

Tierra del Sol Solar Farm	Vegetation Communities	GNMX/MBS, Granitic Northern Mixed Chaparral/Montane Buckwheat*
Fuel Mod Zone	BSS, Big Sagebrush Scrub	MBS, Montane Buckwheat Scrub
Oak Root Zone (50-Ft. Buffer)	CC, Granitic Chamise Chaparral	MBS/RSC, Montane Buckwheat Scrub/Red Shank Chaparral
	CC/MBS, Granitic Chamise Chaparral/Montane Buckwheat Scrub	OW, Open Water
	CLOW, Coast Live Oak Woodland	RSC, Red Shank Chaparral
	DL, Disturbed Land	SOC, Scrub Oak Chaparral
	GNMX, Granitic Northern Mixed Chaparral	dMBS, disturbed Montane Buckwheat Scrub

FIGURE 8A
Impacts - Tierra del Sol Solar Farm Vegetation Communities

INTENTIONALLY LEFT BLANK

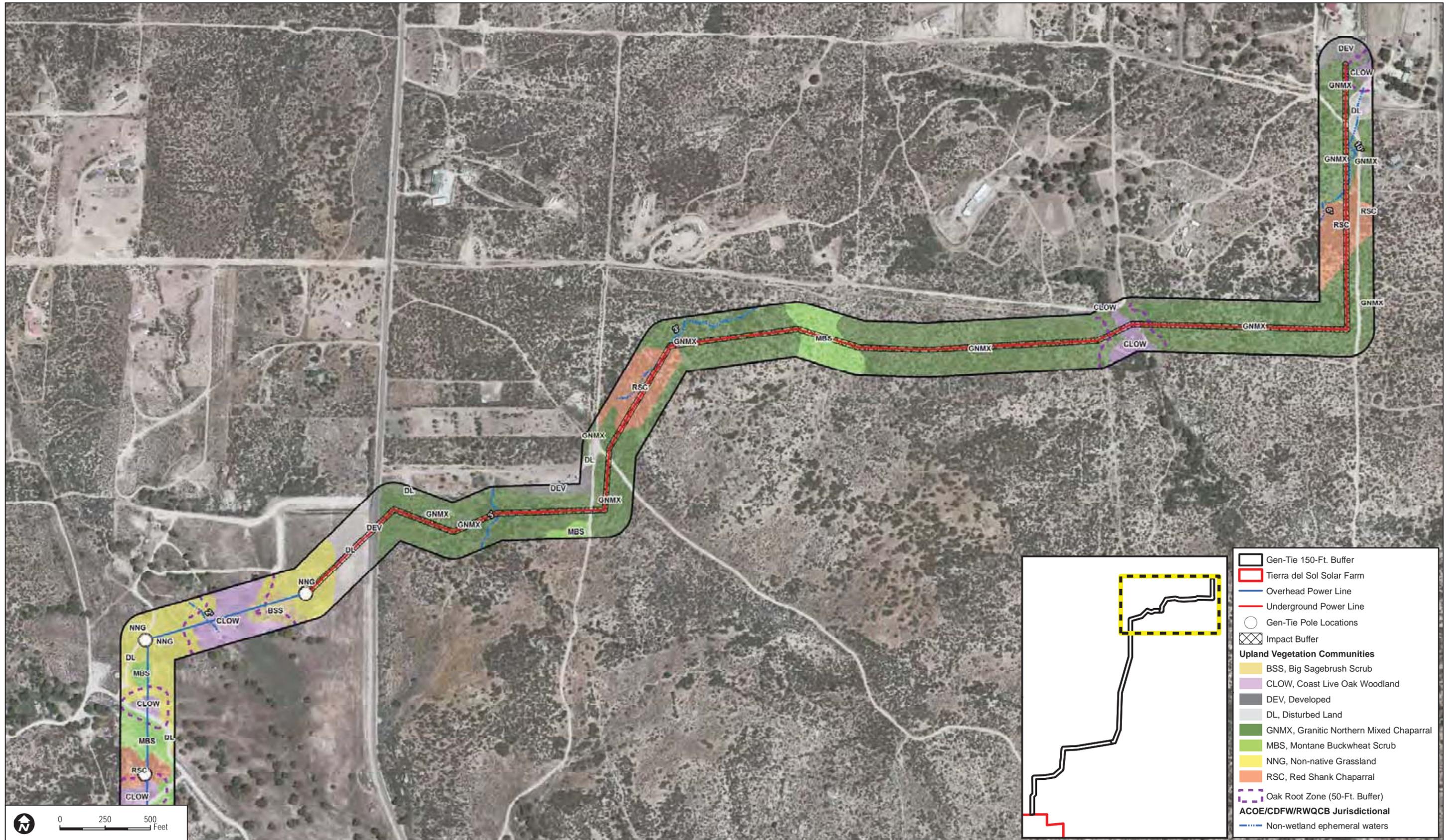
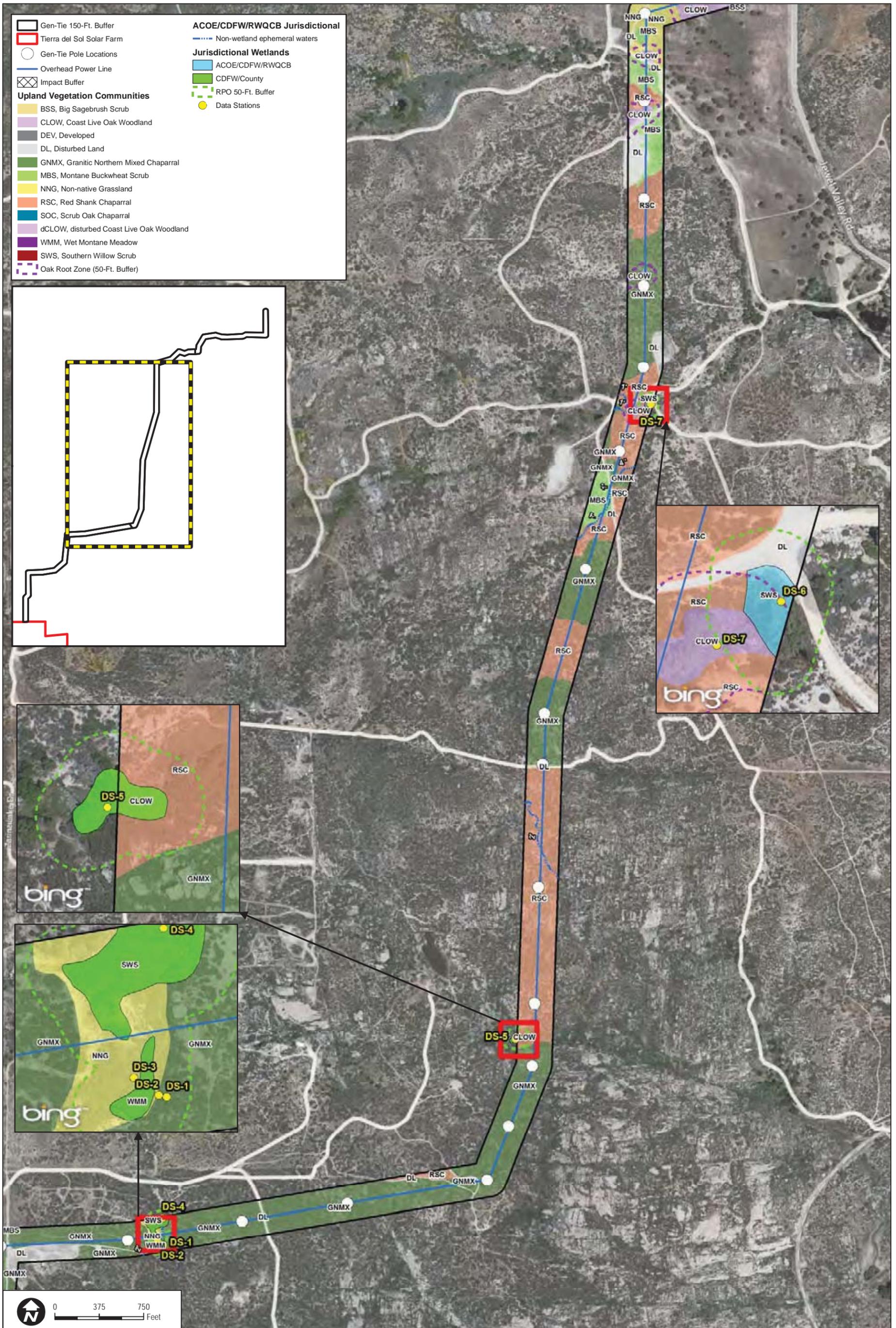
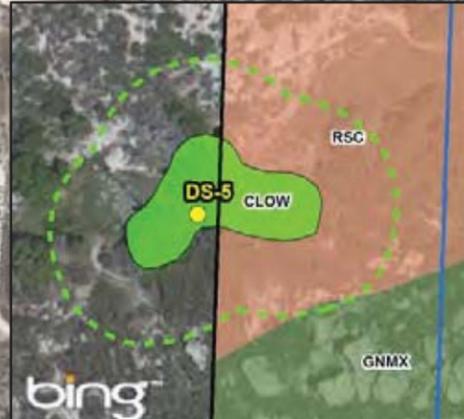
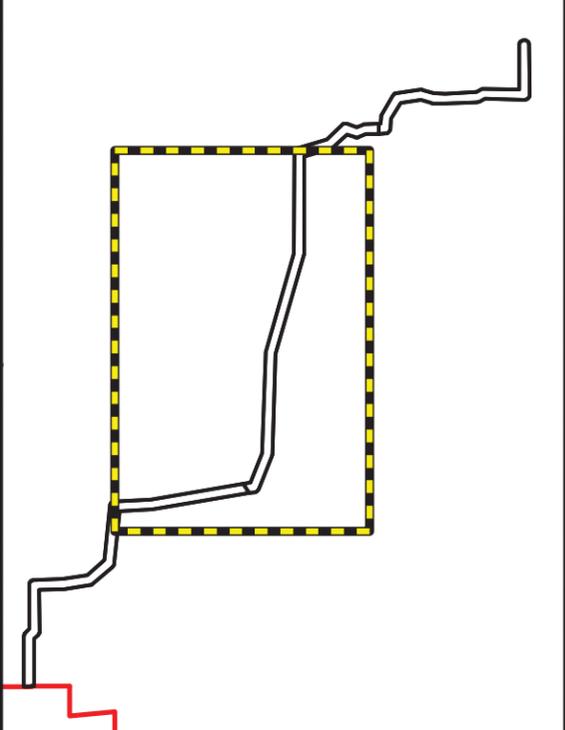


FIGURE 8B
Impacts - Tierra del Sol Gen-Tie Vegetation Communities

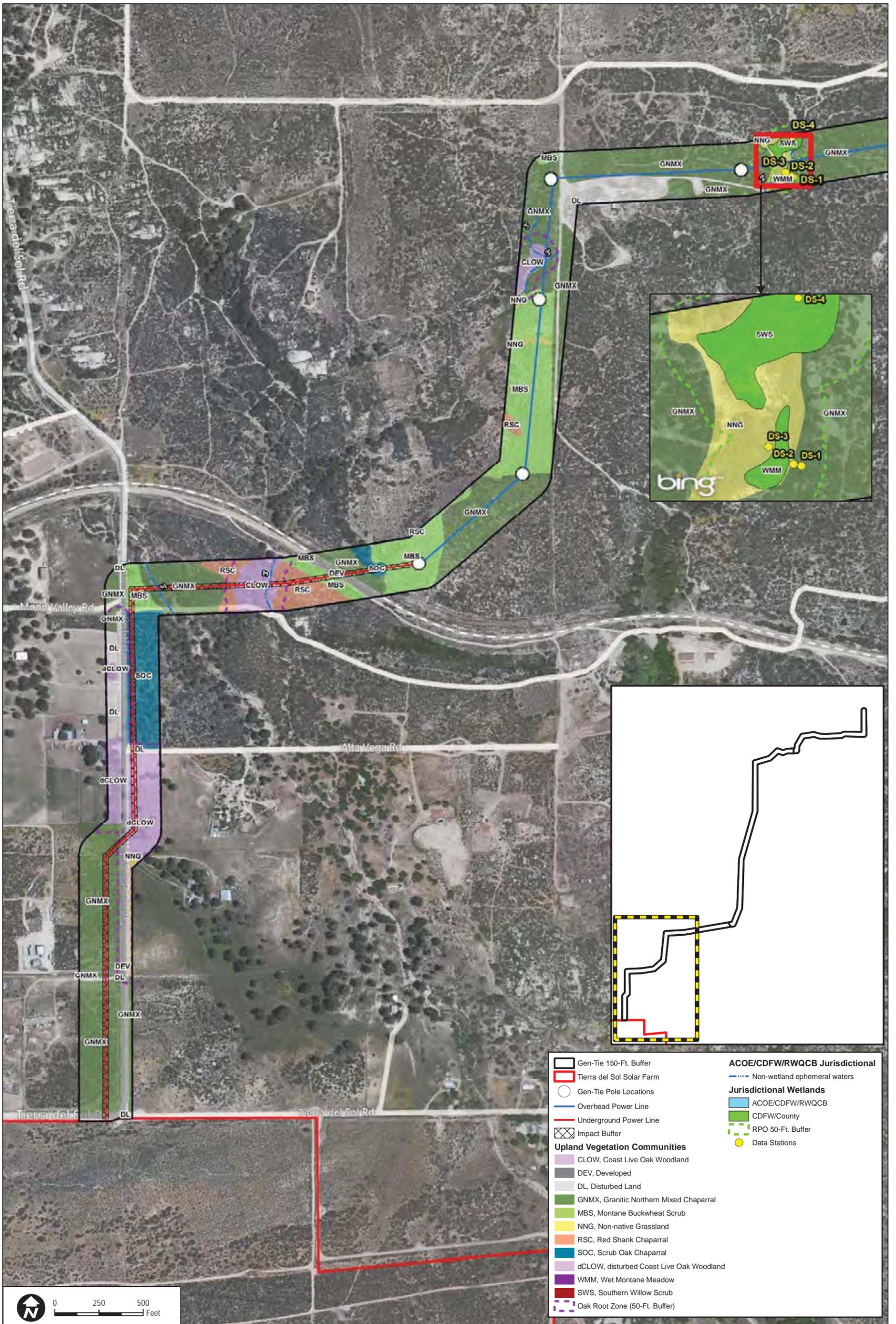
INTENTIONALLY LEFT BLANK



- Gen-Tie 150-Ft. Buffer
- Tierra del Sol Solar Farm
- Gen-Tie Pole Locations
- Overhead Power Line
- Impact Buffer
- Upland Vegetation Communities**
 - BSS, Big Sagebrush Scrub
 - CLOW, Coast Live Oak Woodland
 - DEV, Developed
 - DL, Disturbed Land
 - GNMX, Granitic Northern Mixed Chaparral
 - MBS, Montane Buckwheat Scrub
 - NNG, Non-native Grassland
 - RSC, Red Shank Chaparral
 - SOC, Scrub Oak Chaparral
 - dCLOW, disturbed Coast Live Oak Woodland
 - WMM, Wet Montane Meadow
 - SWS, Southern Willow Scrub
 - Oak Root Zone (50-Ft. Buffer)
- ACOE/CDFW/RWQCB Jurisdictional**
 - Non-wetland ephemeral waters
- Jurisdictional Wetlands**
 - ACOE/CDFW/RWQCB
 - CDFW/County
 - RPO 50-Ft. Buffer
- Data Stations



INTENTIONALLY LEFT BLANK



INTENTIONALLY LEFT BLANK

Biological Resources Report for the Tierra del Sol Solar Farm Project

Habitat Fragmentation. Habitat fragmentation and isolation of plant populations may cause extinction of local populations as a result of two processes: reduction in total habitat area, which reduces effective population sizes; and insularization of local populations, which affects dispersal rates (Wilcox and Murphy 1985; Wilcove et al. 1986). Although these effects are more readily observable in wildlife, there are potential ecological effects, such as changes in pollinator populations, that can result in altered plant community composition and thus adversely affect special-status vegetation communities.

Chemical Pollutants. The effects of chemical pollutants on special-status vegetation communities are described in Section 2.2.2.1. During operation and maintenance, herbicides may be used to prevent vegetation from reoccurring around structures. However, weed control treatments shall include all legally permitted chemical, manual, and mechanical methods applied with the authorization of the San Diego County agriculture commissioner. Additionally, the herbicides used during operation and maintenance activities will be contained within the Proposed Project impact footprint.

Altered Hydrology. Water would be used for operational purposes for cleaning the solar modules and for reapplication of the nontoxic permeable soils stabilizers that may alter the on-site hydrologic regime. These hydrologic alterations may affect special-status vegetation communities. Altered hydrology can allow for the establishment of non-native plants and/or invasion by Argentine ants (*Linepithema humile*), which can compete with native ant species that could be seed dispersers or plant pollinators. However, the water, and associated runoff, used during operation and maintenance activities will be contained within the Proposed Project impact footprint, and long-term indirect impacts associated with altered hydrology are not expected. Potential impacts would be reduced by design features that (i) contain operational water use, and associated runoff, within the Proposed Project impact footprint (ii) specify installation of drip-irrigated landscaping for the Proposed Project, and (iii) ensure that landscape stock has been fumigated against ant infestation prior to transport to the Project site.

Non-Native, Invasive Plant and Animal Species. Invasive plant species that thrive in edge habitats are a well-documented problem in Southern California and throughout the United States. Development could also fragment native plant populations, which may increase the likelihood of invasion by exotic plants due to the increased interface between natural habitats and developed areas. Bossard et al. (2000) list several adverse effects of non-native species in natural open areas, including but not limited to the fact that exotic plants compete for light, water, and nutrients and can create a thatch that blocks sunlight from reaching smaller native plants. Exotic plant species may alter habitats and displace native species over time, leading to extirpation of native plant species and unique vegetation communities. The introduction of non-native, invasive animal species could

Biological Resources Report for the Tierra del Sol Solar Farm Project

negatively affect native species that may be pollinators of or seed dispersal agents for plants within special-status vegetation communities.

