidance and Minimization. This measure will provide guidance on how project personnel can avoid unintended impacts to special-status plants on the project area (e.g., Utah vine milkweed) and provide for the salvage of protected cacti prior to construction. This measure includes the following requirements:

- The applicant shall establish Environmentally Sensitive Areas around Utah vine milkweed that has been identified on the project area and/or may be identified in project disturbance areas during site preparation. A minimum 100-foot exclusion area shall be established around the plants, which shall be clearly identified and maintained throughout construction to ensure that avoided plants are not inadvertently harmed. ESAs shall be clearly delineated in the field with temporary construction fencing and signs prohibiting movement of the fencing or sediment controls under penalty of work stoppages or compensatory mitigation.
- *Worker Environmental Awareness Program*. The WEAP (APM BIO-12; MM BIO-2) shall include training components specific to protection of special-status plants that occur on the project area.
- *Herbicide and Soil Stabilizer Drift Control Measures*. Special-status plant occurrences within 100 feet of the project disturbance area, including Utah vine milkweed, shall be protected from herbicide and soil stabilizer drift. The IWMP includes measures to avoid chemical drift or residual toxicity to special-status plants consistent with guidelines such as those provided by the Nature Conservancy's Global Invasive Species Team (Hillmer and Liedtke 2003), the U.S. Environmental Protection Agency, and the Pesticide Action Network Database.
- *Erosion and Sediment Control Measures*. Erosion and sediment control measures shall not inadvertently impact special-status plants (e.g., by using invasive or non–Mojave Desert native plants in seed mixtures, introducing pest plants through contaminated seed or straw, etc.). These measures shall be incorporated in the Comprehensive Drainage, Stormwater, and Sedimentation Control Plan.
- *Preconstruction Vegetation Salvage*. The applicant shall provide a draft Vegetation Resources Management Plan detailing the methods for the salvage and transplantation of target succulent species covered under the CDNPA. The plan shall be submitted to CDFW for review and approval

at least 30 days prior to the start of ground-disturbing activities and shall include, at a minimum, the following elements:

a. **Soil baseline characterization**. The characterization shall be presented to CDFW prior to ground disturbance and shall include:

   i. Profile description of three representative pedons. (A pedon is the smallest three-dimensional sampling unit displaying the full range of characteristics of a particular soil and typically occupies an area ranging from about 1 to 10 square yards.)

   ii. Characterization of surface application (desert pavement or biological soil crust present). Description of biological soil crust shall include major groups of organisms identified at the site (filamentous cyanobacteria, other cyanobacteria, mosses, lichens, liverworts) and the characteristics by which they were identified (see item b, below).

   iii. Documentation of soil macro-invertebrates (that is, presence of ants, termites, and other significant macro-invertebrates).

- Bulk density, along with a reference to a generally accepted method for making the determination.
- Fertility (nutrient status, electrical conductivity, sodium adsorption ratio), along with methods by which composite samples were collected and the laboratory methods used to determine these properties. Composite samples will contain equal contributions from at least six randomly located collection points within the soil donor area.
- Organic matter content and total carbon and nitrogen content, along with a reference to generally accepted methods for making the determinations.

a. Soil compaction shall be determined by measurement of bulk density in grams per cubic centimeter (or numerically equivalent units). Bulk density may be determined by any of several standard measurements, but the method used must be referenced to a widely accepted soil methodology publication. In no case shall soil be compacted to a bulk density that exceeds 1.6 grams per cubic centimeter except where no planting is to take place. Penetrometer measurements are not a substitute for bulk density measurements.

   Once characterized, the top 3 inches of topsoil shall be salvaged from the areas where traditional grading will be used per the following protocol, and stored within the project area. The upper 0.25 inch may be collected separately to preserve biological crust organisms. Topsoil may not be distinguishable from subsoils by color or organic content at the time of salvage but is characterized as the layer that contains fine roots during the active growing season. Soil shall be collected, transported, and formed into stockpiles only while the soil is dry. The vegetation in place at or immediately before topsoil collection shall be healthy native vegetation with less than 15% absolute cover of exotic weed growth. Soil occupied by vegetation of high plant diversity shall be given priority over soil occupied by low-diversity native vegetation. Soil may be collected with a front loader, bulldozer, or scraper and transported to storage areas by front loader, dump truck, or scraper. The equipment transporting the soil may not travel across the stockpile more than the minimum number of times required to build the soil to its intended depth. The depth of the stockpiles shall not exceed 4 feet in the case of sandy loam or loamy sand soils. Topsoil stockpiles shall be kept dry and covered if no vegetation is introduced. If native vegetation is grown on the stockpiles to increase seeds and soil organisms, no cover is required. Artificial watering may be provided at the applicant's option.

   Stockpiled topsoil shall be used to grow native plant species for the purpose of producing native seeds and building beneficial microorganisms in the soil volume. All native plant species encountered in the vegetation surveys shall be included in the growing rotation on the

stockpiles. Most growing space needs to be dedicated to the species for which the most seeds shall be required. At least half by area of the growing area during each growing cycle shall be dedicated to plant species known to be good mycorrhizal host plants. Members of the families Chenopodiaceae and Amaranthaceae should be limited to less than half the area of the soil stockpiles, with the other half occupied by known mycorrhizal host plant species.

b. **Biological Soil Crust Characterization and Preservation.** Biological soil crust is defined here as a mixture of organisms that occupy and protect the surface of the soil in most desert ecosystems. The organisms often include filamentous and non-filamentous cyanobacteria, mosses, lichens, liverworts, and fungi. Biological soil crust shall be preserved by collecting the upper 0.25 inch of topsoil from areas to be graded. The applicant and/or its contractor(s) shall collect from specific areas known to contain biological crust organisms or collect upper soil from the entire area to be graded. Collections shall emphasize filamentous cyanobacteria, but other cyanobacteria, mosses, lichens, and liverworts are also considered valuable contributors to biological soil crust and important in protecting against erosion and reducing weed invasion, and shall be collected as a secondary priority. Soil surface crust shall be air dried and stored dry in a shaded location in containers that allow air movement, such as loose-weave fabric bags. In no case may the stored crust be subject to wetting or direct sunlight during storage. All containers shall be clearly labeled with date and location of original collection; name and contact information of persons responsible for identifying suitable material to collect; and the persons who collected, stored, and maintained collections. Biological soil crust shall be re-applied at the time of replanting by crumbling the stored material and broadcasting it on the surface of the soil. Approximately 10% of the stored material shall be broadcast on topsoil storage areas among plants being grown for seed and soil microorganisms. When the growing cycle progresses to new planting, the soil supporting biological crust shall be collected and stored by the same methods prescribed for collections from the original soil, in clearly labeled bags or other suitable containers.

c. **Succulent Transplant**. The majority of the succulent plants located in areas to be dragged, rolled, or spot graded, or above mowing height, shall be salvaged and transplanted into a nursery area. The Succulent Transplant portion of the Vegetation Resources Management Plan shall include, at a minimum:

   i. The location of target plants on the project area;

   ii. Criteria for determining which individual plants are appropriate for salvage;

   iii. The proposed methods for salvage, propagation, transport, and planting;

   iv. Procedures for identifying target species during preconstruction clearance surveys;

   v. Considerations for storing salvaged plants or pre-planting requirements; and

   vi. Suggested transplantation sites.

   Succulents to be transplanted into the nursery area shall be placed in their same compass orientation as they were in their original location. The salvaged plants also shall be kept in long-term soil stockpiles, along with natives grown on the stockpiles, to keep the soil biota fresh.