Increased Human Activity. The Proposed Project includes an operation and maintenance building and a step-up substation site that would include a control house and parking area for utility vehicles. Increased human activity could result in the potential for trampling of vegetation outside of the impacts footprint, as well as soil compaction, and could affect the viability of plant communities. Trampling can alter the ecosystem, creating gaps in vegetation and allowing exotic, non-native plant species to become established, leading to soil erosion. Trampling may also affect the rate of rainfall interception and evapotranspiration, soil moisture, water penetration pathways, surface flows, and erosion. An increased human population increases the risk for damage to special-status vegetation communities.

Alteration of the Natural Fire Regime. The Proposed Project could potentially increase the risk of fire, including but not limited to fire associated with electrical shorts or electrical equipment malfunction. Shorter-than-natural fire return intervals can preclude recovery of the native vegetation between fires, weaken the ecological system, allow for invasion of exotic species, and in some cases, result in permanent transition of the vegetation to non-native communities, such as annual grassland and weedy communities (Malanson and O’Leary 1982; Keeley 1987; O’Leary et al. 1992). If the natural fire regime is suppressed, longer-than-natural fire return intervals can result in excessive buildup of fuel loads so that when fires do occur, they are catastrophic. Unnaturally long fire intervals can also result in senescence of plant communities, such as chaparral, that rely on shorter intervals for rejuvenation.

Shading. The Proposed Project includes construction of individual trackers that would be mounted on a steel mast (steel pole). The trackers would maintain orientation toward the sun during the day and at night the trackers would be positioned horizontally. Shading can reduce the amount of sunlight available for photosynthesis, eliminating longer wavelengths of the visible light spectrum, and can reduce transpiration due to reduced photosynthetic rates, increasing soil moisture and resulting in changes to soil nutrient availability and microbial communities, potentially favoring non-native species and other shade-tolerant plants. However, shading will be contained within the proposed project impact footprint, and long-term indirect impacts associated with shading are not expected.

The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Section 3.0.

Biological Resources Report for the Tierra del Sol Solar Farm Project

2.3 Special-Status Plant Species

2.3.1 Direct Impacts to Special-Status Plant Species

2.3.1.1 Temporary Direct Impacts

Short-term, construction-related, or temporary direct impacts to special-status plants would primarily result from construction activities. Clearing, trampling, or grading of special-status plants outside designated construction zones could occur in the absence of avoidance and mitigation measures. These potential effects could damage individual plants and alter their ecosystem, creating gaps in vegetation that allow exotic, non-native plant species to become established, thus increasing soil compaction and leading to soil erosion. There would be temporary direct impacts to all special-status plant species on site (the significance of the impact is determined through application of the County Significance Guidelines described in Section 3.0). All special-status plant species on site could be impacted by potential temporary direct impacts such as those previously listed.

2.3.1.2 Permanent Direct Impacts

Long-term or permanent direct impacts to special-status plant species were quantified by comparing the impact footprint with the occurrence data for each special-status plant species. Table 2-2 includes each species' County status, California Rare Plant Rank (CRPR), estimates of the number of individuals on site, and an assessment of permanent direct impacts based on the number of individual plants located within the impact footprint, and the estimated percentage of occurrences impacted on site.

**Table 2-2
Summary of Direct Impacts to Special-Status Plant Species**

Species	CRPR	Solar Farm Site			Gen-Tie Alignment Site		
		Approximate Number of Individuals within Project Area ¹	Approximate Number of Individuals within On-Site Development Footprint	Estimated Percentage of Occurrences Impacted On Site	Approximate Number of Individuals within Project Area ¹	Approximate Number of Individuals within On-Site Development Footprint	Estimated Percentage of Occurrences Impacted On Site
<i>County List A</i>							
Tecate tarplant	1B.2	3,103	2,762	89%	637-1,775	None	0%
Tecate cypress	1B.1	19	19	100%	Not detected	None	0%
Jacumba milk-vetch	1B.2	315	315	100%	250-1,520	27-150	11%
<i>County List B</i>							
Desert beauty	2.3	727	727	100%	660-3,210	84-600	13-19%
Sticky geraea	2.3	274	274	100%	50-240	11-50	21%
<i>County List D</i>							
Pride of California	4.3	4	4	100%	Not detected	None	0%

¹ Totals may not add due to rounding.

Biological Resources Report for the Tierra del Sol Solar Farm Project

2.3.2 Indirect Impacts to Special-Status Plant Species

2.3.2.1 Temporary Indirect Impacts

Potential short-term or temporary indirect impacts to special-status plant species in the project area would primarily result from construction activities and include impacts related to or resulting from the generation of fugitive dust; changes in hydrology resulting from construction, including sedimentation and erosion; and the introduction of chemical pollutants (including herbicides). Potential short-term indirect impacts that could affect all special-status plant species that occur on the project site are described in detail as follows.

Generation of Fugitive Dust. Excessive dust can decrease the vigor and productivity of special-status plants through effects on light, penetration, photosynthesis, respiration, transpiration, increased penetration of phytotoxic gaseous pollutants, and increased incidence of pests and diseases.

Changes in Hydrology. Construction could result in hydrologic and water-quality-related impacts adjacent to and downstream of the construction area. Hydrologic alterations include changes in flow rates and patterns in streams and rivers and dewatering, which may affect adjacent and downstream aquatic, wetland, and riparian vegetation communities. Water-quality impacts include chemical-compound pollution (fuel, oil, lubricants, paints, release agents, and other construction materials), erosion, increased turbidity, and excessive sedimentation. Direct impacts, as described previously, can also remove native vegetation and increase runoff from roads and other paved surfaces, resulting in increased erosion and transport of surface matter into special-status plant occurrences. Altered erosion, increased surface flows, and underground seepage can allow for the establishment of non-native plants. Changed hydrologic conditions can also alter seed bank characteristics and modify habitat for ground-dwelling fauna that may disperse seed.

Chemical Pollutants. Erosion and chemical pollution (releases of fuel, oil, lubricants, paints, release agents, and other construction materials) may affect special-status plant species. The use of chemical pollutants can decrease the number of plant pollinators, increase the existence of non-native plants, and cause damage to and destruction of native plants. No herbicides will be used during construction.

All special-status plant species on site could be impacted by potential temporary indirect impacts such as those previously listed.

2.3.2.2 Permanent Indirect Impacts

Long-term (operation-related) or permanent indirect impacts could result from the proximity of the Proposed Project to special-status plants after construction, including impacts related to

Biological Resources Report for the Tierra del Sol Solar Farm Project

operation and maintenance. Operation and maintenance activities will occur within the impact footprint. Permanent indirect impacts that could affect special-status plant species include generation of fugitive dust, habitat fragmentation, chemical pollutants, altered hydrology, non-native invasive species, increased human activity, alteration of the natural fire regime, and shading. Each of these potential indirect impacts is discussed as follows.

Generation of Fugitive Dust. The effects of fugitive dust on special-status plants are described in Section 2.3.2.1.

Habitat Fragmentation. Habitat fragmentation and isolation of plant populations may cause extinction of local populations as a result of two processes: reduction in total habitat area, which reduces effective population sizes; and insularization of local populations, which affects dispersal rates (Wilcox and Murphy 1985; Wilcove et al. 1986).

Chemical Pollutants. The effects of chemical pollutants on special-status plants are described in Section 2.3.2.1. During operation and maintenance, herbicides may be used to prevent vegetation from reoccurring around structures. However, weed control treatments shall include all legally permitted chemical, manual, and mechanical methods applied with the authorization of the San Diego County agriculture commissioner. Additionally, the herbicides used during operation and maintenance activities will be contained within the Proposed Project impact footprint.

Altered Hydrology. Water would be used for operational purposes for cleaning the solar modules and for reapplication of the nontoxic permeable soils stabilizers that may alter the on-site hydrologic regime. These hydrologic alterations may affect special-status plant species. Altered hydrology can allow for the establishment of non-native plants and invasion by Argentine ants, which can compete with native ant species. Potential impacts would be reduced by design features that (i) contain operational water use, and associated runoff, within the Proposed Project impact footprint (ii) specify installation of drip-irrigated landscaping for the Proposed Project, and (iii) ensure that landscape stock has been fumigated against ant infestation prior to transport to the Project site.

Non-Native, Invasive Plant and Animal Species. Invasive plant species that thrive in edge habitats are a well-documented problem in Southern California and throughout the United States. Development could also fragment native plant populations, which may increase the likelihood of invasion by exotic plants due to the increased interface between natural habitats and developed areas. Bossard et al. (2000) list several adverse effects of non-native species in natural open areas, including but not limited to the fact that exotic plants compete for light, water, and nutrients and can create a thatch that blocks sunlight from reaching smaller native plants. Exotic plant species may alter habitats and displace native species over time, leading to extirpation of native plant

Biological Resources Report for the Tierra del Sol Solar Farm Project

species. The introduction of non-native, invasive animal species could negatively affect native species that may be pollinators of or seed dispersal agents for special-status plant species.

Increased Human Activity. The Proposed Project includes an operation and maintenance building and a step-up substation site that would include a control house and parking area for utility vehicles. Increased human activity could result in the potential for trampling of vegetation outside of the impacts footprint, as well as soil compaction, and could affect the viability of plant communities. Trampling can damage individual special-status plants and alter their ecosystem, creating gaps in vegetation and allowing exotic, non-native plant species to become established, leading to soil erosion. Trampling may also affect the rate of rainfall interception and evapotranspiration, soil moisture, water penetration pathways, surface flows, and erosion. An increased human population increases the risk for the collection of and damage to special-status plant species.

Alteration of the Natural Fire Regime. The Proposed Project could potentially increase the risk of fire, including but not limited to fire associated with electrical shorts or electrical equipment malfunction. Shorter-than-natural fire return intervals can preclude recovery of the native vegetation between fires, weaken the ecological system, allow for invasion of exotic species, and result, in some cases, in permanent transition of the vegetation to non-native communities, such as annual grassland and weedy communities (Malanson and O'Leary 1982; Keeley 1987; O'Leary et al. 1992). If the natural fire regime is suppressed, longer-than-natural fire return intervals can result in excessive buildup of fuel loads so that when fires do occur, they are catastrophic. Unnaturally long fire intervals can also result in senescence of plant communities, such as chaparral, that rely on shorter intervals for rejuvenation.

Shading. The Proposed Project includes construction of individual trackers that would be mounted on a steel mast (steel pole). The trackers would maintain orientation toward the sun during the day and at night the trackers would be positioned horizontally. Shading can reduce the amount of sunlight available for photosynthesis, eliminating longer wavelengths of the visible light spectrum, and can reduce transpiration due to reduced photosynthetic rates, increasing soil moisture and resulting in changes to soil nutrient availability and microbial communities, potentially favoring non-native species and other shade-tolerant plants. However, shading will be contained within the Proposed Project impact footprint, and long-term indirect impacts associated with shading are not expected.

The significance determination for these potential impacts is determined through application of the County Significance Guidelines as described in Section 3.0.

Biological Resources Report for the Tierra del Sol Solar Farm Project

2.4 Sensitive Wildlife Species

2.4.1 Direct Impacts to Special-Status Wildlife Species

2.4.1.1 *Temporary Direct Impacts*

Short-term, construction-related, or temporary direct impacts to special-status wildlife species would primarily result from construction activities. Clearing, trampling, or grading of vegetation communities outside designated construction zones could occur in the absence of avoidance and mitigation measures. These potential effects could reduce suitable habitat for wildlife species and alter their ecosystem, thus creating gaps in vegetation that allow exotic, non-native plant species to become established. Potential temporary direct impacts to suitable habitat for special-status wildlife species on site would be significant (the significance of the impact is determined through application of the County Significance Guidelines described in Section 3.0).

2.4.1.2 *Permanent Direct Impacts*

Long-term or permanent direct impacts to special-status wildlife species were quantified by comparing the impact footprint with suitable habitat for wildlife species. The significance determination for these potential impacts is described in Section 3.0.

Within the gen-tie alignment, there is no suitable nesting habitat for golden eagles or other sensitive status raptors. These birds would not be expected to nest within the towers- because their design discourages access. The gen-tie alignment is linear and is primarily composed of low quality foraging habitat due to tall and relatively dense chaparral components and therefore does not represent a substantial loss of foraging habitat. Therefore, foraging within the area is not expected to be compromised due to the presence of the overhead lines or towers. However, loss of life could occur if a bird were to make contact with two separate energized lines, thereby completing the circuit with their body. Protections will be in place to ensure that this will not occur. These protections will be in conformance with the Avian Power Line Interaction Committee (APLIC) standards and may include: guidance on proper pole and crossmember dimensions, phasing, and insulator design, dimensions to preclude wire to wire contact, and bird diverters or other means to make lines more visible to birds will be installed to help avoid collisions.

The use of helicopters to install the poles would most likely be utilized and the impact would be a significant if the noise or activity were to alter the behavior of territorial raptors. This impact would be mitigated to less than significant by implementation of a monitoring plan approved by the wildlife agencies. An avian biologist will monitor raptor use areas prior to and during the operations and be located with the pilots to watch out for and avoid any

Biological Resources Report for the Tierra del Sol Solar Farm Project

foraging raptors within the vicinity. Helicopters would be required to be grounded for critical periods if required by the monitoring plan.

2.4.1.2.1 County Group 1 Species

The information provided in this section discusses the potential effects for County Group 1 species. More detailed information about observation of the species or its potential to occur within the proposed solar farm site, suitable habitat, and range is provided in Section 1.4.6.2.

Birds

Cooper's Hawk (Accipiter cooperi)

Cooper's hawk was observed in the project area and has potential to use the project area for both nesting and foraging. Within the solar farm site, there would be direct impacts to approximately 93 acres of suitable nesting habitat and 346 acres of suitable foraging habitat as a result of the Proposed Project. Construction-related impacts could result in the loss of active nests and/or young during vegetation clearing activities. This would be a significant impact (the significance of the impact is determined through application of the County Significance Guidelines described in Section 3.0).

Bell's Sage Sparrow (Amphispiza belli belli)

Bell's sage sparrow was observed in the project area. Within the solar farm site, there would be direct impacts to approximately 358 acres of suitable habitat. Construction-related impacts could result in the loss of active nests and/or young during vegetation clearing activities. This would be a significant impact (the significance of the impact is determined through application of the County Significance Guidelines described in Section 3.0).

Golden Eagle (Aquila chrysaetos)

Golden eagle has no suitable nesting habitat within the project area due to the lack of forested areas and cliffs so no construction related impacts are anticipated. Based on the lack of observations of golden eagle during surveys, this species may not use the project area regularly. Because a majority of the site is covered by tall and relatively dense chaparral, the foraging habitat quality is considered to be marginal. However, there are areas with lower vegetation types which could conceivably be used. Within the solar farm site, there would be direct impacts to approximately 68 acres of suitable foraging habitat. This would be a significant impact (the significance of the impact is determined through application of the County Significance Guidelines described in Section 3.0). ~~Because~~

Biological Resources Report for the Tierra del Sol Solar Farm Project

Within the gen-tie alignment, there is no suitable nesting habitat for golden eagle. The project site is linear and is primarily composed of low quality foraging habitat due to tall and relatively dense chaparral components and therefore does not currently nest within 4,000 feet of the solar farm represent a substantial loss of foraging habitat. Birds would not be expected to nest within the towers; their ability to forage within the area is not expected to be compromised due to the presence of the overhead lines or towers. However, loss of life may occur if a bird were to make contact with two separate energized lines, thereby completing the circuit with their body.;

The use of helicopters to install the poles will most likely be utilized, and there will be biologists located with the pilots to watch out for and avoid any foraging eagles within the vicinity. the project. Similarly, for the gen-tie, golden eagle does not nest within 4,000 feet and loss of individual birds would not be expected. Furthermore, loss of foraging habitat would be less than significant because of the linear and low impact nature of this portion of the project.

Turkey Vulture (Cathartes aura)

Turkey vulture was observed in the project area, but the observation locations were not recorded. The project area does not support suitable cliffs and large trees for nesting, but there is suitable foraging habitat within the project area. Within the solar farm site, there would be direct impacts to approximately 423 acres of suitable foraging habitat as a result of the Proposed Project. This would be a significant impact (the significance of the impact is determined through application of the County Significance Guidelines described in Section 3.0).

Because turkey vulture is not expected to roost or nest in the project area, no loss of individual birds as a result of construction-related impacts are anticipated.

Prairie Falcon (Falco mexicanus)

Prairie falcon was not observed in the project area. There is no suitable nesting habitat in the project area, but this species could forage in the project area. Within the solar farm site, there would be direct impacts to approximately 430 acres of suitable foraging habitat as a result of the Proposed Project. This would be a significant impact (the significance of the impact is determined through application of the County Significance Guidelines described in Section 3.0).

Because prairie falcon is not expected to nest in the project area, no loss of individual birds as a result of construction-related impacts are anticipated.

Loggerhead Shrike (Lanius ludovicianus)

Loggerhead shrike was documented within the northeastern portion of the project area. Within the solar farm site, there would be direct impacts to approximately 428 acres of suitable habitat as a result of the Proposed Project. Construction-related impacts could result in the loss of active

Biological Resources Report for the Tierra del Sol Solar Farm Project

nests and/or young during vegetation clearing activities. This would be a significant impact (the significance of the impact is determined through application of the County Significance Guidelines described in Section 3.0).

Invertebrates

Focused surveys for Quino checkerspot butterfly were conducted for both the solar farm site and the gen-tie alignment. Fifty seven person-days were spent conducting these surveys (Dudek 2012, 2013a), and no Quino checkerspot butterflies were observed. The nearest USFWS occurrence for Quino checkerspot butterfly is located approximately 4.2 miles west of the project area (USFWS 2012). Based on the lack of observations of this species during focused surveys, minimal presence of host plants, and the lack of records in the project area, it is not expected to occur within the project area.

2.4.1.2.2 County Group II Species

County Group 2 species that have been observed in the project area, or have high potential to occur (Appendix E), are described as follows.

Special-Status Amphibians and Reptiles

Blainville's horned lizard was observed in the project area within the solar farm site. Belding's orange-throated whiptail, coastal western whiptail, rosy boa, and northern red-diamond rattlesnake were not observed; however, these species have a high potential to occur within the project area due to the presence of suitable habitat. Amphibians and reptiles are low-mobility or sedentary species, and direct impacts to these species could occur as a result of the grading activities and activities within the fire buffer. This would be a significant impact (the significance of the impact is determined through application of the County Significance Guidelines described in Section 3.0).

Special-Status Birds

Western bluebird has been observed within the project area. There would be direct impacts to suitable habitat for this species. Construction-related impacts could result in the loss of active nests and/or young during vegetation clearing activities. This would be a significant impact (the significance of the impact is determined through application of the County Significance Guidelines described in Section 3.0).

Special-Status Mammals

San Diego black-tailed jackrabbit and San Diego desert woodrat (middens) have been observed in the project area. There are direct impacts to suitable habitat for these species. Direct loss of

Biological Resources Report for the Tierra del Sol Solar Farm Project

individuals could occur during construction-related activities. This would be a significant impact (the significance of the impact is determined through application of the County Significance Guidelines described in Section 3.0).

Mule deer tracks were observed in the project area. There would be direct impacts to suitable habitat for this species. This would be a significant impact (the significance of the impact is determined through application of the County Significance Guidelines described in Section 3.0). Construction-related impacts to mule deer are not anticipated because this species is highly mobile and can use a variety of habitats in the project area.

2.4.2 Indirect Impacts to Special-Status Wildlife Species

2.4.2.1 Temporary Indirect Impacts

Short-term, construction-related, or temporary indirect impacts to special-status wildlife species would primarily result from construction activities. Potential temporary indirect impacts could occur as a result of generation of fugitive dust, noise, chemical pollutants, increased human activity, and non-native animal species during construction.

Generation of Fugitive Dust. Dust and applications for fugitive dust control can impact vegetation surrounding the limits of grading, resulting in changes in the community structure and function. These changes could result in impacts to suitable habitat for special-status wildlife species.

Noise. Construction-related noise could occur from equipment used during vegetation clearing and construction of the solar panels and associated infrastructure. Noise impacts can have a variety of indirect impacts on wildlife species, including increased stress, weakened immune systems, altered foraging behavior, displacement due to startle, degraded communication with conspecifics (e.g., masking), damaged hearing from extremely loud noises, and increased vulnerability to predators (Lovich and Ennen 2011; Brattstrom and Bondello 1983, as cited in Lovich and Ennen 2011).

Chemical Pollutants. Accidental spills of hazardous chemicals could contaminate nearby surface waters and groundwater and indirectly impact wildlife species through poisoning or altering suitable habitat.

Increased Human Activity. Construction activities can deter wildlife from using habitat areas near the Proposed Project footprint and increase the potential for vehicle collisions.

Non-Native Animal Species. Trash from construction-related activities could attract invasive predators such as ravens and coyotes that could impact the wildlife species in the

Biological Resources Report for the Tierra del Sol Solar Farm Project

project area. Landscaping stock could bring in Argentinean ants or other pests that could compete with native wildlife.

All special-status wildlife species on site could be impacted by potential temporary indirect impacts such as those previously listed. The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Section 3.0.

2.4.2.2 *Permanent Indirect Impacts*

Potential long-term or permanent indirect impacts to special-status wildlife species include generation of fugitive dust; off-road vehicle use; non-native, invasive plant and animal species; habitat fragmentation; increased human activity; creation of collision hazards; alteration of the natural fire regime; and altered hydrology.

Generation of Fugitive Dust. The effects of fugitive dust on special-status plants are described in Section 2.4.2.1.

Non-Native, Invasive Plant and Animal Species. Invasive plant species that thrive in edge habitats are a well-documented problem in Southern California and throughout the United States. Development could also fragment native plant populations, which may increase the likelihood of invasion by exotic plants due to the increased interface between natural habitats and developed areas. Bossard et al. (2000) list several adverse effects of non-native species in natural open areas, including but not limited to the fact that exotic plants compete for light, water, and nutrients and can create a thatch that blocks sunlight from reaching smaller native plants. Exotic plant species may alter habitats and displace native species over time, leading to extirpation of native plant species and subsequently suitable habitat for special-status wildlife species. In addition, trash can attract invasive predators such as ravens and coyotes that could impact the wildlife species in the project area.

Habitat Fragmentation. The Proposed Project would impact approximately 389 acres of vegetation communities and land covers within the solar farm site, resulting in potential habitat fragmentation. Habitat fragmentation can reduce diversity of species, spread invasive species, and reduce access to important habitats (Lovich and Ennen 2011). In addition, habitat fragmentation and isolation of wildlife populations may cause extinction of local populations as a result of two processes: reduction in total habitat area, which reduces effective population sizes; and insularization of local populations, which affects dispersal rates (Wilcox and Murphy 1985; Wilcove et al. 1986).

Increased Human Activity. The proposed project includes an operation and maintenance building and a step-up substation site that would include a control house and parking area for

Biological Resources Report for the Tierra del Sol Solar Farm Project

utility vehicles. Increased human activity could result in the potential for trampling of vegetation outside of the impacts footprint, as well as soil compaction, and could affect the viability and function of suitable habitat for wildlife species. Trampling can alter the ecosystem, creating gaps in native vegetation either leading to soil erosion or allowing exotic, non-native plant species to become established. Trampling may also affect the rate of rainfall interception and evapotranspiration, soil moisture, water penetration pathways, surface flows, and erosion. An increased human population increases the risk for damage to suitable habitat for wildlife species. In addition, increased human activity can deter wildlife from using habitat areas near the Proposed Project footprint.

Alteration of the Natural Fire Regime. The Proposed Project could potentially increase the risk of fire, including but not limited to fire associated with electrical shorts or electrical equipment malfunction. Shorter-than-natural fire return intervals can preclude recovery of the native vegetation between fires, weaken the ecological system, allow for invasion of exotic species, and result, in some cases, in permanent transition of the vegetation to non-native communities, such as annual grassland and weedy communities (Malanson and O’Leary 1982; Keeley 1987; O’Leary et al. 1992). If the natural fire regime is suppressed, longer-than-natural fire return intervals can result in excessive buildup of fuel loads so that when fires do occur, they are catastrophic. Unnaturally long fire intervals can also result in senescence of plant communities, such as chaparral, that rely on shorter intervals for rejuvenation. Alterations of plant communities could affect wildlife that relies on those habitat types.

Creation of Collision Hazards. The Proposed Project could potentially increase the risk of collisions due to sky reflection (or pseudo-lake effect). However, there are factors that indicated that the risk of collision due to sky reflection would be minimal and not significant because: (1) the project is not located between areas that would entice wetland birds; (2) the locale is not considered to be a major contributor to the Pacific Flyway; (3) the solar units will be spaced approximately 80 feet away from one another and will move independently so that only once a day at full sun would they would only be as close as approximately 30 feet to each other; and (4) the solar units do not appear black from above due to the technology used. Additionally, there is very little scientific information available regarding the “pseudo-lake effect” and an adequate discussion of the potential impacts would be speculative. Similarly, glare would be a less than significant impact for the reasons outlined above.

The gen-tie line would include an approximately 3.5 mile overhead portion which would consist of a dual circuit 138kV line (six cables strung parallel to each other). The potential for avian collisions with the gen-tie cables is considered a minor risk compared to the higher voltage, long distance transmission lines in the region such as the Southwest Powerlink and Sunrise Power link. Furthermore and as stated above, the location where the cables cross is not an area where birds flock to wetlands or are part of migratory flyway or known eagle territory. However, the

Biological Resources Report for the Tierra del Sol Solar Farm Project

utility poles would provide perches from which avian species may forage, thereby increasing the potential risk of fatality associated with collisions and electrocutions and resulting in a potentially significant impact.

Electromagnetic. It is known that migrating birds use electromagnetic directional senses and that artificial electromagnetic pulses can cause a response in some migration behaviors in some species (Holland 2013). However, there is very little scientific information available and an adequate discussion of the potential of the project impacts would be speculative.

Altered Hydrology. Water would be used for operational purposes for cleaning the solar modules and for reapplication of the nontoxic permeable soils stabilizers that may alter the on-site hydrologic regime. These hydrologic alterations may affect special-status wildlife species. Altered hydrology can allow for the establishment of non-native plants and invasion by Argentine ants, which can compete with native ant species that are known to could be seed dispersers and plant pollinators. Changes in plant composition could affect the native vegetation communities and wildlife habitat. Potential impacts would be reduced by design features that (i) contain the water and associated runoff used during operation and maintenance activities within the Proposed Project impact footprint, (ii) specify installation of drip-irrigated landscaping for the proposed project, and (iii) ensure that nursery stock has been fumigated against ant infestation prior to transport to the project site. Water, and associated runoff, used during operation and maintenance activities will be contained within the Proposed Project impact footprint, thereby reducing those impacts, the potential introduction of non-native ants could cause long-term indirect impacts.

The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Section 3.0.

2.5 Wetlands/Jurisdictional Waters

No wetlands or “waters of the United States” (WOUS) under the jurisdiction of ACOE, RWQCB, CDFW, and County were identified within the proposed solar farm site and will not be further addressed.

Direct impacts to potential wetland areas within the gen-tie alignment under the jurisdiction of ACOE, RWQCB, CDFW, and County, as well as riparian habitat under jurisdiction of CDFW and County only, are not expected because all four areas are located within the gen-tie alignment in an area where overhead power lines are to be constructed. Based on the County RPO guidelines, a buffer of 50-feet was selected for these RPO wetlands to avoid indirect impacts (see Section 1.4.7.2). The 50-foot buffer was selected because these wetlands are relatively small,

Biological Resources Report for the Tierra del Sol Solar Farm Project

dominated generally by monotypic stands of hydrophytic vegetation, and do not substantially contribute to wetland hydrology and downstream functioning.

There will be direct permanent impacts to three unvegetated stream channels under the jurisdiction of ACOE, CDFW, and RWQCB, totaling 0.03 acre and 317.7 linear feet. The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Section 3.0.

2.6 Habitat Connectivity and Wildlife Corridors

2.6.1 Direct Impacts to Habitat Connectivity and Wildlife Corridors

2.6.1.1 *Temporary Direct Impacts*

Short-term, construction-related, or temporary direct impacts to habitat connectivity and wildlife corridors would primarily result from construction activities. Construction-related impacts to vegetation communities such as clearing, trampling, or grading of vegetation outside designated construction zones could occur in the absence of avoidance and mitigation measures. These potential effects could impact wildlife movement through these areas by reducing cover and food sources. The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Section 3.0.

2.6.1.2 *Permanent Direct Impacts*

Implementation of the Proposed Project is not expected to result in long-term or permanent direct impacts to habitat connectivity and wildlife corridors for large mammals. See Section 1.4.8 for a detailed discussion regarding habitat connectivity and wildlife corridors. The project would require permanent fencing (6-foot chain linked with barbed wire topping) around the entire project area. Since mule deer, the largest mammal that may utilize the site, are not likely to jump over a 6-foot fence, installing barbed wire at the top of the fence will not affect wildlife in the area. However, the existing conditions are that the project site is not likely to be part of a regional corridor for large mammals due to the lack of topography and resources on the site. In addition, larger wildlife do not currently use, and are not expected to use, the area due to existing fencing surrounding the project area, private property fencing to the east, International Border fencing south of the project area, and around some residential properties west of the project area. Habitat connectivity and wildlife corridor impacts for large mammals would be less than significant.

Small wildlife species (e.g., lizards and small mammals) will be able to access the site through openings in the fence, and even though vegetation within solar farm site may grow to a level of 6-inches above ground, this may still cause a permanent significant wildlife movement impact

Biological Resources Report for the Tierra del Sol Solar Farm Project

due to loss of habitat for smaller wildlife that cannot easily move around or through the site to access habitat on the far side.

The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Section 3.0.

2.6.2 Indirect Impacts to Habitat Connectivity and Wildlife Corridors

Temporary Indirect Impacts. Short-term indirect impacts to habitat connectivity and wildlife corridors could result from increased human activity, lighting, and noise, and during construction.

Increased Human Activity. Project construction would likely take place during the daytime and would not affect wildlife species such as mammals that are most active in evenings and nighttime. Wildlife species such as birds, rabbits, and lizards are active in the daytime, but use a variety of habitats and could continue using other areas within and adjacent to the project area for wildlife movement.

Lighting. Some localized security-related lighting, on-site security personnel, and/or remotely monitored alarm system may be required during construction and/or operations. Specifically, outdoor lighting would be installed inside the on-site private substation yard to allow for inspection and maintenance that may be required during the evening hours during emergency conditions, next to the entrance door to the substation control house, and mounted atop entrance gates at the primary access point to allow for safe entry. Nighttime activities at the operations and maintenance annex and collector substation would be limited, and the lights installed at these facilities for maintenance purposes would typically be turned off when not in use. In the event that emergency conditions warranted nighttime lighting, impacts would be minimal as all light bulbs would be less than 100 watts and would be shielded and directed downward. These impacts would be short-term, and therefore Proposed Project is not expected to result in significant impacts to wildlife movement.

Noise. Project construction will result in the production of noise and ground vibrations through the use of mechanized equipment and increased traffic within the area. Noise would most likely only be a disturbance to those species that are active during the daytime, as the noise levels are less at night. Most wildlife that would utilize the area as a habitat corridor are nocturnal, and therefore would not be impacted while foraging, moving, etc. Noise pollution is not anticipated to hamper breeding of any special-status species.

Permanent Indirect Impacts. Long-term indirect impacts include fencing of the project site and lighting.

Biological Resources Report for the Tierra del Sol Solar Farm Project

Fencing. Six-foot perimeter fencing with 1 foot of security barbed wire will be constructed around the project area, which could result in limited movement of certain species.

Lighting. The control shelter, entrance gates, and parking lot would include security lighting designed to minimize light pollution and preserve dark skies, while enhancing safety, security, and functionality.

The project area is included within a Core Wildlife Area due to its size and the undeveloped land in the surrounding area. The project site is currently fenced, and is surrounded by existing fencing to the south (the border fence) and east (barbed-wire fencing surrounding private property). As such, these existing barriers limit the ability of the solar farm to function as a wildlife corridor for large mammals. Therefore, installation of the solar farm is not anticipated to further constrain a wildlife movement corridor within the region.

The gen-tie alignment, while crossing parts of a Core Wildlife Area(s) is not expected to result in significant impacts to wildlife movement because animals can cross over, under and through the alignment without confinement, blocking, harm or other impact. There may be temporary indirect impacts to wildlife movement from construction, noise, increased human activity, and use of helicopters.

The significance determination for these potential impacts is determined through application of the County Significance Guidelines described in Section 3.0.

Biological Resources Report for the Tierra del Sol Solar Farm Project

INTENTIONALLY LEFT BLANK

Biological Resources Report for the Tierra del Sol Solar Farm Project

3.0 SPECIAL-STATUS SPECIES

3.1 Guidelines for the Determination of Significance

The County's Guidelines for Determining Significance (County of San Diego 2010b) that follow are based on the criteria in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) and were used to analyze potential direct and indirect impacts to biological resources. The significance criteria include analysis of whether:

- Guideline 4.1** The project would have a substantial adverse effect, either directly or through habitat modifications, on a candidate, sensitive, or special-status species listed in local or regional plans, policies, or regulations, or by CDFG or USFWS.
- A. The project would impact one or more individuals of a species listed as federally or state endangered or threatened.
 - B. The project would impact an on-site population of a County List A or B plant species, or a County Group 1 animal species, or a species listed as a state Species of Special Concern (SSC). Impacts to these species are considered significant; however, impacts of less than 5% of the individual plants or of the sensitive species' habitat on a project site may be considered less than significant if a biologically based determination can be made that the project would not have a substantial adverse effect on the local long-term survival of that plant or animal taxon.
 - C. The project would impact the local long-term survival of a County List C or D plant species or a County Group 2 animal species.
 - D. The project may impact arroyo toad aestivation, foraging, or breeding habitat. Any alteration of suitable habitat within 1 kilometer (3,280 feet) in any direction of occupied breeding habitat or suitable stream segments (unless very steep slopes or other barriers constrain movement) could only be considered less than significant if a biologically based determination can be made that the project would not impact the aestivation or breeding behavior of arroyo toads.
 - E. The project would impact golden eagle habitat. Any alteration of habitat within 4,000 feet of an active golden eagle nest could only be considered less than significant if a biologically based determination can be made that the project would not have a substantially adverse effect on the long-term survival of the identified pair of golden eagles.

Biological Resources Report for the Tierra del Sol Solar Farm Project

- F. The project would result in the loss of functional foraging habitat for raptors. Impacts to raptor foraging habitat is considered significant; however, impacts of less than 5% of the raptor foraging habitat on a project site may be considered less than significant if a biologically based determination can be made that the project would not have a substantial adverse effect on the local long-term survival of any raptor species.
- G. The project would impact the viability of a core wildlife area, defined as a large block of habitat (typically 500 acres or more not limited to project boundaries, although smaller areas with particularly valuable resources may also be considered a core wildlife area) that supports a viable population of a sensitive wildlife species or supports multiple wildlife species. Alteration of any portion of a core habitat could only be considered less than significant if a biologically based determination can be made that the project would not have a substantially adverse effect on the core area and the species it supports.
- H. The project would cause indirect impacts, particularly at the edge of proposed development adjacent to proposed or existing undeveloped lands or other natural habitat areas, to levels that would likely harm sensitive species over the long term. The following issues should be addressed in determining the significance of indirect impacts: increasing human access; increasing predation or competition from domestic animals, pests, or exotic species; altering natural drainage; and increasing noise and/or nighttime lighting to a level above ambient that has been shown to adversely affect sensitive species.
- I. The project would impact occupied burrowing owl habitat.
- J. The project would impact occupied cactus wren habitat, or formerly occupied coastal cactus wren habitat that has been burned by wildfire.
- K. The project would impact occupied Hermes copper habitat.
- L. The project would impact nesting success of the following sensitive bird species through grading, clearing, fire-fuel modification, and/or other noise-generating activities such as construction.