   Succulent transplants done during preparation of the project area shall be fully documented and serve as trials of methods to be used during plant salvage on the project area. Records shall be maintained for each transplanted specimen including species; height; number of branches or pads as appropriate; donor location by UTM coordinates; methods used to remove, transport, and store the plant; period of temporary storage; location; facility description; planting medium used for storage; and frequency of watering during storage. Records shall be kept at

the time of planting at the storage area, and quarterly thereafter during storage until such time as each plant is placed in the field or dies. Transplanted individuals shall be maintained for 3 years, including removal of invasive species and irrigation (if necessary), as well as monitored for 3 years to determine the percentage of surviving plants each year and to adjust maintenance activities using an adaptive management approach.

d. **Seed Collection**. Seed collection shall be carried out within the ROW grant area and within 10 miles of the boundaries of the project area on similar terrain, soil, exposure, slope and elevation to the project area. Seed collection guidelines shall conform to all laws and regulations in effect at the time of collection. Seed collection shall include all plant species known to be removed from the facility. If insufficient seeds are provided by "seed farming" and collection within 10 miles of the site, CDFW may approve collection from a greater distance provided other environmental factors at the collection site are good matches to the project area. Collected seed may be used to seed salvaged topsoil piles during the construction phase and after decommissioning related to restoring the project area.

e. If the palo verde trees on-site meet the CDFW size criterion for replacement (i.e., at least one stem greater than 2 inches in diameter) and cannot be salvaged based on the professional opinion of a qualified biologist/horticulturalist, three replacement plants shall be planted in or near the project area for each affected tree and monitored following the above guidance.

MM BIO-4: Biological Monitoring. Biological Monitor(s) shall be employed to assist the Designated Biologist in conducting preconstruction surveys and monitoring ground disturbance, grading, construction, decommissioning, and restoration activities. Additionally, biological monitoring shall be performed during any ground disturbance or grading activities that occur during operation and maintenance. The Biological Monitor(s) shall have sufficient education and field experience to understand resident wildlife species biology; have experience conducting desert tortoise, burrowing owl, kit fox, and badger field monitoring; and be able to identify these species and their sign (including active burrows). The Designated Biologist shall submit a resume, at least three references, and contact information for each prospective Biological Monitor to CDFW and USFWS for approval. To avoid and minimize effects on biological resources, the Biological Monitor(s) shall assist the Designated Biologist with the following:

- Be present during construction activities that take place in suitable habitat for desert tortoise, burrowing owl, kit fox, badger, or other protected species to prevent or minimize harm or injury to these species. This also includes unfenced construction activities for desert bighorn sheep.
- Activities of the Biological Monitor(s) include, but are not limited to, ensuring compliance with all avoidance and minimization measures; monitoring for desert tortoise, burrowing owl, kit fox, badger, and other protected species; halting construction activity in the area if an individual is found; and checking the staking/flagging of all disturbance areas to be sure that they are intact and that all construction activities are being kept within the staked/flagged limits. If a desert tortoise, burrowing owl, desert bighorn sheep, kit fox, badger, or other protected species is found within a work area, the Biological Monitor(s) shall immediately notify the Designated Biologist, who shall determine measures to be taken to ensure that the individual is not harmed.
- Inspect the study area for any special-status wildlife species.
- Ensure that potential habitats within the construction zone are not occupied by special-status species (e.g., potential burrows or nests are inspected).
- In the event of the discovery of a non-listed, special-status ground-dwelling animal, recover and relocate the animal to adjacent suitable habitat at least 200 feet from the limits of construction activities.

- At the end of each work day, inspect all potential wildlife pitfalls (e.g., trenches, bores, other excavations) for wildlife and remove wildlife as necessary. If the potential pitfalls will not be immediately backfilled following inspection, the Biological Monitor(s) will ensure that the construction crew slopes the ends of the excavation (3:1 slope), provides wildlife escape ramps, or completely and securely covers the excavation to prevent wildlife entry.
- Inspect the site to ensure trash and food-related waste is placed in closed-lid containers and that workers do not feed wildlife. Also inspect the work area each day to ensure that no microtrash (e.g., bolts, screws, etc.) is left behind.

MM BIO-5: Designated Biologist. The applicant shall assign at least one Designated Biologist to the project. The applicant shall submit the resume of the proposed Designated Biologist(s), with at least three references and contact information, to the BLM Authorized Officer for approval in consultation with CDFW and USFWS.

The Designated Biologist must meet the following minimum qualifications:

- Have a bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field;
- Have 3 years of experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society;
- Have at least 1 year of field experience with biological resources found in or near the study area;
- Meet the current USFWS Authorized Biologist qualifications criteria, demonstrate familiarity with protocols and guidelines for the desert tortoise, and be approved by the USFWS;
- Possess a CESA Memorandum of Understanding pursuant to Section 2081(a) for desert tortoise.

In lieu of the above requirements, the resume shall demonstrate to the satisfaction of the BLM Authorized Officer, in consultation with CDFW and USFWS, that the proposed Designated Biologist or alternate has the appropriate training and background to effectively implement the MMs.

MM BIO-6: Fence Design and Site Permeability. Permanent site fencing installed around the project should be designed to allow for the passage of wildlife, to the extent feasible given the need for the fencing to prevent ingress by desert tortoise. Depending on the fencing material, the fence line should have gaps of approximately 4 to 6 inches accessible to wildlife other than desert tortoise and the fencing material should be knuckled back to create a smooth edge. Alternate designs may also be constructed with prior written approval from CDFW and USFWS. Regardless, the project shall ensure that any such fence meets existing specifications that have been developed to preclude accidental entanglement of desert bighorn sheep, deer, and other animals.

Fencing should be sufficient to prevent desert bighorn sheep passage (e.g., 2m-2.5m tall chain-link) – should be installed at the corridor entrances between (a) the East Array and South Array 1, (b) South Array 1 and South Array 2, and (c) South Array 2 and South Array 3 on the east side (Figure 2, Project Design). Gaps of approximately 4 to 6 inches should occur at the bottom of the fence to allow small wildlife, mesocarnivores, coyote and American badger to pass under. Additionally, the project shall extend a line of project fencing to the north to connect with the wildlife exclusion fencing associated with the I-15 overcrossing structure (Figure 13, Fencing Plans of the Desert Bighorn Sheep Study). Approximately 1,640 linear feet of this can be accomplished within the existing project boundary, but the additional approximately 300 linear feet will need to be coordinated with BLM and possibly Caltrans. The project will secure the necessary encroachment permits or other mechanism to continue fencing between the project boundary and the wildlife exclusion fencing associated with the I-15 overcrossing

structure. Care should be taken when connecting the fences to make sure that they are physically connected or directly abut one another such that wildlife can't pass through or get stuck between them. The ultimate fencing plans should be reviewed by CDFW for final approval prior to site disturbance activities.

MM-BIO-7: Compliance Monitoring by the Designated Biologist. Prior to ground-disturbing activities, an individual shall be designated and approved by CDFW as a Designated Biologist (i.e., field contact representative). Designated Biologist qualifications are presented below.

The Designated Biologist shall be employed for the period during which ongoing construction and postconstruction monitoring and reporting by an approved biologist is required. Each successive Designated Biologist shall be approved by CDFW. The Designated Biologist shall have the authority to ensure compliance with all measures set forth in the BO and CESA Section 2081 take authorization and with all MMs included herein, and shall be the primary agency contact for the implementation of these measures. The Designated Biologist shall have the authority and responsibility to halt any project activities that are in violation of the terms of the BO, Section 2081 take authorization, or project MMs. A list of responsibilities of the Designated Biologist is summarized below.

To avoid and minimize effects to biological resources, the Designated Biologist shall:

- Notify CDFW and USFWS at least 14 calendar days before initiation of ground-disturbing activities.
- Immediately notify the CDFW in writing if the applicant/owner does not comply with any of the MMs or terms of the BO and/or the Section 2081 take authorization including, but not limited to, any actual or anticipated failure to implement such measures within the periods specified.
- Ensure performance of daily compliance inspections during ongoing construction as clearing, grubbing, and grading are completed, and submit a monthly compliance report to CDFW until construction is complete.