Species	Breeding Season
Coastal cactus wren	February 15 to August 15
Least Bell's vireo	March 15 to September 15
Southwestern willow flycatcher	May 1 to September 1
Tree-nesting raptors	January 15 to July 15
Ground-nesting raptors	February 1 to July 15

Biological Resources Report for the Tierra del Sol Solar Farm Project

Species	Breeding Season
Golden eagle	January 1 to July 31
Light-footed clapper rail	February 15 to September 30

3.2 Analysis of Project Effects

3.2.1 Project Effects Relevant to Guideline 4.1.A

There are no federally listed or state-listed endangered or threatened species in the project area.

3.2.2 Project Effects Relevant to Guideline 4.1.B

3.2.2.1 *Special-Status Plant Species (County List A and B Species)*

Short-term, construction-related, or temporary direct impacts to County List A and B plant species would primarily result from construction activities. Clearing, trampling, or grading of special-status plants outside designated construction zones could occur in the absence of avoidance and mitigation measures. Potential temporary direct impacts to County List A and B plant species on site would be significant (**Impact SP-1**). However, these short-term direct impacts will be mitigated to less than significant through implementation of mitigation measures MM-2 (biological monitoring), MM-3 (preparation and implementation of a SWPPP), and MM-4 (preparation of a biological monitoring report). The full text of mitigation measures is presented in Section 3.4, Mitigation Measures and Design Considerations, below.

Three County List A plant species would be directly impacted by the Proposed Project—Tecate tarplant (*Deinandra floribunda*), Tecate cypress (*Hesperocyparis forbesii*) and Jacumba milk-vetch (*Astragalus douglasii* var. *perstrictus*)—and two County List B plant species would be directly impacted by the Proposed Project—desert beauty (*Linanthus bellus*) and sticky geraea (*Geraea viscida*). Figure 9A shows the Proposed Project impacts to County List A and B plant species on the solar farm site. There will also be impacts to County List A and B plant species at the gen-tie alignment site (see Figures 9B-D). Jacumba milk-vetch, desert beauty, sticky geraea, and Tecate tarplant have been recorded within the alignment; however, Tecate tarplant will not be impacted by the Proposed Project.

County List A Species: Approximately 2,762 individuals of Tecate tarplant, a County List A species with a CRPR 1B.2, would be directly impacted by the Proposed Project (89% of the on-site individuals). No individuals of Tecate tarplant (0%) would be directly impacted by the gen-tie alignment. This proposed impact would be considered significant (**Impact SP-2**). Significant

Biological Resources Report for the Tierra del Sol Solar Farm Project

permanent direct impacts to this County List A plant species will be mitigated through mitigation measure MM-1 (habitat preservation and management).

Approximately 315 individuals of Jacumba milk-vetch (100% of the on-site individuals), a County List A species with a CRPR 1B.2, would be directly impacted by the Proposed Project. Approximately 27-150 individuals of Jacumba milk-vetch (11% of the on-site individuals) would be directly impacted by the gen-tie alignment. This proposed impact would be considered significant (**Impact SP-2**). Significant permanent direct impacts to this County List A plant species will be mitigated through mitigation measure MM-1 (habitat preservation and management).

Additionally, all individuals of Tecate cypress, a County List A species with a CRPR 1B.2, would be directly impacted by the Proposed Project. This proposed impact would not be considered significant because the Tecate cypress on site are of a single age class, appear to have been planted, and do not appear to naturally occur in the area. Table 3-1 summarizes the proposed direct impacts to County List A Species and the significance of the impacts prior to mitigation.

County List B Species: Approximately 727 individuals, the entire population of desert beauty, a County List B species with a CRPR 2.3, would be directly impacted by the Proposed Project. Approximately 84-600 individuals of desert beauty (13-19% of the on-site individuals) would be directly impacted by the gen-tie alignment. This proposed impact would be considered significant (**Impact SP-2**).

Approximately 274 individuals, the entire population of sticky geraea, a County List B species with a CRPR 2.3, would be directly impacted by the Proposed Project. Approximately 11-50 individuals of sticky geraea (21% of the on-site individuals) would be directly impacted by the gen-tie alignment. This proposed impact would be considered significant (**Impact SP-2**).

Significant permanent direct impacts to County List B plant species will be mitigated through mitigation measure MM-1 (habitat preservation and management).

Table 3-1 summarizes the proposed direct impacts to County List B Species and the significance of the impacts prior to mitigation.

Biological Resources Report for the Tierra del Sol Solar Farm Project

**Table 3-1
Summary of Direct Impacts to County List A and B Species and
Significance Prior to Mitigation**

County List	Species	CRPR	Solar Farm Site		Gen-Tie Alignment		Significance Prior to Mitigation
			Approximate Number of Individuals within Project Area 1	Approximate Number of Individuals within On-Site Impact Footprint	Approximate Number of Individuals within Gen-Tie Alignment	Approximate Number of Individuals within On-Site Impact Footprint	
A	Tecate tarplant	1B.2	3,103	2,762	637-1,775	0	Less than Significant
	Tecate cypress	1B.1	19	19	0	0	Less Than Significant
	Jacumba milk-vetch	1B.2	315	315	250-1,520	27-150	Significant
B	Desert beauty	2.3	727	727	660-3,210	84-600	Significant
	Sticky geraea	2.3	274	274	50-240	11-50	Significant

3.2.2.2 Special-Status Wildlife Species (County Group 1 or State SSC)

Loss of special-status wildlife species (County Group 1 or state SSC animals) including individual amphibians, reptiles, and small mammals from construction-related activities would be considered significant (**Impact W-1**). This impact will be mitigated through mitigation measures MM-2 (biological monitoring), MM-3 (restrictions on construction vehicle speed limits), MM-4 (preparation of a biological monitoring report), MM-7 (restrictions on operation and maintenance personnel activity), MM-10 (breeding season avoidance), MM-11 (monitoring excavated areas and soil piles), and MM-12 (minimize night lighting). As described under MM-10, it is recommended that project construction occur outside the typical nesting period for most bird species and raptors (i.e., outside the period February 1–August 31 and as early as January 1 for some raptor species) in order to limit impacts to nesting birds and raptors, or that a nesting bird survey is conducted within 72 hours of project implementation. If any active nests or the young of nesting special-status bird species (County Group 1 or state SSC animals) are impacted through direct grading, these impacts would be considered significant (**Impact W-2**), based on the Migratory Bird Treaty Act (MBTA). This impact will be mitigated through mitigation measure MM-10 (preconstruction surveys for nesting birds and setbacks).

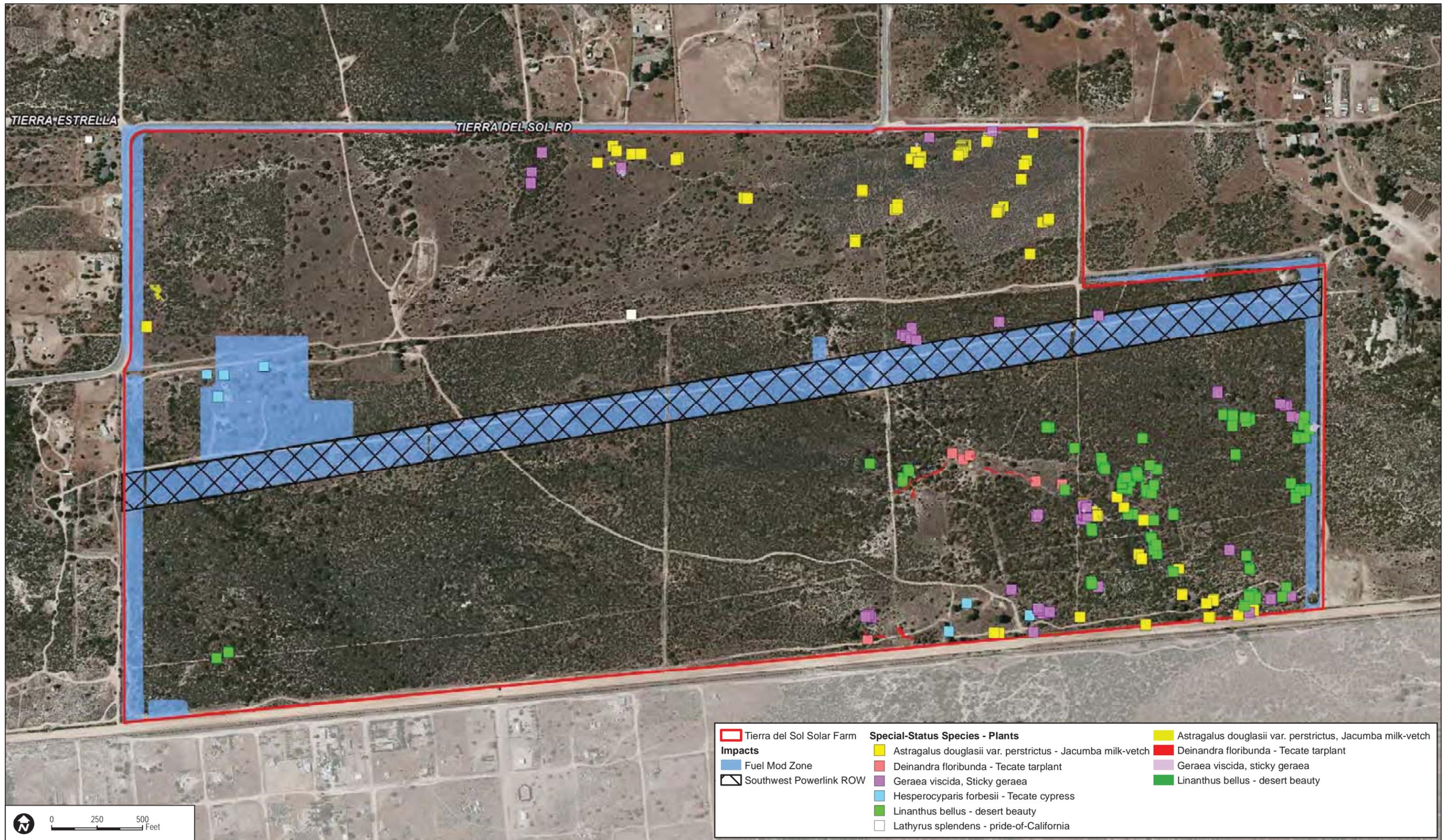
Seven County Group 1 and/or state SSC animal species were detected within the project area during 2011/2012 surveys: Blainville’s horned lizard (*Phrynosoma blainvillii*), Cooper’s hawk (*Accipiter cooperii*), Bell’s sage sparrow (*Amphispiza belli belli*), turkey vulture (*Cathartes*

Biological Resources Report for the Tierra del Sol Solar Farm Project

aura), loggerhead shrike (*Lanius ludovicianus*), San Diego black-tailed jackrabbit (*Lepus californica bennettii*), and San Diego desert woodrat (*Neotoma lepida intermedia*), (see Section 1.4.6). Figure 9E shows the Proposed Project impacts in relation to the special-status wildlife observations mapped on site.

In addition, two County Group 1 and/or state SSC wildlife species have high potential to occur within the project area: northern red-diamond rattlesnake (*Crotalus ruber*), and Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*).

The following County Group 1 and/or state SSC wildlife species have a high potential to forage in the project area, but not nest or roost: golden eagle and prairie falcon (*Falco mexicanus*). Impacts to wildlife species are discussed in detail in Section 2.4.1.



Impacts		Special-Status Species - Plants	
[Red outline]	Tierra del Sol Solar Farm	[Yellow square]	Astragalus douglasii var. perstrictus - Jacumba milk-vetch
[Blue area]	Fuel Mod Zone	[Red square]	Deinandra floribunda - Tecate tarplant
[Blue hatched area]	Southwest Powerlink ROW	[Purple square]	Geraea viscida, sticky geraea
		[Light blue square]	Hesperocyparis forbesii - Tecate cypress
		[Green square]	Linthus bellus - desert beauty
		[White square]	Lathyrus splendens - pride-of-California
		[Yellow-green square]	Astragalus douglasii var. perstrictus, Jacumba milk-vetch
		[Red square]	Deinandra floribunda - Tecate tarplant
		[Purple square]	Geraea viscida, sticky geraea
		[Green square]	Linthus bellus - desert beauty



FIGURE 9A
Impacts - Special-Status Plant Observations

INTENTIONALLY LEFT BLANK



- Gen-Tie 150-Ft. Buffer
- Tierra del Sol Solar Farm
- Gen-Tie Alignment**
- Overhead Power Line
- Underground Power Line
- Gen-Tie Pole Locations
- Impact Buffer
- Special-Status Species - Plants**
- Astragalus douglasii* var. *perstrictus* - Jacumba milk-vetch
- Geraea viscida*, Sticky geraea
- Linantus bellus* - desert beauty