MM BIO-8: Speed Limits. Speed limits along all access roads outside of permanent desert tortoise fencing shall not exceed 15 mph to minimize dust during construction activities. Speed limits within permanent desert tortoise fencing shall not exceed 25 mph to minimize impacts during operation and maintenance. Nighttime vehicle traffic associated with project activities shall be kept to a minimum volume and speed (maximum of 15 mph) to prevent mortality of nocturnal wildlife species.

MM BIO-9: Desert Tortoise Protection. The applicant/owner shall undertake appropriate measures to manage the construction site and related facilities in a manner to avoid or minimize impacts to desert tortoise. Methods for clearance surveys, fence specification and installation, tortoise handling, artificial burrow construction, egg handling, and other procedures shall be consistent with those described in the USFWS's *Desert Tortoise (Mojave Population) Field Manual* (USFWS 2009) or more current guidance provided by CDFW and USFWS. The applicant/owner shall also implement all terms and conditions described in the BO to be prepared by USFWS and CESA ITP. These measures include, but are not limited to, the following, subject to modification by the terms of incidental take authorizations issued by the USFWS and CDFW:

- ***Desert Tortoise Fencing along I-15.*** If required by CDFW, to avoid increases in vehicle-related mortality from disruption of local movement patterns along the existing ephemeral wash systems, desert tortoise-proof fencing shall be installed along the existing freeway ROW fencing on both sides of I-15 for the entire east-west dimension of the project area. The tortoise fencing shall be designed to direct tortoises to existing undercrossing to provide safe passage under the freeway and shall be regularly inspected and maintained for the life of the project.

- ***Desert Tortoise Exclusion Fence Installation.*** To avoid impacts to desert tortoise, permanent desert tortoise exclusion fencing shall be installed along the permanent perimeter security fence and temporarily installed along road corridors during construction. The proposed alignments for the permanent perimeter fence and temporary fencing shall be flagged and surveyed within 24 hours prior to the initiation of fence construction. Clearance surveys of the perimeter fence and temporary fencing areas shall be conducted by the Designated Biologist(s) using techniques outlined in the USFWS's *Desert Tortoise (Mojave Population) Field Manual* and may be conducted in any season with USFWS and CDFW approval. Biological Monitors may assist the Designated Biologist under his or her supervision. These fence clearance surveys shall provide 100% coverage of all areas to be disturbed and an additional transect along both sides of the fence line covering an area approximately 90 feet wide centered on the fence alignment. Transects shall be no greater than 15 feet apart. All desert tortoise burrows and burrows constructed by other species that might be used by desert tortoise shall be examined to assess occupancy of each burrow by desert tortoise and handled in accordance with the USFWS's *Desert Tortoise Field Manual*. Any desert tortoise located during fence clearance surveys shall be handled by the Designated Biologist in accordance with the USFWS's 2009 *Desert Tortoise (Mojave Population) Field Manual* (USFWS 2009).

  a. *Timing, Supervision of Fence Installation*. The exclusion fencing shall be installed prior to the onset of site clearing and grubbing. The fence installation shall be supervised by the Designated Biologist and monitored by the Biological Monitors to ensure the safety of any tortoise present.

  b. *Fence Material and Installation*. The permanent tortoise exclusionary fencing shall be constructed in accordance with the USFWS's *Desert Tortoise (Mojave Population) Field Manual* (Chapter 8 – Desert Tortoise Exclusion Fence) (USFWS 2009).

  c. *Security Gates*. Security gates shall be designed with minimal ground clearance to deter ingress by tortoises. The gates may be electronically activated to open and close immediately after the vehicle(s) have entered or exited to prevent the gates from being kept open for long periods of time. Cattle grating designed to safely exclude desert tortoise shall be installed at the gated entries to discourage tortoises from gaining entry.

  d. *Fence Inspections*. Following installation of the desert tortoise exclusion fencing for both the permanent site fencing and temporary fencing, the fencing shall be regularly inspected. If tortoises were moved out of harm's way during fence construction, permanent and temporary fencing shall be inspected at least two times per day for the first 7 days to ensure a recently moved tortoise has not been trapped within the fence. Thereafter, permanent fencing shall be inspected monthly and during or within 24 hours following all major rainfall events. Exceptions to inspections during major rainfall events may be made as needed to maintain crew safety. A major rainfall event is defined as one for which flow is detectable within the fenced drainage. Any damage to the fencing shall be temporarily repaired immediately to keep tortoises out of the site, and permanently repaired within 48 hours of observing damage. Inspections of permanent site fencing shall occur for the life of the project. Temporary fencing shall be inspected weekly and, where drainages intersect the fencing, during and within 24 hours following major rainfall events. All damaged temporary fencing shall be repaired immediately upon discovery and, if the fence may have permitted tortoise entry while damaged, the Designated Biologist shall inspect the area for tortoise.

- ***Desert Tortoise Clearance Surveys within Solar Arrays and Gen-tie.*** Clearance surveys shall be conducted in accordance with the USFWS *Desert Tortoise (Mojave Population) Field Manual* (USFWS 2009) (Chapter 6 – Clearance Survey Protocol for the Desert Tortoise – Mojave Population) and shall consist of two surveys covering 100% of the study area by walking

transects no more than 15 feet apart. If a desert tortoise is located during the second survey, a third survey shall be conducted. Each separate survey shall be walked in a different direction to allow opposing angles of observation. Clearance surveys of the project area may only be conducted when tortoises are most active (April–May or September–October) unless the project receives approval from CDFW and USFWS. Clearance surveys of linear features may be conducted during any time of the year. Any tortoise located during clearance surveys of solar arrays shall be translocated or relocated and monitored in accordance with the DTTP (MM 3.4-2b). The Designated Biologist, who may be assisted by the Biological Monitors, shall assess occupancy of each burrow by desert tortoise in accordance with the USFWS *Desert Tortoise (Mojave Population) Field Manual* (USFWS 2009). All potential desert tortoise burrows located during clearance surveys shall be excavated by hand, tortoises removed, and burrows collapsed or blocked to prevent occupation by desert tortoise in accordance with the DTTP.

- ***Monitoring Following Clearing*.** Following the desert tortoise clearance and removal from the project area, workers and heavy equipment shall be allowed to enter the project area to perform clearing, grubbing, leveling, and trenching activities. A Designated Biologist or Biological Monitor shall be on-site for clearing and grading activities to move tortoises missed during the initial tortoise clearance survey. Should a tortoise be discovered, it shall be relocated or translocated as described in the DTTP.
- ***Reporting*.** The Designated Biologist shall record the following information for any desert tortoise handled: a) the locations (narrative and maps) and dates of observation; b) general condition and health, including injuries, state of healing and whether desert tortoise voided their bladders; c) location moved from and location moved to (using GPS); d) gender, carapace length, and diagnostic markings (i.e., identification numbers or marked lateral scutes); e) ambient temperature when handled and released; and f) digital photograph of each handled tortoise. Desert tortoise moved from within the project area shall be marked and monitored in accordance with the DTTP. All collected data related to tortoise relocation shall be provided to CDFW and USFWS.

MM BIO-10: Desert Tortoise Translocation Plan. The applicant/owner shall develop and implement a USFWS- and CDFW-approved DTTP. The DTTP, which shall be approved prior to any ground disturbance or tortoise relocation, shall include measures to minimize the potential for repeated translocations of individual desert tortoise. The goals of the DTTP shall be to relocate all desert tortoise from the project area to nearby suitable habitat; minimize impacts on resident desert tortoise outside the project area; minimize stress, disturbance, and injuries to relocated/translocated tortoises; and assess the success of the translocation effort through monitoring. The DTTP shall follow the *Translocation of Mojave Desert Tortoises from Project Sites: Plan Development Guidance* (USFWS 2011b) and shall clearly define how it addresses the 11 steps outlined in the guidance. The final DTTP shall be based on the draft DTTP prepared by the applicant/owner and shall include all revisions deemed necessary by CDFW and USFWS. The final plan will be subject to modification for consistency with the CESA ITP, USFWS take authorization and/or BO conservation requirements.

MM BIO-11: Desert Tortoise Compliance Verification. The applicant/owner shall provide CDFW and USFWS staff with unfettered access to the project area and compensation lands under the control of the project owner and shall otherwise fully cooperate with the CDFW's efforts to verify the project owner's compliance with, or the effectiveness of, adopted MMs. The Designated Biologist shall do all of the following:

- ***Notification*.** Notify CDFW at least 14 calendar days before initiating construction-related ground disturbance activities; immediately notify CDFW in writing if the project owner is not in compliance with any conditions of certification, including but not limited to any actual or

anticipated failure to implement MMs within the time periods specified in the conditions of certification;

- ***Monitoring During Grubbing and Grading*.** Remain on-site daily while vegetation salvage, grubbing, grading, and other ground-disturbing construction activities are taking place to avoid or minimize take of listed species, and verify personally or have Biological Monitor(s) verify compliance with all impact avoidance and minimization measures, including checking all exclusion zones to ensure that signs, stakes, and fencing are intact and that human activities are restricted in these protective zones.
- ***Monthly Compliance Inspections*.** Conduct compliance inspections at a minimum of once per month after clearing, grubbing, and grading are completed and submit a monthly compliance report to CDFW and USFWS during construction.
- ***Notification of Injured or Dead Listed Species*.** If an injured or dead federally or state-listed species is detected on or near the project area CDFW and USFWS shall be notified immediately by phone. Notification shall occur no later than noon on the business day following the event if it occurs outside normal business hours so that the agencies can determine whether further actions are required to protect listed species. Written follow-up notification via facsimile or electronic communication shall be submitted to these agencies within 2 calendar days of the incident and include the following information as relevant:

    a. *Injured Desert Tortoise*. If a desert tortoise is injured as a result of project-related activities during construction, the Designated Biologist or Biological Monitor(s) shall immediately take it to a CDFW-approved wildlife rehabilitation and/or veterinarian clinic. Any veterinarian bills for such injured animals shall be paid by the applicant/owner. Following phone notification as required above, CDFW and USFWS shall determine the final disposition of the injured animal, if it recovers. Written notification shall include, at a minimum, the date, time, location, and circumstances of the incident and the name of the facility where the animal was taken.

    b. *Desert Tortoise Fatality*. If a desert tortoise is killed by project-related activities during construction, operation and maintenance, or decommissioning, a written report with the same information as an injury report shall be submitted CDFW and USFWS. These desert tortoises shall be salvaged according to federally established guidelines. The applicant/owner shall pay to have the desert tortoises transported and necropsied. The report shall include the date and time of the finding or incident.

        1. ***Final Listed Species Mitigation Report.*** The Designated Biologist shall provide CDFW a Final Listed Species Mitigation Report that includes, at a minimum, 1) all available information about project-related incidental take of listed species; 2) information about other project impacts to the listed species; 3) construction dates; 4) an assessment of the effectiveness of conditions of certification in minimizing and compensating for project impacts; 5) recommendations on how MMs might be changed to more effectively minimize and mitigate the impacts of future projects on the listed species; and 6) any other pertinent information, including the level of take of the listed species associated with the project.

        2. ***Stop Work Order*.** CDFW may issue the project owner a written stop work order to suspend any activity related to the construction or operation of the project to prevent or remedy a violation of one or more conditions of certification (including but not limited to failure to comply with reporting, monitoring, or habitat acquisition obligations) or to prevent the illegal take of an endangered, threatened, or protected species. The project owner shall comply with the stop work order immediately upon receipt thereof.

MM BIO-12: Desert Tortoise Compensatory Mitigation: To fully mitigate for habitat loss and potential take of desert tortoise, the project owner shall provide compensatory mitigation consistent with federal requirements, adjusted to reflect the final project footprint. The acreage for mitigation of desert tortoise habitat will be at a 1:1 ratio. For the purposes of this condition, the project footprint means all lands disturbed in the construction and operation of the project, including all project linears, as well as undeveloped areas inside the project's boundaries that will no longer provide viable long-term habitat for the desert tortoise. To satisfy this condition, the project owner shall acquire, protect, and transfer 1 acre of desert tortoise habitat for every acre of habitat within the final project footprint, and provide associated funding for the acquired lands, as specified below. In lieu of acquiring land itself, the project owner may satisfy the requirements of this condition by depositing funds into the Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF), as provided below in Section 3.i. of this measure.

If compensation lands are acquired in fee title or in easement, the requirements for acquisition, initial improvement, and long-term management of compensation lands include all of the following, subject to modification by the terms of incidental take authorizations issued by USFWS and CDFW:

- ***Selection Criteria for Compensation Lands*.** The compensation lands selected for acquisition in fee title or in easement shall:
    a. be within the Western Mojave Recovery Unit, or, with prior USFWS and CDFW approval, within the Eastern Mojave Recovery Unit as defined in the 2011 Revised Recovery Plan (USFWS 2011b), with potential to contribute to desert tortoise habitat connectivity and build linkages between desert tortoise designated critical habitat, known populations of desert tortoise, and/or other preserve lands;
    b. provide habitat for desert tortoise with capacity to regenerate naturally when disturbances are removed;
    c. be prioritized near larger blocks of land that are either already protected or planned for protection, such as Desert Wildlife Management Areas within the Western Mojave Recovery Unit (or nearby portions of the Eastern Mojave Recovery Unit with prior USFWS and CDFW approval) or which could feasibly be protected long term by a public resource agency or a non-governmental organization dedicated to habitat preservation;
    d. be connected to lands with desert tortoise habitat equal to or better quality than the project area, ideally with populations that are stable, recovering, or likely to recover;
    e. not have a history of intensive recreational use or other disturbance that does not have the capacity to regenerate naturally when disturbances are removed or might make habitat recovery and restoration infeasible;
    f. not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration;
    g. not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat; and
    h. have water and mineral rights included as part of the acquisition, unless BLM and CDFW, in consultation with CDFW and USFWS, agree in writing to the acceptability of the land.
- ***Review and Approval of Compensation Lands Prior to Acquisition*.** The project owner shall submit a formal acquisition proposal to BLM, CDFW, and USFWS describing the parcel(s) intended for purchase. This acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands for desert tortoise in relation to the criteria listed above.

Approval from the BLM and CDFW in consultation with USFWS shall be required for acquisition of all compensatory mitigation parcels.

- ***Compensation Lands Acquisition Requirements.*** The project owner shall comply with the following requirements relating to acquisition of the compensation lands after BLM, in consultation with CDFW and USFWS, have approved the proposed compensation lands:

  a. *Preliminary Report*. The project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the BLM. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by BLM and CDFW, in consultation with USFWS. For conveyances to the State, approval may also be required from the California Department of General Services, the Fish and Game Commission, and the Wildlife Conservation Board.

  b. *Title/Conveyance*. The project owner shall transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement as required by the BLM and CDFW. Transfer of either fee title or an approved conservation easement will usually be sufficient, but some situations, e.g., the donation of lands burdened by a conservation easement to BLM, will require that both types of transfers be completed. Any transfer of a conservation easement or fee title must be to CDFW, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or BLM under terms approved by the BLM. If an approved non-profit organization holds title to the compensation lands, a conservation easement shall be recorded in favor of CDFW in a form approved by CDFW. If an approved non-profit holds a conservation easement, CDFW shall be named a third-party beneficiary.

  c. *Initial Habitat Improvement Fund*. The project owner shall fund the initial protection and habitat improvement of the compensation lands. Alternatively, a non-profit organization may hold the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to California Government Code Section 65965) and if it meets the approval of CDFW and BLM. If CDFW takes fee title to the compensation lands, the habitat improvement fund must be paid to CDFW or its designee.