0 250 500 Feet

DUDEK

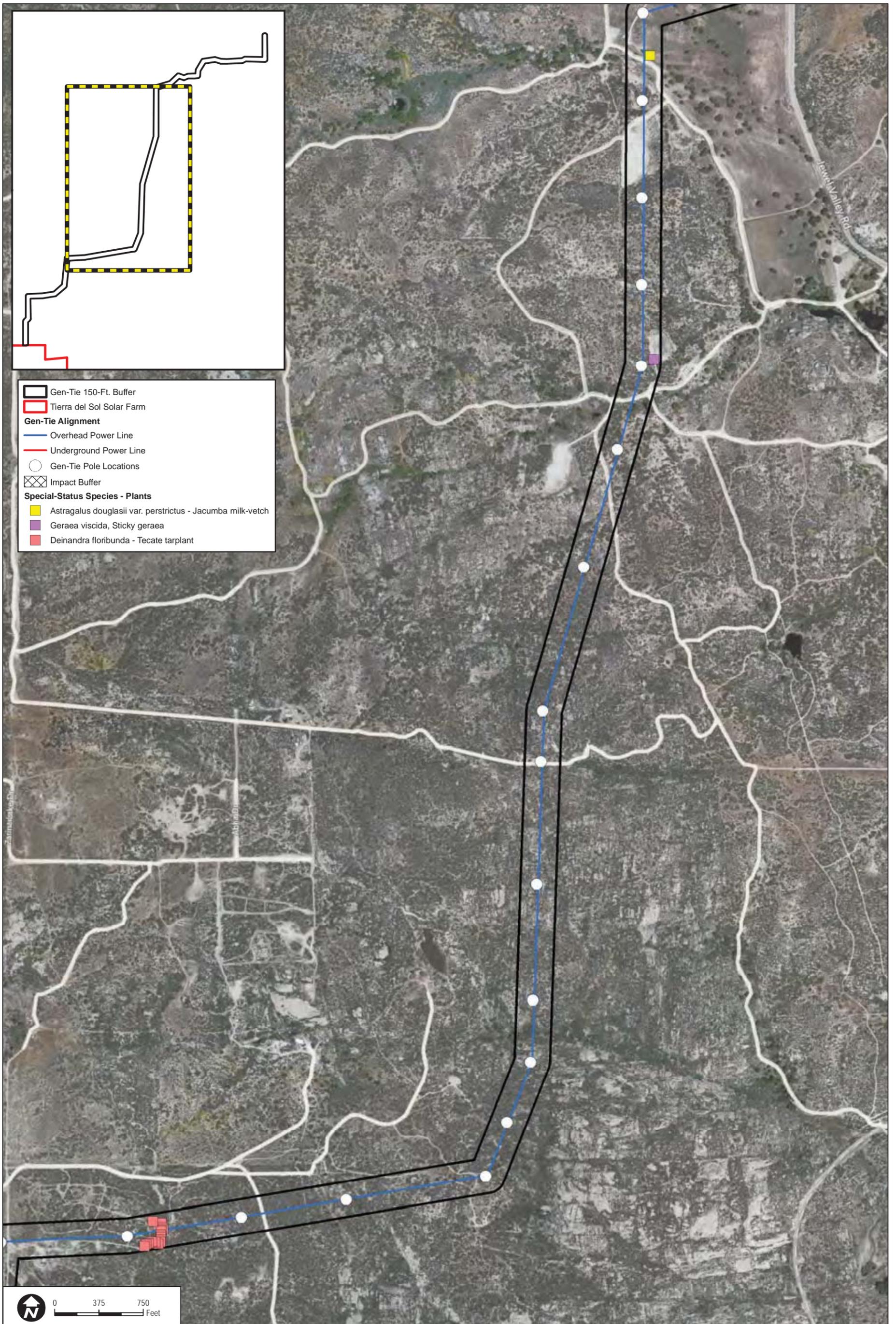
SOURCE: SANDAG; Bing Maps

7123

DRAFT BIOLOGICAL RESOURCES REPORT - TIERRA DEL SOL SOLAR FARM

FIGURE 9B
Impacts - Tierra del Sol Gen-Tie Special-Status Plant Observations

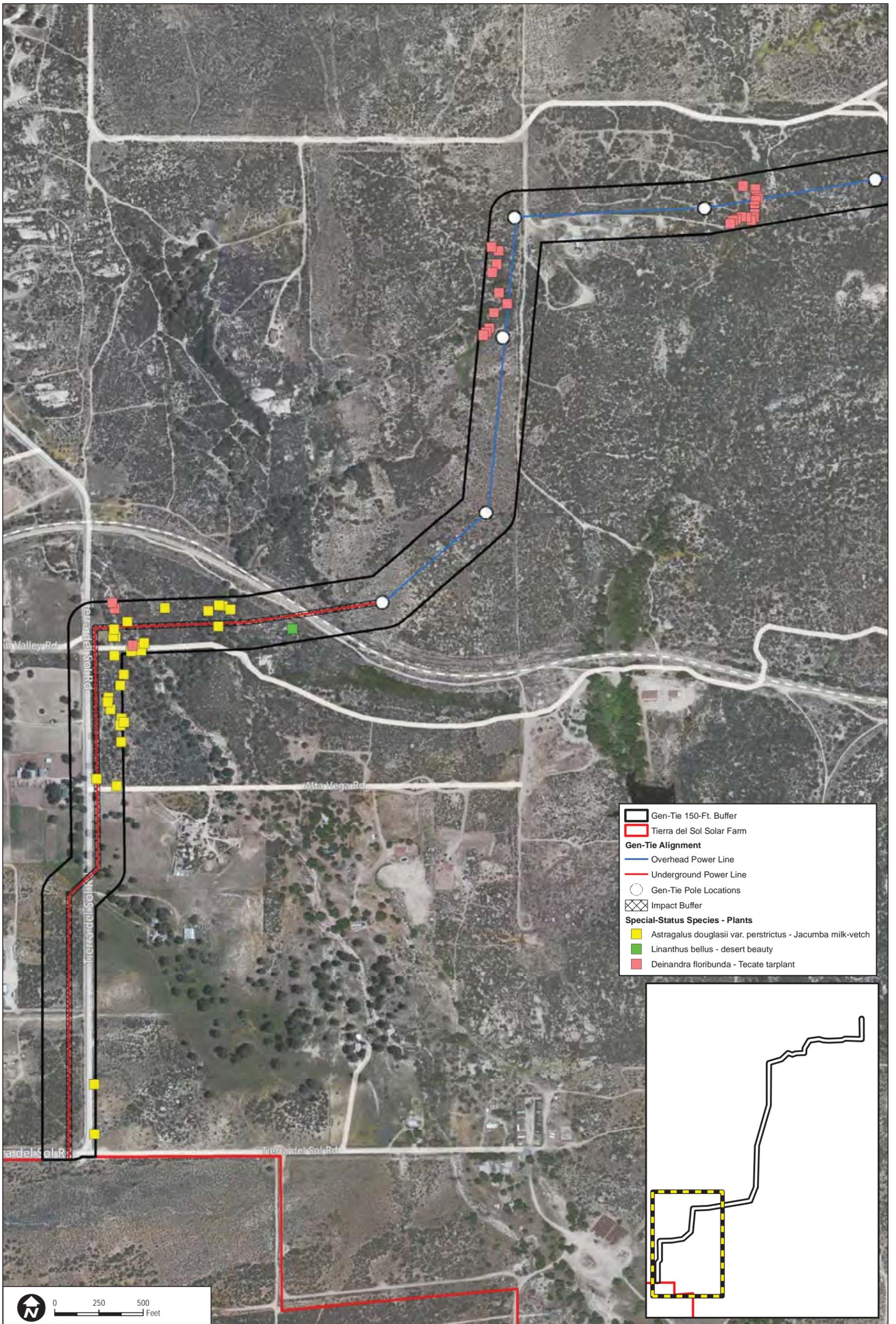
INTENTIONALLY LEFT BLANK



Gen-Tie 150-Ft. Buffer
 Tierra del Sol Solar Farm
Gen-Tie Alignment
— Overhead Power Line
— Underground Power Line
 Gen-Tie Pole Locations
 Impact Buffer
Special-Status Species - Plants
 Astragalus douglasii var. *perstrictus* - Jacumba milk-vetch
 Geraea viscida, Sticky geraea
 Deinandra floribunda - Tecate tarplant

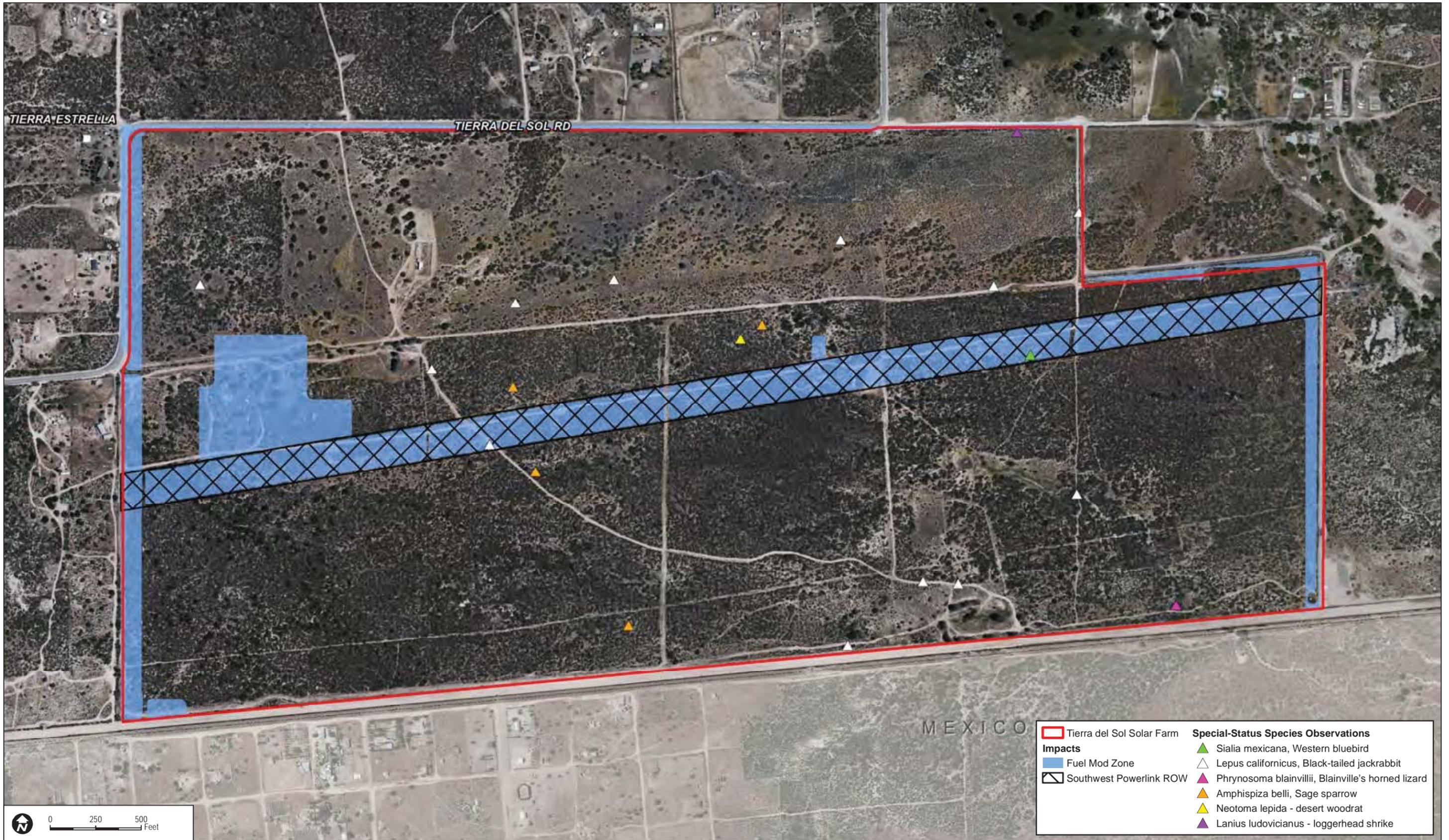


INTENTIONALLY LEFT BLANK



	Gen-Tie 150-Ft. Buffer
	Tierra del Sol Solar Farm
Gen-Tie Alignment	
	Overhead Power Line
	Underground Power Line
	Gen-Tie Pole Locations
	Impact Buffer
Special-Status Species - Plants	
	<i>Astragalus douglasii</i> var. <i>perstrictus</i> - Jacumba milk-vetch
	<i>Linanthus bellus</i> - desert beauty
	<i>Deinandra floribunda</i> - Tecate tarplant

INTENTIONALLY LEFT BLANK



Impacts		Special-Status Species Observations	
[Red Outline]	Tierra del Sol Solar Farm	[Green Triangle]	<i>Sialia mexicana</i> , Western bluebird
[Blue Area]	Fuel Mod Zone	[White Triangle]	<i>Lepus californicus</i> , Black-tailed jackrabbit
[Blue Hatched Area]	Southwest Powerlink ROW	[Pink Triangle]	<i>Phrynosoma blainvillii</i> , Blainville's horned lizard
		[Yellow Triangle]	<i>Amphispiza belli</i> , Sage sparrow
		[Orange Triangle]	<i>Neotoma lepida</i> - desert woodrat
		[Purple Triangle]	<i>Lanius ludovicianus</i> - loggerhead shrike

FIGURE 9E
Impacts - Special-Status Wildlife Observations

INTENTIONALLY LEFT BLANK

Biological Resources Report for the Tierra del Sol Solar Farm Project

Potential permanent direct impacts to the wildlife species described previously include removal of suitable nesting and/or foraging habitat, summarized in Table 3-2. This table does not include loss of suitable habitat due to construction of the gen-tie alignment. Direct impacts due to the gen-tie alignment are small in scope, occur along a linear alignment, and are not anticipated to result in the direct loss of species, absent mitigation measures MM-2 (biological monitoring), MM-3 (restrictions on construction vehicle speed limits), MM-4 (preparation of a biological monitoring report), MM-10 (breeding season avoidance), MM-11 (monitoring excavated areas and soil piles), and MM-13 (implement recommendations by the Avian Power Line Interaction Committee). Loss of suitable nesting/foraging habitat is considered a significant impact (**Impact W-3**). These impacts will be mitigated through mitigation measure MM-1 (habitat preservation and management).

Table 3-2
Impacts to Suitable Habitat for Group 1 and/or SSC Wildlife Species

Species Name	Suitable Habitat	
	<i>Existing Acreage</i>	<i>Impacts Acreage</i>
<i>Amphibians and Reptiles</i>		
Belding's orange-throated whiptail	571	428
Blainville's horned lizard	623	429
Northern red-diamond rattlesnake	623	429
<i>Birds</i>		
Bell's sage sparrow	497	358
Cooper's hawk—foraging	510	346
Cooper's hawk—nesting	152	93
Prairie falcon—foraging	624	430
Golden eagle—foraging	122	68
Loggerhead shrike	605	428
Turkey vulture—foraging	607	423
<i>Mammals</i>		
San Diego black-tailed jackrabbit	571	406
San Diego desert woodrat	616	429

3.2.3 Project Effects Relevant to Guideline 4.1.C

3.2.3.1 Special-Status Plant Species (County List C and D Species)

There will be no direct impacts to County List C plant species resulting from implementation of the Proposed Project.

Biological Resources Report for the Tierra del Sol Solar Farm Project

One County List D plant species would be directly impacted by the Proposed Project: pride of California (*Lathyrus splendens*). Figure 9A shows the Proposed Project impacts to County List D plant species on the solar farm site. No individuals of pride of California were detected on the gen-tie alignment. More specifically, approximately four individuals of pride of California (100% of the on-site individuals), CRPR 4.3, would be directly impacted by the Proposed Project. These proposed impacts to County List D species would be not considered significant because, based on the species CRPR of 4.3, the species is of limited distribution but not considered rare and has a low “vulnerability or susceptibility to threat”; therefore, the impact will not substantially affect long-term survival of the species (CNPS 2012).

3.2.3.2 Special-Status Wildlife Species (County Group 2)

Loss of individual special-status snakes (County Group 2³), including rosy boa (*Charina trivirgata*), from construction-related activities would be considered significant (**Impact W-4**). This impact will be mitigated through mitigation measures MM-2 (biological monitoring), MM-3 (preparation and implementation of a SWPPP), MM-4 (preparation of a biological monitoring report), and MM-11 (monitoring excavated areas and soil piles). Loss of Group 2 special-status wildlife species that are not state SSC animals from construction-related activities is considered less than significant due either to their regional widespread presence or the project area’s relative importance to the species. These species occur within a variety of habitats and through a wide geographic, topographic, and elevational range of which there is an abundance in the region. Additionally, if any active nests or young of nesting special-status bird species (County Group 2) are impacted through direct grading, these impacts would be considered significant (**Impact W-5**), based on the MBTA. This impact will be mitigated through mitigation measure MM-10 (preconstruction surveys for nesting birds and setbacks).

As summarized in Section 1.4.6, the following County Group 2 special-status wildlife species were incidentally observed either directly or indirectly (i.e., scat, tracks) within the project area: western bluebird and southern mule deer). Figure 9B shows the Proposed Project impacts in relation to the special-status wildlife observations mapped on site. Two additional Group 2 species were observed but are analyzed in Section 3.2.2.2 because they are state SSC animals: Blainville’s horned lizard and San Diego black-tailed jackrabbit.

The following additional County Group 2 wildlife species have high potential to occur within the project area: coastal western whiptail and rosy boa. Two additional Group 2 species have high

³ County Group 2 special-status wildlife species that are state SSC are addressed in Section 3.2.2.2, Special-Status Wildlife (Group 1).

Biological Resources Report for the Tierra del Sol Solar Farm Project

potential to occur but are analyzed in Section 3.2.2.2 because they are state SSC animals: Belding's orange-throated whiptail, and northern red-diamond rattlesnake.

Potential permanent direct impacts to suitable habitat for western bluebird, southern mule deer, and coastal western whiptail are less than significant due either to their widespread presence or the project area's relative importance to the species.

Potential permanent direct impacts to suitable habitat for rosy boa could occur as a result of the Proposed Project. This impact would be considered a significant impact (**Impact W-6**), and will be mitigated through mitigation measure MM-1 (habitat preservation and management).

3.2.4 Project Effects Relevant to Guideline 4.1.D

No arroyo toads (*Anaxyrus californicus*) have been detected in the project area nor are they expected to occur. Arroyo toads are not known from this area and have not been documented in the Tierra Del Sol quadrangle (CDFG 2012a). The project area lacks suitable habitat for this species. The closest U.S. Fish and Wildlife Service (USFWS) occurrence is approximately 12 miles northwest of the project area (USFWS 2012).

3.2.5 Project Effects Relevant to Guideline 4.1.E

No active nests or territories are known to occur within 4,000 feet of the project area. Both the Tierra del Sol project area and proposed mitigation lands are located within the historical golden eagle territory for the Boundary Mountain pair that is currently extirpated. There has been recent golden eagle breeding activity in six territories that surround the Proposed Project, but these territories do not overlap with the project site. WRI has determined that although golden eagle flyway zones include the project sites, more heavily utilized paths are located north of the project sites. Furthermore, the project site is primarily comprised of dense chaparral vegetation, in which eagles cannot conduct foraging.

The results of a golden eagle territory report specific to the Proposed Project are included as Appendix H.

3.2.6 Project Effects Relevant to Guideline 4.1.F

Foraging habitat for raptors is present throughout portions of the project area. Approximately 405 acres of vegetation communities and land covers will be impacted. Many of these habitats would be considered suitable foraging habitat for raptors. Therefore, impacts to raptor foraging habitat is considered a significant impact (**Impact W-7**). Impacts to raptor foraging habitat will be mitigated through mitigation measure MM-1 (habitat preservation and management).

Biological Resources Report for the Tierra del Sol Solar Farm Project

3.2.7 Project Effects Relevant to Guideline 4.1.G

The solar farm is included within a Core Wildlife Area (a large block of habitat that supports multiple wildlife species), even though the 420 acre property is surrounded by fencing which may exclude some larger wildlife. The gen-tie alignment is also within a core area or areas, but due to its linear nature, the dis-jointed land use adjacency, and its permeability, its core status is not an issue.

The project would impact 420 acres of the core and this would be a significant impact to viable populations of multiple wildlife species (**Impact W-8**) (See Appendix E for the species that were observed and the sensitive species that are known or expected to occur). However, none of the species that occur in the core are particularly rare or uncommon in the area. Therefore, the impact can be mitigated by compensation at an offsite location as proposed (MM-1).

3.2.8 Project Effects Relevant to Guideline 4.1.H

3.2.8.1 *Special-Status Plant Species*

Short-term indirect impacts to County List A and B plant species as a result of the Proposed Project are described in Section 2.3.2.1 and include short-term, construction-related, or temporary indirect impacts resulting in generation of fugitive dust, changes in hydrology due to construction, and the introduction of chemical pollutants.

Short-term indirect impacts to County List A and B plant species would be considered a significant impact (**Impact SP-3**). Short-term indirect impacts to County List A and B plant species will be mitigated to less than significant through implementation of mitigation measures MM-2 (biological monitoring), MM-3 (preparation and implementation of a SWPPP), MM-4 (preparation of a biological monitoring report), and MM-5 (implementation of a Fugitive Dust Control Plan).

Potential long-term or permanent indirect impacts to County List A and B plant species as result of the Proposed Project are described in Section 2.3.2.2 and include generation of fugitive dust, habitat fragmentation, chemical pollutants (herbicides), non-native invasive species, increased human activity, and alteration of the natural fire regime.

Potential long-term indirect impacts to County List A and B plant species would be considered a significant impact (**Impact SP-4**). Long-term indirect impacts to County List A and B plant species will be mitigated to less than significant through implementation of mitigation measures MM-1 (habitat preservation and management), MM-5 (implementation of a Fugitive Dust Control Plan), MM-6 (biological review of landscape plans), MM-7 (restrictions on operation

Biological Resources Report for the Tierra del Sol Solar Farm Project

and maintenance personnel activity), MM-8 (implementation of a Fire Protection Plan), and MM-9 (regulated herbicide application).