  d. *Property Analysis Record*. Upon identification of the compensation lands, the project owner shall conduct a Property Analysis Record (PAR) or PAR-like analysis to establish the appropriate long-term maintenance and management fee to fund the in-perpetuity management of the acquired mitigation lands.

  e. *Long-term Maintenance and Management Fund*. The project owner shall deposit in NFWF's REAT Account a capital long-term maintenance and management fee in the amount determined through the PAR or PAR-like analysis conducted for the compensation lands. BLM, in consultation with CDFW, may designate another non-profit organization to hold the long-term maintenance and management fee if the organization is qualified to manage the compensation lands in perpetuity. If CDFW takes fee title to the compensation lands, CDFW shall determine whether it will hold the long-term management fee in the special deposit fund, leave the money in the REAT Account, or designate another entity to manage the long-term maintenance and management fee for CDFW and with CDFW supervision.

  f. *Interest, Principal, and Pooling of Funds.* The project owner, BLM, and CDFW shall ensure that an agreement is in place with the long-term maintenance and management fee holder/manager to ensure the following conditions:

     i. Interest. Interest generated from the initial capital long-term maintenance and management fee shall be available for reinvestment into the principal and for the long-

term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action approved by CDFW designed to protect or improve the habitat values of the compensation lands.

ii. Withdrawal of Principal. The long-term maintenance and management fee principal shall not be drawn upon unless such withdrawal is deemed necessary by CDFW or the approved third-party long-term maintenance and management fee manager to ensure the continued viability of the species on the compensation lands. If CDFW takes fee title to the compensation lands, monies received by CDFW pursuant to this provision shall be deposited in a special deposit fund established solely for the purpose to manage lands in perpetuity unless CDFW designates NFWF or another entity to manage the long-term maintenance and management fee for CDFW.

iii. Pooling Long-Term Maintenance and Management Fee Funds. CDFW, or a BLM- and CDFW-approved non-profit organization qualified to hold long-term maintenance and management fees solely for the purpose to manage lands in perpetuity, may pool the endowment with other endowments for the operation, management, and protection of the compensation lands for local populations of desert tortoise. However, for reporting purposes, the long-term maintenance and management fee fund must be tracked and reported individually to the CDFW.

g. *Other expenses*. In addition to the costs listed above, the project owner shall be responsible for all other costs related to acquisition of compensation lands and conservation easements, including but not limited to title and document review costs; expenses incurred from other state agency reviews; overhead related to providing compensation lands to CDFW or an approved third party; escrow fees or costs; environmental contaminants clearance; and other site cleanup measures.

h. *Mitigation Securit*y. The project owner shall provide financial assurances to the BLM and CDFW with copies of the document(s) to the USFWS, to guarantee that an adequate level of funding is available to implement the MMs described in this condition. These funds shall be used solely for implementation of the measures associated with the project in the event the project owner fails to comply with the requirements specified in this condition, or shall be returned to the project owner upon successful compliance with the requirements in this condition. The BLM's or CDFW's use of the security to implement measures in this condition may not fully satisfy the project owner's obligations under this condition. Financial assurance can be provided to the BLM and CDFW in the form of an irrevocable letter of credit, a pledged savings account, or another form of security ("Security"). Prior to submitting the Security to the BLM, the project owner shall obtain the BLM's approval in consultation with CDFW and the USFWS of the form of the Security. The actual costs to comply with this condition will vary depending on the final footprint of the project and the actual costs of acquiring, improving, and managing the compensation lands.

i. *NFWF REAT Account*. The project owner may elect to fund the acquisition and initial improvement of compensation lands through NFWF by depositing funds for that purpose into NFWF's REAT Account. Initial deposits for this purpose must be made in the same amounts as the security required above, and may be provided in lieu of security. If this option is used for the acquisition and initial improvement, the project owner shall make an additional deposit into the REAT Account if necessary to cover the actual acquisition costs and administrative costs and fees of the compensation land purchase once land is identified and the actual costs are known. If the actual costs for acquisition and administrative costs and fees are less than anticipated in the PAR analysis, the excess money deposited in the REAT

Account shall be returned to the project owner. Money deposited for the initial protection and improvement of the compensation lands shall not be returned to the project owner.

The responsibility for acquisition of compensation lands may be delegated to a third party other than NFWF, such as a non-governmental organization supportive of desert habitat conservation, by written agreement of the BLM and CDFW. Such delegation shall be subject to approval by the BLM and CDFW, in consultation with USFWS, prior to land acquisition, initial protection, or maintenance and management activities. Agreements to delegate land acquisition to an approved third party, or to manage compensation lands, shall be implemented with 18 months of BLM's approval.

MM BIO-13: Minimize Vehicle and Equipment Impacts during Operation and Maintenance. The applicant/owner shall implement measures to minimize the potential for desert tortoise and other wildlife species mortality along access and maintenance roads. These measures shall include:

- Speed limits identified in MM BIO-8 shall continue to be applied during operation and maintenance.
- Pedestrian access outside the limits of the designated access/maintenance roads is permitted year-round as long as no ground-disturbing activities take place.
- Vehicle traffic and parking shall be confined to designated access roads, and equipment and materials staging areas shall be clearly defined to avoid impacting habitat during the operation phase.

MM BIO-14: Mojave Fringe-toed Lizard Protection Measures. A qualified biologist will conduct a focused survey for Mojave fringe-toed lizard prior to ground disturbance in suitable habitat (aeolian sand deposits) within all active work areas. Two survey replicates will be performed during the Mojave fringe-toed lizard active season (March–October) during appropriate weather conditions. Qualified biologists will walk transects spaced 10m apart throughout areas with suitable habitat within the study area. Detections of Mojave fringe-toed lizard will be recorded using a GPS unit. If Mojave fringe-toed lizards are not detected, then no further action is needed. If Mojave fringe-toed lizards are found, then a pre-construction survey should be conducted no more than one week before ground disturbance begins, and any Mojave fringe-toed lizards should be moved to suitable habitat south of the Project area where the species was confirmed to be present.

MM BIO-15: Avian Monitoring and Mitigation Program. An Avian Monitoring and Mitigation Program (AMMP) shall be initiated and approved by the BLM in consultation with CDFW and USFWS prior to construction and continue for at least 5 years following commercial operation (and longer if determined necessary and appropriate by the Designated Biologist). The AMMP shall prevent substantial adverse effects to special-status species through implementation of the approach outlined in the postconstruction monitoring and adaptive management provisions of Region 8 Interim Guidelines for the Development of a Project-specific Avian and Bat Protection Plan for Solar Energy Plants and Related Transmission Facilities (USFWS 2010), in conjunction with any measures required after consultation with USFWS and/or CDFW under the ESA, CESA, or BGEPA, if applicable. The Program shall use surveys and monitoring of on-site avian and bat use and behavior to document species composition and changes in avian and bat use over time. The purpose of the AMMP is to provide an adaptive management and decision-making framework for reviewing, characterizing, and responding to avian and bat monitoring results, and reducing long-term impacts on these taxa. The AMMP shall include the following components:

- A description of the baseline and ongoing avian and bat survey methods, including identification of onsite survey locations and seasonal survey considerations, and a description of acoustic bat monitoring methods.

- Avian and bat mortality and injury monitoring that includes:
    a. Onsite monitoring of representative locations in the facility, at a level of effort that accounts for potential spatial bias and allows for the extrapolation of survey results to non-surveyed areas. The AMMP will provide a rationale justifying the proposed schedule of carcass searches.
    b. Low-visibility and high-wind weather event monitoring to document potential weather-related collision risks that may be associated increased risk of avian or bat collisions with project features, including foggy, highly overcast, or rainy night-time weather typically associated with an advancing frontal system, and high wind events (40-mph winds) are sustained for period of greater than 4 hours. The monitoring report shall include survey frequency, locations, and methods.
    c. Scavenger and searcher efficiency trials to document the extent to which avian or bat fatalities remain visible over time and can be detected, and to adjust the survey timing and survey results to reflect scavenger and searcher efficiency rates.
    d. A description of statistical methods used to generate facility estimates of potential avian and bat impacts based on the number of detections during standardized searches during the monitoring season for which the cause of death can be determined.
    e. Field detection and mortality or injury identification, cause attribution, handling and reporting requirements. The AMMP shall include detailed specifications on data collection and provide a carcass collection protocol.
- All postconstruction mortality monitoring studies included in the AMMP shall be performed by a -third party contractor for 5 years following commercial operation and approval of the AMMP by the BLM. At the end of the 5-year period, the BLM shall determine whether the survey program shall be continued.
- An adaptive management program shall be developed to identify and implement reasonable and feasible measures that would reduce levels of avian or bat mortality or injury attributable to project operations and facilities. Such measures could potentially include efforts to make panels more visible to birds (e.g., white borders around panel edges or the use of noise deterrents).

The adaptive management program shall include (i) reasonable measures for characterizing the extent and importance of detected mortality and injuries clearly attributable to the project; (ii) potential measures that the project owner could implement to adaptively respond to detected mortality and injuries attributable to the project. Adaptive actions undertaken will be discussed and evaluated in survey reports. Any impact reduction measures must be commensurate (in terms of factors that include geographic scope, costs, and scale of effort) with the level of avian or bat mortality or injury that is specifically and clearly attributable to the project facilities; and (iii) Appropriate performance standards for mitigation of impacts to any species regulated by BGEPA, ESA, and CESA as well as MMs that reduce or offset mortalities caused by the project to a level that avoids a substantial, long-term reduction in the demographic viability of the local population of the species in question.

MM BIO-16. Avoid Disturbance to Nesting Birds. Vegetation clearing shall take place outside of the general avian breeding season (February 15–September 1), when feasible. If vegetation clearing cannot occur outside the avian breeding season, the Designated Biologist/Biological Monitor(s) shall conduct a preconstruction survey for nesting birds no more than 3 days prior to vegetation clearing. If no active nests are found, clearing can proceed. If active nests are found, no clearing shall be allowed within 150 feet (for passerines) to 250 feet (for raptors) of the active nests until the Designated Biologist/Biological Monitor(s) determines the nest is no longer active or the nest fails. Based on

observation of the individual birds' tolerance to human activity, this buffer may be reduced by a qualified biologist. Encroachment into the buffer may occur at the discretion of a qualified biologist.

The Designated Biologist/Biological Monitor(s) shall submit the results of the preconstruction nesting bird surveys to BLM, USFWS, and CDFW. Following agency coordination, the size of the next buffer may be adjusted based upon the magnitude of proposed activities and observed sensitivity of the bird to disturbance.

MM BIO-17: Lighting Specifications to Minimize Bird and Bat Impacts. The applicant/owner shall minimize night lighting during construction by using shielded directional lighting that is pointed downward, thereby avoiding illumination to adjacent natural areas and the night sky.

MM BIO-18: Bird and Bat Conservation Strategy (BBCS). The applicant/owner shall develop a BBCS to address project impacts to special-status avian and bat species that shall be consistent with the Region 8 *Interim Guidelines for the Development of a Project-specific Avian and Bat Protection Plan for Solar Energy Plants and Related Transmission Facilities* (USFWS 2010). The applicant/owner shall submit the BBCS to the CDFW and USFWS for review and approval prior to initiation of project construction. The BBCS shall include an assessment of potential avian and bat impacts from lighting, noise, collision, electrocution, and attraction of ravens, as applicable; measures to mitigate for the effects to birds; a description of general avoidance and minimization measures applicable during construction, operation and maintenance, and postconstruction to include nest management and postconstruction monitoring; a description of the reporting requirements and reporting schedule and duration; and the adaptive management strategy. A raven management element shall be included in the BBCS or provided separately that includes measures such as storage of garbage in raven-proof containers and installation of anti-nesting devices on structures where raven nests could be built.

MM BIO-19: Burrowing Owl Protection Measures. No more than 14 days prior to the start of ground disturbance, a preconstruction survey for burrowing owls in conformance with the CDFW *Staff Report on Burrowing Owl Mitigation* (CDFW 2012) shall be completed within suitable habitat at every work area and within a 150-m buffer zone of each work area. Work areas will be resurveyed following periods of inactivity of 2 weeks or more. The applicant/owner shall submit the results of the preconstruction survey to BLM's Authorized Officer and CDFW. The applicant/owner shall also submit evidence of conformance with federal and state regulations regarding the protection of the burrowing owl by demonstrating compliance with the following:

- Unless otherwise authorized by BLM and CDFW, no disturbance shall occur within 160 feet (50 m) of occupied burrows during the non-breeding season (September 1–January 31) or within 650 feet (200 m) during the breeding season (February 1–August 31). Eviction outside the nesting season may be permitted pending evaluation of eviction plans (developed in accordance with CDFW protocol for burrowing owls) by CDFW and receipt of formal written approval from CDFW authorizing the eviction. A Burrowing Owl Mitigation and Monitoring Plan following the guidance in the CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFW 2012) shall be submitted to the BLM's Authorized Officer and CDFW for review and approval prior to passive relocation.
- In the event that an occupied burrow cannot be avoided, passive relocation of owls may be implemented prior to construction activities only if a qualified biologist approved by BLM verifies through non-invasive methods that either the birds have not begun egg-laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival. Eviction outside the nesting season may be permitted pending evaluation of eviction plans (developed in accordance with BLM protocol for burrowing owls) by CDFW and receipt of formal written approval from BLM authorizing the eviction. A Burrowing

Owl Mitigation and Monitoring Plan shall be submitted to the BLM, and CDFW for review and approval prior to passive relocation.

- Occupied burrows shall not be disturbed during the nesting season (February 1–August 31). In the event that an occupied burrow absolutely cannot be avoided (e.g., due to physical or safety constraints), passive relocation of owls may be implemented prior to construction activities only if a qualified biologist approved by CDFW verifies through non-invasive methods that either the birds have not begun egg-laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival.
- Unless otherwise authorized by CDFW, a 650-foot buffer within which no activity will be permissible shall be maintained between project activities and nesting burrowing owls during the nesting season. This protected area shall remain in effect until August 31 or at CDFW's discretion and, based on monitoring evidence, until the young owls are foraging independently.
- If accidental take (disturbance, injury, or death of owls) occurs, the Designated Biologist shall be notified immediately.
- Impacts to active burrowing owl territories shall be mitigated at a 1:1 ratio through a combination of off-site habitat compensation and/or off-site restoration of disturbed habitat capable of supporting this species. The acquisition of occupied habitat off-site shall be in an area where energy facilities would not pose a mortality risk. Acquisition of habitat shall be consistent with the CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). The preserved habitat shall be occupied by burrowing owl and shall be of superior or similar habitat quality to the impacted areas in terms of soil features, extent of disturbance, habitat structure, and dominant species composition, as determined by a qualified ornithologist. The site shall be approved by BLM and CDFW. Land shall be purchased and/or placed in a conservation easement in perpetuity and managed to maintain suitable habitat. The off-site area to be preserved can coincide with other off-site mitigation lands, with the approval of CDFW.
- The approved biologist shall remain on-site until all vegetation is cleared and, at a minimum, conduct site and fence inspections on a regular (monthly) schedule throughout construction to ensure that the project is in compliance with the MMs.
- Employees and contractors shall look under vehicles and equipment for the presence of wildlife prior to moving vehicles and equipment. If present, the animal shall be left to move on its own or until it is removed by the approved biologist. No listed species shall be handled without concurrence from USFWS and/or CDFW, as applicable.