3.2.8.2 Special-Status Wildlife Species

Short-term indirect impacts to special-status wildlife species as a result of the Proposed Project are described in Section 2.4 and include short-term, construction-related, or temporary indirect impacts that could result in generation of fugitive dust, noise, chemical pollutants, increased human activity, and non-native animal species.

Short-term indirect impacts to special-status wildlife species would be considered a significant impact (**Impact W-9**). Short-term indirect impacts to special-status wildlife species will be mitigated to less than significant through implementation of mitigation measures MM-2 (biological monitoring), MM-3 (preparation and implementation of an SWPPP), MM-4 (preparation of a biological monitoring report), MM-5 (implementation of a Fugitive Dust Control Plan), MM-10 (preconstruction surveys for nesting birds and setbacks), (MM-11 (monitoring excavated areas and soil piles), and MM-12 (minimize night lighting).

Potential long-term or permanent indirect impacts to special-status wildlife species include generation of fugitive dust; non-native, invasive plant and animal species; habitat fragmentation; increased human activity; creation of a collision hazard; and alteration of the natural fire regime. Potential long-term indirect impacts to special-status wildlife species would be considered a significant impact (**Impact W-W-10**).

Long-term indirect impacts to special-status wildlife species will be mitigated to less than significant through implementation of mitigation measures MM-1 (habitat preservation and management), MM-5 (implementation of a Fugitive Dust Control Plan), MM-6 (biological review of landscape plans), MM-7 (restrictions on operation and maintenance personnel activity), and MM-8 (implementation of a Fire Protection Plan). Impacts associated with potential electrocution and/or collisions will be mitigation to less than significant through implementation of MM-13 (implement recommendations by the Avian Power Line Interaction Committee).

3.2.9 Project Effects Relevant to Guideline 4.1.I

No burrowing owls (*Athene cunicularia*) have been detected in the project area or are anticipated to occur; therefore, there are no impacts to occupied burrowing owl habitat.

Biological Resources Report for the Tierra del Sol Solar Farm Project

3.2.10 Project Effects Relevant to Guideline 4.1.J

No cactus wrens (*Campylorhynchus brunneicapillus*) have been detected in the project area; therefore, there are no impacts to occupied cactus wren habitat.

3.2.11 Project Effects Relevant to Guideline 4.1.K

No Hermes copper butterflies (*Lycaena hermes*) have been detected in the project area. The butterflies preferred the adult nectaring plant, California buckwheat (*Eriogonum fasciculatum foliolosum*), which occurs throughout the project area; however, the larval host plant (i.e., true limiting factor), spiny redberry (*Rhamnus crocea*), has not been detected during plant surveys. Based on the lack of suitable habitat for this species, the project area is not considered occupied Hermes copper butterfly habitat. Therefore, there are no impacts related to this guideline.

3.2.12 Project Effects Relevant to Guideline 4.1.L

Indirect impacts associated with construction, such as noise, could affect the nesting success of tree-nesting raptors (Impact W-11). Construction-related impacts to the nesting success of tree-nesting raptors would be considered a significant impact (**Impact W-W-11**), and would be mitigated through mitigation measure MM-10 (preconstruction surveys for nesting birds and setbacks).

Impacts to the nesting success of tree-nesting raptors (i.e., Cooper's hawk and red-tailed hawk (*Buteo jamaicensis*)) as a result of habitat removal associated with the Proposed Project are anticipated. Long-term direct impacts to nesting habitat for Cooper's hawk and red-shouldered hawk are summarized in Table 3-2, and impacts to general vegetation communities are described in Table 2-1. Impacts to the nesting success of tree-nesting raptors associated with the loss of suitable nesting habitat, would be considered significant (**Impact W-W-12**). The loss of suitable nesting habitat (Impact W-12) would be mitigated by mitigation measure MM-1 (habitat preservation and management).

Coastal cactus wren, coastal California gnatcatcher (*Polioptila californica californica*), least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), golden eagle, and light-footed clapper rail (*Rallus longirostris levipes*) do not nest in the project area; therefore, the Proposed Project would not impact the nesting success of those species. No ground-nesting raptors (e.g., northern harrier (*Circus cyaneus*) and short-eared owl (*Asio flammeus*)) are expected to nest in the project area. Therefore, the Proposed Project would not impact the nesting success of those species.

Biological Resources Report for the Tierra del Sol Solar Farm Project

3.3 Cumulative Impact Analysis

Cumulative impacts are not assessed in this document; they will be discussed thoroughly in the Proposed Project's Environmental Impact Report (EIR).

3.4 Mitigation Measures and Design Considerations

The applicant is proposing mitigation at property that includes 2,601.3 acres located east of the Project Area to mitigate for the loss of sensitive vegetation communities and habitat that will be impacted as a result of the proposed project. A description of the mitigation site, including a list of vegetation communities and the potential for sensitive plant and wildlife species to occur, is provided in the Evaluation of Biological Resources for the Soitec Mitigation Site (Dudek 2013b, Appendix H).

Mitigation measures and design considerations for special-status plant species will be determined following the impacts analysis.

MM-1 Assuming no adopted regional habitat conservation plan, the applicant will preserve in permanent open space 429.8 acres of native habitats generally consistent with the assemblage of vegetation communities impacted by the project in an off-site open space conservation and management area. This will include preservation of 408 acres of native habitats to mitigate for project impacts to 408 acres of special-status upland vegetation communities, as well as an additional 21.7 acres of native habitats to mitigate for habitat loss of special-status plant and wildlife species and wildlife movement (summarized in Section 8.0); thereby preserving compensatory habitat that provides equal or greater benefit to plant and wildlife species. The off-site open space conservation area shall be evaluated to determine if the off-site area provides similar or greater biological function and value when compared with the identified significant impacts. This assessment shall include vegetation community mapping and an assessment of associated flora and fauna to the extent necessary to determine if the off-site conservation area provided commensurate biological function and value for each significantly impacted biological resource (vegetation communities, special-status plant species, and special-status wildlife species). The off-site open space conservation area may be composed of more than one set of contiguous parcels. Mitigation for the loss of special-status plant species shall be a minimum of 2:1 mitigation to impact ratio for Jacumba milk-vetch and Tecate tarplant individuals and 1:1 mitigation to impact ratio for sticky gerardia and desert beauty. The assessment of the number of individuals of these species supported within the impact and

Biological Resources Report for the Tierra del Sol Solar Farm Project

mitigation areas shall be conducted in comparable survey years to appropriately account for potential annual variation in the number of individuals.

Preservation of off-site open space shall be provided through one of the following options:

Option 1: If purchasing Mitigation Credit from the mitigation bank, the evidence of purchase shall include the following information to be provided by the mitigation bank:

- a. A copy of the purchase contract referencing the project name and numbers for which the habitat credits were purchased.
- b. If not stated explicitly in the purchase contract, a separate letter must be provided identifying the entity responsible for the long-term management and monitoring of the preserved land.
- c. To ensure the land will be protected in perpetuity, evidence must be provided that a dedicated conservation easement or similar land constraint has been placed over the mitigation land.
- d. An accounting of the status of the mitigation bank must be provided that shall include the total amount of credits available at the bank, the amount required by this project, and the amount remaining after utilization by this project.

Option 2: If habitat credit is not purchased in a mitigation bank, then the applicant shall provide for the conservation habitat of the same amount and type of land located in San Diego County indicated as follows:

- a. Prior to purchasing the land for the proposed mitigation, the location should be pre-approved by the County Department of Public Works (DPW).
- b. A Resource Management Plan (RMP) shall be prepared and approved pursuant to the County of San Diego Biological Report Format and Content Requirements to the satisfaction of the director of Department of Planning and & Development Services (DPDS). If the off-site mitigation is proposed to be managed by Department of Parks and Recreation (DPR), the RMP shall also be prepared and approved to the satisfaction of the director of DPR.
- c. An open space easement over the land shall be dedicated to the County of San Diego or like agency to the satisfaction of the director of DPDS. The land shall be protected in perpetuity.

Biological Resources Report for the Tierra del Sol Solar Farm Project

- d. The purchase and dedication of the land and selection of the resource manager and establishment of an endowment to ensure funding of annual ongoing basic stewardship costs shall be complete prior to approval of the RMP.
- e. In lieu of providing a private habitat manager, the applicant may contract with a federal, state, or local government agency with the primary mission of resource management to take fee title and manage the mitigation land). Evidence of satisfaction must include a copy of the contract with the agency, and a written statement from the agency that (1) the land contains the specified acreage and the specified habitat, or like functioning habitat, and (2) the land will be managed by the agency for conservation of natural resources in perpetuity.

Documentation: If the off-site mitigation is proposed to be owned or managed by DPR, the applicant must provide evidence to the DPDS that DPR agrees to this proposal. It is recommended that the applicant submit the mitigation proposal to the PDS for a pre-approval. If an RMP is going to be submitted in lieu of purchasing credits, then the RMP shall be prepared, and an application for the RMP shall be submitted to the PDS. Timing: Prior to issuance of a grading permit the mitigation shall occur.

Monitoring: The PDS shall review the mitigation purchase for compliance with this condition. Upon request from the applicant, PDS can pre-approve the location and type of mitigation only. The credits shall be purchased before the requirement can be completed. If the applicant chooses option #2, then the PDS shall accept an application for an RMP, and PDS and DPR shall review the RMP submittal for compliance with this condition and the RMP Guidelines.

MM-2 To prevent inadvertent disturbance to areas outside the limits of grading, all grading located shall be monitored by a biologist. A County-approved biologist “Project Biologist” shall be contracted to perform biological monitoring during all grading, clearing, grubbing, trenching, and construction activities.

The following shall be completed:

The Project Biologist shall perform the monitoring duties before, during, and after construction pursuant to the most current version of the County of San Diego Report Format and Content Requirements, Biological Resources, and this permit. The contract provided to the County shall include an agreement that this will be completed, and a Memorandum of Understanding (MOU) between the biological consulting company and the County of San Diego shall be executed. The contract

Biological Resources Report for the Tierra del Sol Solar Farm Project

shall include a cost estimate for the monitoring work and reporting. In addition to performing monitoring duties pursuant to the most current version of the County of San Diego Report Format and Content Requirements, Biological Resources, the Project Biologist also will perform the following duties:

- a. Attend the preconstruction meeting with the contractor and other key construction personnel prior to clearing, grubbing, or grading to reduce conflict between the timing and location of construction activities with other mitigation requirements (e.g., seasonal surveys for nesting birds)
- b. Conduct meetings with the contractor and other key construction personnel describing the importance of restricting work to designated areas prior to clearing, grubbing, or grading
- c. Discuss procedures for minimizing harm to or harassment of wildlife encountered during construction with the contractor and other key construction personnel prior to clearing, grubbing, or grading
- d. Review and/or designate the construction area in the field with the contractor in accordance with the final grading plan prior to clearing, grubbing, or grading
- e. Conduct a field review of the staking to be set by the surveyor, designating the limits of all construction activity prior to clearing, grubbing, or grading
- f. Be present during initial vegetation clearing, grubbing, and grading
- g. Flush special-status species (i.e., avian or other mobile species) from occupied habitat areas immediately prior to brush-clearing and earth-moving activities
- h. To address hydrology impacts, the Project Biologist shall verify that grading plans include an SWPPP (see **MM-3** for required best management practices (BMPs)).

The cost of the monitoring shall be added to the grading bonds that will be posted with the DPW, or bond separately with the PDS.

Documentation: The applicant shall provide a copy of the biological monitoring contract, cost estimate, and MOU to the PDS. Additionally, the cost amount of the monitoring work shall be added to the grading bond cost estimate. Timing: Prior to approval of any grading and or improvement plans and issuance of any grading or construction permits. Monitoring: The PDS shall review the contract, MOU, and cost estimate or separate bonds for compliance with this condition. The cost estimate should be forwarded to the project manager for inclusion in the grading

Biological Resources Report for the Tierra del Sol Solar Farm Project

bond cost estimate and grading bonds. The DPW shall add the cost of the monitoring to the grading bond costs.

MM-3

The SWPPP will include, at a minimum, the BMPs listed as follows. The combined implementation of these requirements shall protect adjacent habitats and special-status species during construction to the maximum extent practicable. At a minimum, the following measures and/or restrictions shall be incorporated into the SWPPP and noted on construction plans, where appropriate, to avoid impacts on special-status species and sensitive vegetation communities during construction. The Project Biologist shall verify implementation of the following design requirements:

1. No planting or seeding of invasive plant species on the most recent version of the California Invasive Plant Council (Cal-IPC) California Invasive Plant Inventory for the project region will be permitted. All plant stock shall be inspected fumigated for pests, including Argentine ants, at the site prior to just prior to bringing the plants to the site for installation and infested material shall be refused.
2. Location and details will be provided for any dust-control or BMP fencing.
3. When construction operations are completed, any excess materials or debris will be removed from the work area.
4. Fully covered trash receptacles that are animal-proof and weather-proof will be installed and used by the operator to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash. Prohibit littering and remove trash from construction areas daily. All food-related trash and garbage shall be removed from the construction sites on a daily basis.
5. Pets on or adjacent to construction sites will not be permitted by the operator.
6. Enforce speed limits in and around all construction areas. Vehicles shall not exceed 15 miles per hour on unpaved roads and the right-of-way accessing the construction site or 10 miles per hour during the night.
7. Construction activity will not be permitted in jurisdictional waters, including wetlands or riparian areas, except as authorized by applicable law and permit(s), including permits and authorizations approved by the U.S. Army Corps of Engineers (ACOE), California Department of Fish and Wildlife (CDFW), and Regional Water Quality Control Board (RWQCB).
8. Silt settling basins installed during the construction process will be located away from areas of ponded or flowing water to prevent discolored, silt-

Biological Resources Report for the Tierra del Sol Solar Farm Project

bearing water from reaching areas of ponded or flowing water during normal flow regimes.

9. Temporary structures and storage of construction materials will not be located in jurisdictional waters, including wetlands and riparian areas.
10. Staging/storage areas for construction equipment and materials will not be located in jurisdictional waters, including wetlands and riparian areas.
11. Any equipment or vehicles driven and/or operated within a jurisdictional waters, including wetlands and riparian areas, will be checked and maintained by the operator daily to prevent leaks of oil or other petroleum products that could be deleterious to aquatic life if introduced to the watercourse.
12. No stationary equipment, such as motors, pumps, generators, and welders, or fuel storage tanks will be located within jurisdictional waters, including wetlands and riparian areas.
13. No debris, bark, slash sawdust, rubbish, cement, or concrete, or washing thereof, oil, or petroleum products will be stored where it may be washed by rainfall or runoff into jurisdictional waters, including wetlands and riparian areas.

MM-4

To ensure that the biological monitoring occurred during the grading phase of the project, a final biological monitoring report shall be prepared. The “Project Biologist” shall prepare a final biological monitoring report. The report shall substantiate the supervision of the grading activities and state that grading or construction activities did not impact any additional areas or any other sensitive biological resources. The report shall conform to the County of San Diego *Report Format and Content Requirements, Biological Resources*, and include the following items:

1. Photos of the temporary fencing that was installed during the trenching, grading, or clearing activities
2. Monitoring logs showing the date and time that the monitor was on site
3. Photos of the site after the grading and clearing activities

Documentation: The Project Biologist shall prepare the final report and submit it to the PDS for review and approval. Timing: Prior to any occupancy, final grading release, or use of the premises in reliance of this permit, the final report shall be approved. Monitoring: The PDS shall review the final report for compliance with this condition and the report format guidelines. Upon approval

Biological Resources Report for the Tierra del Sol Solar Farm Project

of the report, PDS shall inform DPW that the requirement is complete and the bond amount can be relinquished. If the monitoring was bonded separately, then PDS shall inform DPW to release the bond back to the applicant.

MM-5 The Applicant shall develop a Fugitive Dust Control Plan in compliance with San Diego County Air Pollution Control Regulations to reduce particulate matter less than 10 microns (PM₁₀) and fine particulate matter less than 2.5 microns (PM_{2.5}) emissions during construction. The Fugitive Dust Control Plan shall include:

1. Name(s), address(es), and phone number(s) of person(s) responsible for the preparation, submission, and implementation of the plan.
2. Description and location of operation(s).
3. Listing of all fugitive dust emissions sources included in the operation.
4. The following dust control measures shall be implemented:
 - a. The road leading to the operations and maintenance facility shall be paved as early as practical during construction.
 - b. All other on-site unpaved roads shall be effectively stabilized using soil stabilizers that can be determined to be as efficient, or more efficient for fugitive dust control than California Air Resources Board–approved soil stabilizers, and that it shall not increase any other environmental impacts including loss of vegetation.
 - c. All material excavated or graded will be sufficiently watered to prevent excessive dust. Watering will occur as needed with complete coverage of disturbed areas. The excavated soil piles are watered hourly for the duration of construction or covered with temporary coverings.
 - d. Construction activities that occur on unpaved surfaces will be discontinued during windy conditions when winds exceed 25 miles per hour and when those activities cause visible dust plumes. All grading activities shall be suspended when wind speeds are greater than 30 miles per hour.
 - e. Track-out shall not extend 25 feet or more from an active operation, and track-out shall be removed at the conclusion of each workday.
 - f. All haul trucks hauling soil, sand, and other loose materials shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions).
 - g. Soil loads should be kept below 18 inches of the freeboard of the truck.

Biological Resources Report for the Tierra del Sol Solar Farm Project

- h. Drop heights should be minimized when loaders dump soil into trucks.
- i. Traffic speeds on unpaved roads shall be limited to 25 miles per hour.
- j. Disturbed areas should be minimized.
- k. Disturbed areas should be revegetated as soon as possible after disturbance.