MM BIO-20: American Badger and Desert Kit Fox Protection. To avoid direct impacts to American badger and desert kit fox, preconstruction surveys shall be conducted for these species concurrently with the desert tortoise surveys. Surveys shall be conducted as described below:

- Biological Monitors shall perform preconstruction surveys for badger and kit fox dens in the project disturbance area, including a 20-foot swath beyond the disturbed area, utility corridors, and access roads. If dens are detected, each den shall be classified as inactive, potentially active, or definitely active.
- Inactive dens that would be directly impacted by construction activities shall be excavated by hand and backfilled to prevent reuse by badgers or kit fox.
- Potentially and definitely active dens that would be directly impacted by construction activities shall be monitored by the Biological Monitor for 3 consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) and/or infrared camera stations at the entrance.

- If no tracks are observed in the tracking medium or no photos of the target species are captured after 3 consecutive nights, the den shall be excavated and backfilled by hand.
- If tracks are observed, the den shall be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) for the next three to five nights to discourage the badger or kit fox from continued use. After verification that the den is unoccupied it shall then be excavated and backfilled by hand to ensure that no badgers or kit fox are trapped in the den.
- If an active natal den is detected on the site, the BLM Authorized Officer and CDFW shall be contacted within 24 hours to determine the appropriate course of action to minimize the potential for harm or mortality. The course of action would depend on the age of the pups, location of the den on the site (e.g., is the den in a central area or in a perimeter location), status of the perimeter site fence (completed or not), and the pending construction activities proposed near the den. A 500-foot no-disturbance buffer shall be maintained around active natal dens.
- The following measures are required to reduce the likelihood of distemper transmission:
    a. No pets shall be allowed on the site prior to or during construction, with the possible exception of kit fox scat detection dogs during preconstruction surveys, and then only with prior CDFW approval;
    b. Any kit fox hazing activities that include the use of animal repellents such as coyote urine must be cleared through CDFW prior to use; and
    c. Any documented kit fox mortality shall be reported to CDFW and the BLM Authorized Officer within 24 hours of identification. If a dead kit fox is observed, it shall be retained and protected from scavengers until CDFW determines whether the collection of necropsy samples is justified.

MM BIO-21: Vegetation Best Management Practices. The applicant shall undertake the following measures to manage the construction site and related facilities in a manner to avoid or minimize impacts to vegetation resources:

- Limit Area of Disturbance. The boundaries of all areas to be disturbed (including staging areas, access roads, and sites for temporary placement of spoils) shall be delineated with stakes and flagging prior to construction activities in consultation with the Designated Biologist. Spoils and topsoil shall be stockpiled in disturbed areas within the project area. Parking areas and staging and disposal site locations shall similarly be located in areas without native vegetation or special-status species habitat. All disturbances, project vehicles, and equipment shall be confined to the flagged areas.
- Minimize Road Impacts. New and existing roads that are planned for construction, widening, or other improvements shall not extend beyond the flagged impact area as described above. All vehicles passing or turning around would do so within the planned impact area or in previously disturbed areas. Where new access is required outside of existing roads or the construction zone, the route shall be clearly marked (i.e., flagged and/or staked) prior to the onset of construction.
- Minimize Traffic Impacts. Vehicular traffic during project construction and operation shall be confined to existing routes of travel to and from the project area, and cross-country vehicle and equipment use outside designated work areas shall be prohibited.
- Monitor During Construction. In areas that have not been fenced with desert tortoise exclusion fencing and cleared, a Designated Biologist shall be present at the construction site during all project construction activities that have potential to disturb soil, vegetation, and wildlife.

The Designated Biologist or Biological Monitor shall review areas immediately ahead of equipment during brushing and grading activities.

- Minimize Impacts of Staging Areas. Staging areas for construction on the project area shall be within the area that has been fenced with desert tortoise exclusion fencing. For construction activities outside of the solar project area, access roads, pulling sites, and storage and parking areas shall be designed, utilized, and maintained with the goal of avoiding or minimizing impacts to native plant communities and sensitive biological resources. Staging areas outside of the project area shall maintain a minimal disturbance footprint, avoid jurisdictional wetlands, and avoid disturbance to native plant communities whenever possible.

- Avoid Use of Toxic Substances. Soil bonding and weighting agents used on unpaved surfaces (per MM 3.2-1) shall be non-toxic to plants and wildlife.

- Implement Erosion Control Measures. All erosion control measures promoted by the Lahontan Regional Water Quality Control Board (RWQCB) in its Project Guidelines for Erosion Control (Board Order No R6T-2003-0-04 Attachment G) (Lahontan RWQCB 2003) shall be implemented for all phases of construction and operation where sediment run-off from exposed slopes threatens to enter "waters of the State." Sediment and other flow-restricting materials shall be moved to a location where they shall not be washed back into drainages. All disturbed soils and roads within the project area shall be stabilized to reduce erosion potential, both during and following construction. Areas of disturbed soils (access and staging areas) with slopes toward a drainage shall be stabilized to reduce erosion potential. To avoid impacts associated with generation of fugitive dust, surface application of water would be employed during construction and operation and maintenance activities.

- Monitor Ground-Disturbing Activities Prior to Preconstruction Site Mobilization. If preconstruction site mobilization requires ground-disturbing activities such as for geotechnical borings or hazardous waste evaluations, a Designated Biologist or Biological Monitor shall be present to monitor any actions that could disturb soil, vegetation, or wildlife.

- Revegetation of Temporarily Disturbed Areas. The applicant shall prepare and implement a Temporary Disturbance Revegetation Plan to restore all areas subject to temporary disturbance to pre-project grade and conditions. The plan shall be submitted to the BLM and CDFW for review and approval at least 30 days prior to the start of ground-disturbing activities. Temporarily disturbed areas within the project area include, but are not limited to, all proposed locations for linear facilities, temporary access roads, berms, areas surrounding the drainage diffusers, construction work temporary lay-down areas not converted to part of the solar field, and construction equipment staging areas. The Temporary Disturbance Revegetation Plan shall include a description of topsoil salvage and seeding techniques and a monitoring and reporting plan, and plan to achieve the following performance standards by the end of monitoring year 2:

  a. At least 80% of the species observed within the temporarily disturbed areas shall be native species that naturally occur in desert scrub habitats; and

  b. Relative cover and density of plant species within the temporarily disturbed areas shall equal at least 60% relative to pre-disturbance conditions.

- Integrated Weed Management Plan. This measure provides further detail and clarifies requirements for the applicant's draft IWMP. Prior to beginning construction on the project, the applicant shall prepare, circulate to BLM for comment and approval, and then implement an IWMP that meets the approval of BLM's Authorized Officer and conforms to the CDCA Plan to prevent the spread of existing invasive species and the introduction of new invasive species to the project area. The plan shall be consistent with BLM's *Record of Decision for Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States* (BLM 2007) and the *2008-*

2012 National Invasive Species Management Plan (National Invasive Species Council 2008). The IWMP shall include, at a minimum, specific management objectives and measures for each target invasive species, baseline conditions, weed risk assessment, measures (both preventative and containment/control) to prevent/limit the introduction and spread of invasive species, monitoring and surveying methods, and reporting requirements. The BLM-approved IWMP shall include:

a. Preventative measures to prevent the spread of weeds into new habitats, such as equipment inspections, use of weed-free erosion control materials and soils, and a mandatory site training element that includes weed management;

b. Weed containment and control measures such as the removal of invasive species primarily via mechanical means, with the use of herbicides restricted to BLM-policies and approved usage (e.g., BLM's Herbicide Use Standard Operating Procedures provided in Appendix B of the *Record of Decision for the Final Vegetation Treatments Using Herbicides Programmatic Environmental Impact Statement* (BLM 2007);

c. Monitoring and reporting standards annually during construction and for 3 years following the completion of construction to describe trends in weed distribution and direct weed management measures, and;

d. Reporting of monitoring and management efforts in annual reports and a final monitoring report completed at the end of 3 years of postconstruction monitoring. Copies of these reports will be provided to BLM for review and comment. BLM will use the results of these reports to determine whether any additional monitoring or control measures are necessary. Weed control will be ongoing on the project area for the life of the project, but plan success will be determined by BLM after the 3 years of operations monitoring through the reporting and review process. Success criteria will be defined as having no more than a 10% increase in a weed species or in overall weed cover in any part of the project area.