MM-6 Prior to installation of any landscaping, plant palettes shall be reviewed by the Project Biologist to minimize the effects that proposed landscape plants could have on biological resources outside of the project footprint due to potential naturalization of landscape plants in the undeveloped lands. Landscape plants will not include invasive plant species on the most recent version of the Cal-IPC California Invasive Plant Inventory for the project region. Landscape plans will include a plant palette composed of native species that do not require high irrigation rates.

MM-7 Operation and maintenance personnel will be prohibited from:

1. Harming, harassing, or feeding wildlife and/or collecting special-status plant or wildlife species.
2. Traveling (either on foot or in a vehicle) outside of the project footprint in undisturbed portions of the project area.
3. Bringing pets on the project area.
4. Littering on the project area.
5. Allowing persons not employed at the facility to remain on site after daylight hours or exceeding normal nighttime operational noise or lighting.

MM-8 To minimize the potential exposure of the project area to fire hazards, all features of the Tierra Del Sol Fire Protection Plan (Dudek 2012) shall be implemented in conjunction with development of the Tierra Del Sol Solar Farm.

MM-9 Weed control treatments shall include all legally permitted chemical, manual, and mechanical methods applied with the authorization of the San Diego County agriculture commissioner. The application of herbicides shall be in compliance with all state and federal laws and regulations under the prescription of a pest control advisor (PCA) and implemented by a licensed applicator working for the project owner. Where manual and/or mechanical methods are used, disposal of the plant debris will follow the regulations set by the San Diego County agriculture commissioner. The timing of the weed control treatment shall be determined for

Biological Resources Report for the Tierra del Sol Solar Farm Project

each plant species in consultation with the PCA, the San Diego County agriculture commissioner, and Cal-IPC with the goal of controlling populations before they start producing seeds. Weed treatment shall occur at least once per year throughout the life of the project.

MM-10 If construction work must occur during the avian breeding season (February 1 to August 31, and as early as January 1 for some raptors), the applicant should work with the CDFW and the USFWS to prepare a Nesting Bird Management, Monitoring, and Reporting Plan (NBMMRP) to address avoidance of impacts to nesting birds.

1. The applicant(s) will submit to the agencies the NBMMRP (see following for details) for review and approval prior to commencement of the project during the breeding season. The NBMMRP should include the following:
 - a. Nest survey protocols describing the nest survey methodologies
 - b. A management plan describing the methods to be used to avoid nesting birds and their nests, eggs, and chicks
 - c. A monitoring and reporting plan detailing the information to be collected for incorporation into a regular Nest Monitoring Log (NML) with sufficient details to enable USFSW and CDFG to monitor the applicant's compliance with Fish and Game Code Sections 3503, 3503.5, 3511, and 3513
 - d. A schedule for the submittal (usually weekly) of the NML.
 - e. Standard buffer widths deemed adequate to avoid or minimize significant project-related edge effects (disturbance) on nesting birds and their nests, eggs, and chicks
 - f. A detailed explanation of how the buffer widths were determined
 - g. All measures the applicant will implement to preclude birds from utilizing project-related structures (i.e., construction equipment, facilities, or materials) for nesting.
2. Conduct preconstruction nesting bird surveys within 72 hours of construction-related activities; conduct preconstruction survey sweeps immediately prior to ground-disturbing activities; and implement appropriate avoidance measures for identified nesting birds. Resurvey, if construction activities are halted for ten consecutive days.

Biological Resources Report for the Tierra del Sol Solar Farm Project

3. To determine presence of nesting birds that the project activities may affect, surveys should be conducted beyond the project area—300 feet for passerine birds and 500 feet for raptors. The survey protocols should include a detailed description of methodologies utilized by CDFG-approved avian biologists to search for nests and describe avian behaviors that indicate active nests. The protocols should include but are not limited to the size of the project area being surveyed, method of search, and behavior that indicates active nests.
4. Each nest identified in the project area should be included in the NML. The NMLs should be updated daily and submitted to the CDFG weekly. Since the purpose of the NMLs is to allow the CDFG to track compliance, the NMLs should include information necessary to allow comparison between nests protected by standard buffer widths recommended for the project (300 feet for passerine birds, 500 feet for raptors) and nests whose standard buffer width was reduced by encroachment of project-related activities. The NMLs should provide a summary of each nest identified, including the species, status of the nest, buffer information, and fledge or failure data. The NMLs will allow for tracking the success and failure of the buffers and will provide data on the adequacy of the buffers for certain species.
5. The applicant(s) will rely on its avian biologists to determine the appropriate standard buffer widths for nests within the project corridor/footprint to employ based on the sensitivity levels of specific species or guilds of avian species. The determination of the standard buffer widths should be site- and species-/guild-specific and data-driven and not based on generalized assumptions regarding all nesting birds. The determination of the buffer widths should consider the following factors:
 - a. Nesting chronologies
 - b. Geographic location
 - c. Existing ambient conditions (human activity within line of sight—cars, bikes, pedestrians, dogs, noise)
 - d. Type and extent of disturbance (e.g., noise levels and quality—punctuated, continual, ground vibrations—blasting-related vibrations proximate to tern colonies are known to make the ground-nesting birds flush the nests)
 - e. Visibility of disturbance
 - f. Duration and timing of disturbance

Biological Resources Report for the Tierra del Sol Solar Farm Project

- g. Influence of other environmental factors
 - h. Species' site-specific level of habituation to the disturbance.
6. Application of the standard buffer widths should avoid the potential for project-related nest abandonment and failure of fledging, and minimize any disturbance to the nesting behavior. If project activities cause or contribute to a bird being flushed from a nest, the buffer must be widened.

Documentation: The Project Biologist shall prepare the final report and submit it to the PDS for review and approval. Timing: Prior to any occupancy, final grading release, or use of the premises in reliance of this permit, the final report shall be approved. Monitoring: The PDS shall review the final report for compliance with this condition and the report format guidelines. Upon approval of the report, PDS shall inform DPW that the requirement is complete and the bond amount can be relinquished. If the monitoring was bonded separately, then PDS shall inform DPW to release the bond back to the applicant.

MM-11 As a condition on the grading plans, the Project Biologist shall cover and/or provide escape routes for wildlife from excavated areas and monitor these areas daily. All steep trenches, holes, and excavations during construction shall be covered at night with backfill, plywood, metal plates, or other means, and the edges covered with soils and plastic sheeting such that small wildlife cannot access them. Soil piles will be covered at night to prevent wildlife from burrowing in. The edges of the sheeting will be weighed down by sandbags. These areas may also be fenced to prevent wildlife from gaining access. Exposed trenches, holes, and excavations shall be inspected twice daily (i.e., each morning and prior to sealing the exposed area) by a qualified biologist to monitor for, and release wildlife, if they become entrapped. Excavations shall provide an earthen ramp to allow for a wildlife escape route.

MM-12 As a condition on the grading plans, minimize night construction lighting adjacent to native habitats. Lighting of construction areas at night shall be the minimum necessary for personnel safety and shall be low illumination, selectively placed, and directed/shielded appropriately to minimize lighting in adjacent native habitats.

MM-13 Provide evidence to the Director of PDS that all transmission towers and lines are designed to conform to Avian Power Line Interaction Committee (APLIC) standards. The Proposed Project shall implement recommendations by the APLIC (2006), which will protect raptors and other birds from electrocution. These

Biological Resources Report for the Tierra del Sol Solar Farm Project

measures are sufficient to protect even the largest birds that may perch or roost on transmission lines or towers from electrocution. Specifically these measures will include guidance on proper pole and crossmember dimensions, phasing, and insulator design and dimensions to preclude wire to wire contact with a goal of providing 150-cm of separation between energized conductors and energized hardware and ground wire. In addition, bird diverters or other means to make lines more visible to birds will be installed to help avoid collisions.

3.5 Conclusions

3.5.1 Sensitive Plant Species

Impact SP-1 The significant short-term direct impacts to Jacumba milkvetch, sticky geranium, Tecate tarplant, and desert beauty will be reduced to less than significant through implementation of mitigation measures MM-2, MM-3, and MM-4, because the mitigation, which requires biological monitoring, review of areas designated for clearing, grubbing, or grading; restrictions on construction vehicle speeds, and preparation of a biological monitoring report, will prevent and document that construction will not cause additional impacts beyond the project footprint. Additional design features measures that will also help reduce potential impacts include landscape monitoring and maintenance.

Impact SP-2 The significant long-term direct impacts to Jacumba milkvetch, sticky geranium, Tecate tarplant and desert beauty will be reduced to less than significant through implementation of mitigation measure MM-1, which provides for 429.8 acres of off-site habitat and habitat management and conservation that has been demonstrated to contain these species with mitigation for the individuals (which may be based on the estimated extent of the population) to at least a 2:1 ratio or better. This would reduce the impact to less than significant because there would be adequate numbers of individuals and habitat to preserve and manage the species in perpetuity and in accordance with the County Guidelines of Significance for Biological Resources equivalent function and value as well as management of that habitat.

Impact SP-3 The significant short-term indirect impacts to Jacumba milkvetch, sticky geranium, Tecate tarplant, and desert beauty will be reduced to less than significant through implementation of mitigation measures MM-2, MM-3, MM-4, and MM-5, which require biological monitoring during

Biological Resources Report for the Tierra del Sol Solar Farm Project

construction, review of areas designated for clearing, grubbing, or grading; restrictions on construction vehicle speeds, preparation of a biological monitoring report, and implementation of a Fugitive Dust Control Plan. These impacts have been reduced to less than significant because these measures will prevent and document that construction will not cause additional impacts beyond the project footprint. Additional design features that will also help reduce potential impacts include landscape monitoring and maintenance.

Impact SP-4

The significant long-term indirect impacts to Jacumba milkvetch, sticky geraea, Tecate tarplant, and desert beauty will be reduced to less than significant through implementation of mitigation measures MM-1, MM-5, MM-6, MM-7, MM-8, and MM-9, which provide for 429.8 acres of off-site compensatory mitigation, habitat conservation and management, of equivalent function and value, and require implementation of a Fugitive Dust Control Plan, biological review of landscape plans, restrictions on operation and maintenance personnel activity, implementation of a Fire Protection Plan, and regulation of landscape installation and herbicide application. Potential indirect impacts have been reduced to less than significant because human activity has been restricted to the project footprint, the risk of fire has been reduced, and release of exotic plants and animals has been minimized.

3.5.2 Sensitive Wildlife Species

Impact W-1

Potential significant short-term direct impacts from loss of County Group I Species will be reduced to less than significant through implementation of mitigation measures MM-2, MM-3, MM-4, MM-7, MM-10, MM-11, and MM-12, which require biological monitoring during construction, restrictions on construction vehicle speeds, preparation of a biological monitoring report, restrictions on operation and maintenance personnel activity, breeding season avoidance, monitoring excavated areas and soil piles, and minimizing night lighting. Additional design features that will also help reduce impacts include landscape monitoring and maintenance. These impacts have been reduced to less than significant because the measures will minimize the potential for loss of individuals.

Impact W-2/W-5

The significant short-term direct impacts to active nests or the young of nesting County Group 1 or Group 2 or SSC species will be reduced to less than significant through implementation of mitigation measure MM-10,

Biological Resources Report for the Tierra del Sol Solar Farm Project

which requires preconstruction surveys for nesting birds and setbacks for active nests. These impacts have been reduced to less than significant by ensuring that nests and fledglings are not directly impacted by construction activities. Active nests will be flagged during the nesting bird surveys and buffers, which eliminate construction activities near nests, will be applied.

Impact W-3/W-6 The significant long-term direct impacts to County Group I and Group II species (described in Table 3-2), as a result of removal of suitable habitat, will be reduced to less than significant through implementation of mitigation measure MM-1, which provides commensurate for off-site habitat management and conservation that has been demonstrated to contain habitat for these species. Avoidance of direct impacts on-site for the individuals would be done during construction. These impacts have been reduced to less than significant because the off-site habitat and its management will provide and management equivalent or better function and value for these species and be managed and monitored in perpetuity.

Impact W-4 The significant short-term direct impacts to County Group II species (described in Table 3-2), as a result of removal of suitable habitat, will be reduced to less than significant through implementation of mitigation measures MM-2, MM-3, MM-4, and MM-11, which require biological monitoring, preparation and implementation of a SWPPP, preparation of a biological monitoring report, and monitoring excavated areas and soil piles. Additional mitigation measures include landscape monitoring and maintenance. The SWPPP includes Best Management Practices (BMPs) such as: fumigating plant stock for pests, including Argentine ants; dust control; covering trash receptacles; and reduced speed limits.

Impact W-7 The significant long-term direct impacts to foraging raptors, as a result of removal of suitable habitat, will be reduced to less than significant through implementation of mitigation measure MM-1, which provides for off-site habitat management and conservation that has been demonstrated to contain foraging habitat for raptors. Avoidance of direct impacts on-site for the individuals would be done during construction and operation of the project by a monitoring biologist.

Impact W-8 The significant impact to a core wildlife area will be reduced to less than significant through implementation of MM-1, because the mitigation requires habitat conservation and management of equivalent or better

Biological Resources Report for the Tierra del Sol Solar Farm Project

function and value. An equal or greater amount of off-site habitat will be preserved as is impacted on-site, thereby providing compensatory habitat to serve as a core wildlife area.

Impact W-9

The significant short-term indirect impacts to special-status wildlife species will be reduced to less than significant through implementation of mitigation measures MM-2, MM-3, MM-4, MM-5, MM-11, and MM-12, because the mitigation, which requires biological monitoring; review of areas designated for clearing, grubbing, or grading; restrictions on construction vehicle speeds; preparation of a biological monitoring report; implementation of a Fugitive Dust Control Plan; monitoring excavated areas and soil piles; and minimizing night lighting will prevent construction impacts beyond the project footprint.

Impact W-10

The significant long-term indirect impacts to special-status wildlife species will be reduced to less than significant through implementation of mitigation measures MM-1, MM-5, MM-6, MM-7, and MM-8, which require off-site habitat conservation and management of equivalent or better function and value that has been demonstrated to contain habitat for these species. Avoidance of direct impacts on-site for individual sensitive status wildlife would be done during construction and by off-site habitat conservation and management of equivalent function and value, and require implementation of a Fugitive Dust Control Plan, biological review of landscape plans, restrictions on operation and maintenance personnel activity, implementation of a Fire Protection Plan. Potential indirect impacts have been reduced to less than significant because human activity has been limited to the project operational footprint, long-term preservation of onsite wildlife habitat movement corridor will be provided, the risk of fire has been reduced, and release of exotic plants and animals has been minimized.

Impact W-11

The significant short-term indirect impacts to tree-nesting raptors, as a result of project construction, will be reduced to less than significant because mitigation measure MM-10 provides for preconstruction surveys for nesting birds and setbacks.

Impact W-12

The significant long-term direct impacts to tree-nesting raptors, as a result of removal of suitable nesting habitat, will be reduced to less than significant through implementation of mitigation measure MM-1, which provides for off-site habitat management and conservation of equivalent or

Biological Resources Report for the Tierra del Sol Solar Farm Project

better function and value that has been demonstrated to contain habitat for these species. Avoidance of direct impacts on-site for the individuals would be done during construction and operation of the project by a monitoring biologist.

Biological Resources Report for the Tierra del Sol Solar Farm Project

4.0 RIPARIAN HABITAT OR SENSITIVE NATURAL COMMUNITY

4.1 Guidelines for the Determination of Significance

The County of San Diego's (County's) *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a) are based on the criteria in Appendix G of the California Environmental Quality Act Guidelines (14 CCR 15000 et seq.) and were used to analyze potential direct and indirect impacts to biological resources. The following guidelines for the determination of significance come directly from the County's guidelines (County of San Diego 2010a).

Guideline 4.2 The project would have a substantial adverse effect on riparian habitat or another sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG or USFWS.

A. Project-related grading, clearing, construction, or other activities would temporarily or permanently remove sensitive native or naturalized habitat (as listed in Table 5, County of San Diego 2010a, excluding those without a mitigation ratio) on or off the project site. This Guideline would not apply to small remnant pockets of habitat that have a demonstrated limited biological value. No de minimus standard is specified under which an impact would not be significant; however, minor impacts to native or naturalized habitat that is providing essentially no biological habitat or wildlife value can be evaluated on a case-by-case basis to determine whether the projected impact may be less than significant. For example, an impact to native or naturalized upland habitat under 0.1 acre in an existing urban setting may be considered less than significant (depending on a number of factors). An evaluation of this type should consider factors including, but not limited to, type of habitat, relative presence or potential for sensitive species, relative connectivity with other native habitat, wildlife species and activity in the project vicinity, and current degree of urbanization and edge effects in project vicinity, etc. Just because a particular habitat area is isolated, for example, does not necessarily mean that impacts to the area would not be significant (e.g., vernal pools). An area that is disturbed or partially developed may provide a habitat "island" that would serve as a functional refuge area "stepping stone" or "archipelago" for migratory species.