MM BIO-22: Final Closure Plan. At least 12 months prior to project closure, the applicant shall prepare a Final Closure Plan to restore the site's topography and hydrology to a relatively natural condition and to establish native vegetation communities within the project area. The Final Closure Plan shall include a cost estimate for implementing the proposed decommissioning and reclamation activities, and shall cover the estimated cost as though BLM were to contract with a third party to decommission the project and reclaim the project area. The plan shall be subject to review and revisions from the BLM Authorized Officer in consultation with USFWS and CDFW.

MM BIO-23: Artificial Water Sources. The project will design and install at least five new artificial water sources for desert bighorn sheep to use. The location, design, and method of installations will be determined in cooperation with CDFW and BLM and the ultimate plan will be approved by CDFW and BLM. The locations may be on private or public lands but must be located within 5 miles of the project boundary to mitigate this metapopulation. Because the I-15 wildlife overcrossing will be installed adjacent to the site, water structure installations should occur on both sides on I-15 with a possible preference for one proximate to the overcrossing structure. The project shall establish a non-wasting endowment to monitor and maintain the water features in perpetuity.

MM-BIO-24. Compensatory Mitigation. If MM-BIO-12 (Desert Tortoise Compensatory Mitigation) is adhered to and occurs within approximately 1 kilometer of desert bighorn sheep-occupied or CDFW-identified/modeled desert bighorn sheep habitat, then no additional compensatory habitat mitigation would be required as the acquired habitat would also satisfy the foraging needs of desert bighorn sheep. However, if the mitigation lands acquired for MM-BIO-12 do not satisfy this requirement, then separate compensatory mitigation for loss of desert bighorn sheep foraging habitat (i.e., all lands east of I-15 that

are fenced in) at a 1:1 ratio meeting all of the other requirements (i.e., requirements for acquisition, initial improvement, and long-term management of compensation lands) and protections afforded under MM-BIO-12 will be required.

MM-BIO-25. Mitigation and Monitoring Plan. Prior to site disturbance, the project will prepare a desert bighorn sheep mitigation and monitoring plan. The plan will be approved by CDFW and BLM. This plan will require monitoring of wildlife crossings, fencing effectiveness, water sources, and all other implemented mitigation measures for a minimum of 8 years with an annual monitoring report provided to CDFW by January 31, and a final report covering the entire monitoring period (i.e., at least 8 years) by January 31st of the final year. Components of this requirement may be modified if already covered by other monitoring efforts (e.g., Brightline, Caltrans). The plan will include the methods for monitoring, identify what is being monitored, identify the goals of the measures, methods for determining the effectiveness of the measures, and remedial triggers and measures if the mitigation does not meet the goals.

MM-BIO-26. Limited Operating Period. Noises greater than 85 A-weighted decibels (dBA) maximum sound level (Lmax) will not be allowed within 500 meters of the hinge point (10% slope line) between December 1 and June 30. If loud work must occur, even briefly, then the project must get CDFW concurrence that the desert bighorn sheep lambing period is done or verify, in coordination with CDFW, that there are no desert bighorn sheep on the facing slope within a distance that would be expected to be subject to an 85 dBA Lmax sound level. If the project believes that they may need to ultimately perform loud work during the lambing period, then they shall coordinate with CDFW early (i.e., ideally as soon as possible, but minimally before the lambing period) to determine how much additional desert bighorn sheep-specific monitoring will be needed for CDFW to evaluate whether the request is feasible. Simply monitoring a week or two in advance will not provide enough data to perform the evaluation.

MM-BIO-27. Work Boot Decontamination. All construction personnel will be trained on the importance of and procedures for decontaminating boots to prevent transmission of disease from domesticated sheep and goats to desert bighorn sheep. In addition, all quarry workers who have potential contact with domesticated sheep and/or goats (for example at farms, fairs, etc.) will be identified and shall decontaminate work boots prior to entering the project area. Decontamination shall involve scrubbing the soles of work boots with a 10% bleach solution to remove all organic matter and kill pathogens. Alternatively, footwear may be changed to ensure that potentially contaminated footwear does not enter any quarry area.

3.4.6 Cumulative Impacts

Impact C-BIO-1: Would the impacts of the proposed project, in combination with other past, present, and reasonably foreseeable future projects, contribute to a cumulative impact related to biological resources? (Less than Significant with Mitigation)

Cumulative impacts for a project would be significant if the incremental effects of the individual project are considerable when combined with the effects of past projects, other current projects, and probable future projects. A Cumulative Projects table (Table 3-1) is provided in Chapter 3 of this EIR. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period.

As the County experiences growth in large-scale energy projects and other developments, broad-scale impacts to biological resources are also increasing. As of May 2024, over 23,000 acres of land have been approved for renewable energy projects by the County (San Bernardino County 2024). Currently, the nearest large-scale solar projects are approximately 40-45 miles to the northeast and southwest of the

project. Several special-status wildlife species use the study area and the surrounding area. Implementation of the project would impact special-status species that use the study area such as burrowing owl and desert tortoise, along with more common species that support the ecosystem. Habitats within the study area sustain a diverse range of insects, rodents, and small birds that serve as a crucial prey base for raptors and terrestrial wildlife. In addition, as detailed in the literature review and database search, the region is home to a variety of special-status species, most of which are anticipated to utilize the study area intermittently, if at all. When considered together with other existing or proposed projects in the County, impacts to special-species due to primarily habitat loss, wildlife corridor impairment, and land use conversion may be cumulatively considerable.

Caltrans, CDFW, and Brightline West have entered into an agreement to design and construct three wildlife overcrossings across I-15 and the future Brightline West high-speed rail system connecting Las Vegas and Southern California (Caltrans 2023). These dedicated overcrossings would provide a sustainable and safe path for wildlife—especially for desert bighorn sheep—over the existing northbound and southbound highway lanes and the future high-speed rail system to be built within the median (Caltrans 2023). CDFW has identified three priority locations for the wildlife overcrossing, all in San Bernardino County (Caltrans 2023). These overcrossings will be built near Zzyzx Road, near Mountain Pass and near Rasor Road, spanning the entire width of I-15 including the Brightline West rail line (Caltrans 2023). Beyond the three wildlife overcrossings, the Brightline West project will maintain or improve more than 600 culverts and large-scale crossings under I-15 that exist today (Caltrans 2023). The project also will restore and install desert tortoise fencing and directional wildlife exclusionary fencing (Caltrans 2023). The proposed Brightline overcrossings would reduce project impacts associated with temporary and/or permanent disruptions to local wildlife movement, most notably impacts that pertain to desert bighorn sheep. The proposed Brightline overcrossings would reduce cumulative impacts associated with temporary and/or permanent disruptions to local wildlife movement, most notably impacts that pertain to desert bighorn sheep.

All the proposed MMs—and specifically the following MMs as summarized throughout Section 3.4—would reduce cumulative impacts to common species, prey species, pollinators, special-status wildlife, habitat for special-status wildlife, and sensitive vegetation communities to less than significant:

The measures listed are intended to reduce project impacts—both permanent and temporary, direct and indirect—for all wildlife and vegetation, and special-status plant and wildlife species, including their habitats, to less than significant. These measures are also intended to reduce impacts to sensitive vegetation communities to less than significant. Thus, the implementation of the above-listed MMs would reduce the project's cumulative impacts to common species, prey species, pollinators, special-status wildlife, habitat for special-status wildlife, and sensitive vegetation communities to **less than significant with mitigation**.

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