Biological Resources Report for the Tierra del Sol Solar Farm Project

- B. Any of the following will occur to or within jurisdictional wetlands and/or riparian habitats as defined by U.S. Army Corps of Engineers (ACOE), California Department of Fish and Game (CDFG), and the County of San Diego: removal of vegetation; grading; obstruction or diversion of water flow; adverse change in velocity, siltation, volume of flow, or runoff rate; placement of fill; placement of structures; construction of a road crossing; placement of culverts or other underground piping; any disturbance of the substratum; and/or any activity that may cause an adverse change in native species composition, diversity, and abundance.
- C. The project would draw down the groundwater table to the detriment of groundwater-dependent habitat, typically a drop of 3 feet or more from historically low groundwater levels.
- D. The project would cause indirect impacts, particularly at the edge of proposed development adjacent to proposed or existing undeveloped lands or other natural habitat areas, to levels that would likely harm sensitive habitats over the long term. The following issues should be addressed in determining the significance of indirect impacts: increasing human access; increasing predation or competition from domestic animals, pests, or exotic species; altering natural drainage; and increasing noise and/or nighttime lighting to a level above ambient that has been shown by the best available science to adversely affect the functioning of sensitive habitats.
- E. The project does not include a wetland buffer adequate to protect the functions and values of existing wetlands. If the project is subject to the Resource Protection Ordinance (RPO), buffers of a minimum of 50 feet and a maximum of 200 feet to protect wetlands are required based on the best available science available to the County at the time of adoption of the ordinance. The following examples provide guidance on determining appropriate buffer widths:
- A 50-foot wetland buffer would be appropriate for lower quality RPO-wetlands where the wetland has been assessed to have low physical and chemical functions, vegetation is not dominated by hydrophytes, soils are not highly erosive, and slopes do not exceed 25%.
 - A wetland buffer of 50 to 100 feet is appropriate for moderate- to high-quality RPO-wetlands that support a predominance of

Biological Resources Report for the Tierra del Sol Solar Farm Project

hydrophytic vegetation or wetlands within steep slope areas (greater than 25%) with highly erosive soils. Within the 50- to 100-foot range, wider buffers are appropriate where wetlands connect upstream and downstream, where the wetlands serve as a local wildlife corridor, or where the adjacent land use(s) would result in substantial edge effects that could not be mitigated.

- Wetland buffers of 100 to 200 feet are appropriate for RPO-wetlands within regional wildlife corridors or wetlands that support significant populations of wetland-associated sensitive species, or where stream meander, erosion, or other physical factors indicate a wider buffer is necessary to preserve wildlife habitat.
- Buffering of greater than 200 feet may be necessary when an RPO-wetland is within a regional corridor or supports significant populations of wetland-associated sensitive species and lies adjacent to land use(s) that could result in a high degree of edge effects within the buffer. Although the RPO stipulates a maximum of 200 feet for RPO-wetland buffers, actions may be subject to other laws and regulations (such as the Endangered Species Act) that require greater wetland buffer widths.

4.2 Analysis of Project Effects

The Proposed Project will result in significant impacts and are mitigated under the guidelines presented in Section 4.1 for the following reasons.

4.2.1 Project Effects Relevant to Guideline 4.2.A

Short-term, construction-related, or temporary direct impacts to special-status upland vegetation communities would primarily result from construction activities. Clearing, trampling, or grading of special-status vegetation communities outside designated construction zones could occur in the absence of avoidance and mitigation measures. Potential temporary direct impacts to special-status vegetation communities on site would be significant, **(Impact V-1)**. However, these short-term, direct impacts will be mitigated to a level below significance through implementation of Mitigation Measures MM-2 (biological monitoring), MM-3 (preparation and implementation of a SWPP), and MM-4 (preparation of a biological monitoring report).

Permanent direct impacts to disturbed land are not considered significant. Permanent direct impacts to 408.3 acres of special-status upland vegetation communities would occur as a result of the Proposed Project. Permanent direct impacts to special-status upland vegetation

Biological Resources Report for the Tierra del Sol Solar Farm Project

communities would be considered a significant impact (**Impact V-2**). This impact will be mitigated through Mitigation Measure MM-1 (habitat preservation and management), which will conserve approximately 429.8 acres of equivalent function and value.

Table 2-1 in Section 2.2 summarizes permanent direct impacts to vegetation communities and land covers found in the project area. Figures 8A through D illustrate the distribution of biological resources on site and the locations where proposed impacts would occur. Table 4-1, Summary of Impacts, Mitigation, and Open Space for Vegetation Communities and Jurisdictional Areas, summarizes the impacts and required mitigation for special-status vegetation communities in the project area.

**Table 4-1
Summary of Impacts, Mitigation, and Open Space for
Vegetation Communities and Jurisdictional Areas**

Habitat Types/Vegetation Communities	Existing Acreage	Total Impacts (Ac.) ¹	Mitigation Ratio	Mitigation Required (Ac.)
<i>Non-Jurisdictional Vegetation Communities</i>				
<i>Upland Scrub and Chaparral</i>				
Big Sagebrush Scrub*	17.2	16.2	2:1	32.4
Montane Buckwheat Scrub*	59.1	41.7	1:1	41.7
Disturbed Montane Buckwheat Scrub *	2.3	2.3	1:1	2.3
Montane Buckwheat Scrub /Red Shank Chaparral*	2.0	2.0	1:1	2.0
Granitic Chamise Chaparral*	177.0	176.9	0.5:1	88.5
Granitic Chamise Chaparral/Montane Buckwheat Scrub *	2.2	2.2	1:1	2.2
Granitic Northern Mixed Chaparral*	181.3	75.2	0.5:1	37.6
Granitic Northern Mixed Chaparral/Montane Buckwheat Scrub *	13.3	13.3	1:1	13.3
Red Shank Chaparral*	107.1	69.8	1:1	69.8
Scrub Oak Chaparral*	9.7	6.6	1:1	6.6
<i>Subtotal</i>	<i>571.2</i>	<i>406.2</i>	—	<i>296.4</i>
<i>Woodland</i>				
Coast Live Oak Woodland*	7.5	1.2	3:1	Included in the oak root zone mitigation
Disturbed Coast Live Oak Woodland	3.8	0.3	3:1	Included in the oak root zone mitigation
<i>Subtotal</i>	<i>11.3</i>	<i>1.5</i>	—	Included in the oak root zone mitigation
<i>Non-Natural Land Covers</i>				
Open Water	0.1	0.1	N/A	—
Disturbed Land	33.2	21.5	N/A	—
Urban/Developed	4.8	0.2	N/A	—

Biological Resources Report for the Tierra del Sol Solar Farm Project

Table 4-1
Summary of Impacts, Mitigation, and Open Space for
Vegetation Communities and Jurisdictional Areas

Habitat Types/Vegetation Communities	Existing Acreage	Total Impacts (Ac.) ¹	Mitigation Ratio	Mitigation Required (Ac.)
Non-Native Grassland	7.7	0.3	0.5:1	0.2
<i>Subtotal</i>	45.8	22.0	—	0.2
<i>Jurisdictional Vegetation Communities and Waters</i>				
Southern Willow Scrub*	0.5	0.0	—	—
Wet Montane Meadow*	0.07	0.0	—	—
Non-wetland Ephemeral Waters ²	0.58	0.03	—	—
<i>Subtotal</i>	1.15	0.03	—	—
<i>Other</i>				
RPO Wetland Buffer ²	2.4	0.0	—	—
Oak Root Zone ²	22.7	2.5	3:1 ³	7.5
<i>Subtotal²</i>	25.1	2.5	—	7.5
Total	628.9	429.8	—	304.1

¹ Totals may not add due to rounding.

² These features are overlays to the vegetation community layer and are not counted toward the total acreage.

³ Because the oak root zone impacts require a higher mitigation ratio, acres of vegetation communities included in the oak root zone category that have less than a 3:1 mitigation ratio are not counted in the vegetation communities and land cover types.

* Considered special-status by the County (2010a).

Mitigation ratios provided in Table 4-1 conform to County guidelines (2010b) with the exception of ratio for open water. As discussed in Section 1.4.7, open water on site is artificially created, has negligible function and value as a wetland and is not considered jurisdictional under local, state, or federal regulations. The open water area is largely unvegetated and therefore functions similarly to disturbed habitat and is not considered significant.

4.2.2 Project Effects Relevant to Guideline 4.2.B

No wetlands or “waters of the United States” under the jurisdiction of ACOE, RWQCB, CDFW or County were identified within the solar farm site and will not be further addressed.

Within the gen-tie alignment site, wetlands and “waters of the United States” under the jurisdiction of ACOE, RWQCB, CDFW, and the County were identified. There will be no impacts to jurisdictional wetlands for the gen-tie alignment. There will be impacts to 317.7 linear feet and 0.03 acres of non-wetland ephemeral waters under the jurisdiction of ACOE/RWQCB/CDFW. Although permits from the agencies may be required, this impact is not significant because no wetland or riparian habitat, as described in Guideline 4.2.B would be adversely affected in these areas.

Biological Resources Report for the Tierra del Sol Solar Farm Project

4.2.3 Project Effects Relevant to Guideline 4.2.C

The solar site supports two areas of potentially groundwater-dependent vegetation: two small, isolated areas of open water and coast live oak woodland. The gen-tie site supports three wetlands, one of which supports coast live oak woodland, and several unvegetated stream channels. The open water area occurs in the central-eastern portion of the site and is a stock pond formed by a manufactured bank along the east side of the area. The lowest portion of the depressional feature is characterized by cracked soils, mostly lacking any vegetation. A surrounding ring of herbaceous vegetation is dominated by rabbit's foot grass (*Polypogon monspeliensis*) and black mustard (*Brassica nigra*). The open water area does not meet California Department of Fish and Wildlife (CDFW) jurisdictional criteria because it is not associated with a lake or streambed. No wetlands or waters of the United States under the jurisdiction of the U.S. Army Corps of Engineers (ACOE), Regional Water Quality Control Board (RWQCB), CDFW, or County were identified on site.

The project proposes to use a well, Well B, which is approximately 500 feet west of an off-site blue-line stream (Rattlesnake Creek). Rattlesnake Creek supports an RPO wetland community that includes coast live oaks extending both northeast and southeast of the project site. Assuming most of the herbaceous RPO wetlands are sustained by rainfall and runoff, potential impacts would be experienced by trees that may experience a loss of tap root accessibility to groundwater. Coast live oak is a native drought resistant evergreen tree with a root system that consists of a deep taproot with several main roots that, when mature, extend approximately 36 feet below the soil surface (Canadell 1996). The majority of coast live oak and mixed oak woodland is mapped northeast of Well B, mentioned above.

Based on past experience in San Diego County with fractured rock granitic aquifers conducting long-term pump tests from deep fractures (i.e., >1,000 feet), there is a possibility of hydraulic connection with the shallow fracture system that could influence groundwater dependent habitat that extends to a maximum depth of 36 feet below ground surface. Furthermore, as no drawdown was observed in on-site shallow wells (Wells 1, 4, and 5) or the nearest off-site shallow wells (Wells RM-2 and RM-3), there appears to be limited hydraulic connection between primary producing fractures of the pumping well (Well B) at greater than 1,000 feet bgs and the shallow aquifer system. However, given hydrogeologic conditions and the limited duration of the 72 hour constant rate test it is uncertain whether there is hydraulic isolation of the shallow alluvial aquifer associated with Rattlesnake Creek from the deep fractured bedrock aquifer (Appendix 3.1.9-5). The Cooper-Jacob approximation of the Theis non-equilibrium flow equation analysis projects drawdown of 18.3 feet in the fractured rock aquifer at the nearest groundwater dependent habitat as a result of pumping after the approximate 1 year construction period. This drawdown may exceed the County's significance threshold for groundwater dependent habitat (typically a drop of 3 feet or more from historical low

Biological Resources Report for the Tierra del Sol Solar Farm Project

groundwater levels; County of San Diego 2010a); and therefore, impacts to groundwater dependent vegetation would be potentially significant (**Impact V-3**). As outlined in MM-14 (Groundwater Monitoring and Mitigation Plan), water level monitoring will be conducted within the oak woodland for the duration of the construction period to continually assess oak health. In addition to biological monitoring, a water level threshold of 10 feet of drawdown below baseline at RM-1 and RM-3 will be established to protect the oaks' ability to continually access groundwater from the alluvial aquifer.

4.2.4 Project Effects Relevant to Guideline 4.2.D

Short-term, indirect impacts to special-status upland vegetation communities as a result of the Proposed Project are described in Section 2.2.2.1 and include short-term; construction-related; or temporary, indirect impacts, and include generation of fugitive dust, changes in hydrology resulting from construction, and the introduction of chemical pollutants (including herbicides). Short-term, indirect impacts to special-status upland vegetation communities would be considered a significant impact (**Impact V-4**). Short-term, indirect impacts to special-status upland vegetation communities will be mitigated to a level below significance through implementation of Mitigation Measures MM-2 (biological monitoring), MM-3 (preparation and implementation of an SWPPP), MM-4 (preparation of a biological monitoring report), and MM-5 (implementation of a Fugitive Dust Control Plan).

Potential long-term or permanent indirect impacts to special-status upland vegetation communities as a result of the Proposed Project are described in Section 2.2.2.2 and include generation of fugitive dust, habitat fragmentation, chemical pollutants (herbicides), non-native invasive species, increased human activity, and alteration of the natural fire regime.

Potential long-term, indirect impacts to special-status upland vegetation communities would be considered a significant impact (**Impact V-5**). Long-term indirect impacts to special-status upland vegetation communities will be mitigated to a level below significance through implementation of Mitigation Measures MM-1 (habitat preservation and management), MM-5 (implementation of a Fugitive Dust Control Plan), MM-6 (biological review of landscape plans), MM-7 (restrictions on operation and maintenance personnel activity), MM-8 (implementation of a Fire Protection Plan), and MM-9 (regulated herbicide application).

4.2.5 Project Effects Relevant to Guideline 4.2.E

No wetlands or "waters of the United States" under the jurisdiction of ACOE, RWQCB, CDFW or County were identified within the solar farm site and will not be further addressed.

Within the gen-tie alignment site, one wetland under the jurisdiction of ACOE, RWQCB, CDFW, and the County was identified. Three riparian habitats under jurisdiction of CDFW and

Biological Resources Report for the Tierra del Sol Solar Farm Project

the County were also mapped. All four areas support a predominance of hydrophytic vegetation and connect upstream and downstream via narrow, mostly ephemeral channels. These drainages do not serve as local wildlife corridors and do not have steep slopes. The gen-tie project represents a low level of edge effect given the limited human presence compared with most types of development. Given these factors, a buffer of 50 feet is considered adequate for protection of these RPO-wetlands. There are no proposed impacts to these wetlands or the wetland buffers; therefore, the Proposed Project adheres to this guideline.

4.3 Cumulative Impact Analysis

Cumulative impacts are not assessed in this document; they will be discussed thoroughly in the Proposed Project's environmental impact report.

4.4 Mitigation Measures and Design Considerations

The Proposed Project would impact the entire site through development and fuel modification.

Mitigation for short-term, direct impacts to special-status vegetation communities include Mitigation Measures MM-2 (biological monitoring), MM-3 (preparation and implementation of an SWPPP), and MM-4 (preparation of a biological monitoring report), which are described in Section 3.4.

In accordance with County guidelines (County of San Diego 2010b), impacts to big sagebrush, montane buckwheat scrub, granitic chamise chaparral, granitic northern mixed chaparral, and red shank chaparral will require mitigation. There are permanent direct impacts to approximately 408.3 acres of special-status upland vegetation communities, and 429.8 acres of habitat with equivalent function and value are required to be conserved to offset this significant impact. Mitigation Measure MM-1, described in Section 3.4, will mitigate for these impacts to special-status vegetation communities through off-site compensatory mitigation.

Impacts to groundwater-dependent vegetation will be mitigated through implementation of groundwater monitoring as described in MM-14.

MM-14 The groundwater monitoring program will establish the current status and health of the existing oak woodland and document oak conditions up to a 5 year post-construction timeframe. The goal is to determine if the project's use of groundwater is impacting area oak trees/woodlands. If water levels in Wells RM-1, RM-3 and RSD-1 do not drop more than 3 feet below baseline during the 1st year construction period, monitoring will cease at that time because impacts would be expected to be less than significant.

Biological Resources Report for the Tierra del Sol Solar Farm Project

The baseline data would be collected over the course of approximately 1 year prior to Project-related groundwater extraction. Potentially affected native trees within the study area will be evaluated for overall physical condition and attributes. The trees shall be inventoried by an ISA Certified Arborist or Registered Professional Forester with specific experience evaluating native oak species, in particular coast live oaks. The baseline monitoring evaluations will include the following:

- Establishment of 28 pseudo-randomized 0.2 acre plots around oak groupings and scattered individual trees. Sample plots would include the range of existing habitat conditions, including elevation, slope and aspect, proximity to roads and other land uses. If an oak woodland monitoring site is less than 0.1 acre, the entire site will be evaluated.
- Tagging of trees and recording species, tag number, trunk diameter at breast height (dbh) (in.), height (ft.) and dominance (i.e., whether the tree is under the canopy of another tree or forms the uppermost canopy). Slope, aspect, and elevation of each tree location, existing understory species (including proportion of natives to exotics), presence of debris and litter, and soil type, depth, and parent material will be noted for each tree or plot.
- Placement of tensiometers (or similar) to measure soil moisture levels
 - Soil moisture levels will be recorded quarterly at depths up to 48-inches
- Assessment of tree status, including documentation of:
 - Trunk diameter at breast height (dbh), measured at 4.5 feet above ground (according to standard practices)
 - Number of stems
 - Overall tree height (based on ocular estimates)
 - Tree crown spread (measurement in each cardinal direction, based on ocular estimate)
 - Overall tree health condition (Good, Fair, Poor, Dead)
 - Overall tree structural condition (Good, Fair, Poor, Dead)
 - Pest presence (Type, Extent – minimal, moderate, high)
 - Disease presence (Type, Extent – minimal, moderate, high)
 - Other specific comments
- Assessment of acorn production, seedling establishment and sapling tree densities and conditions

Biological Resources Report for the Tierra del Sol Solar Farm Project

- The data collection procedure will include full data collection at each plot so that consistency is maintained among sampling plots.
- Creation of oak tree database using GIS or similar application

Ongoing monitoring will be carried out quarterly during the 1 year Project construction period. If the Certified Arborist or Registered Professional Forester observes an impact to the oak woodland after this period, monitoring will continue in years 2 through 5 following initiation of Project-related groundwater extraction. Monitoring will include the following components:

- Monitoring inspections will include re-evaluation of the baseline data as well as collection of soil moisture data from pre-placed tensiometers.
- Monitoring will include re-evaluating the trees to determine if changes are occurring that may indicate ground water drawdown is having a deleterious effect on oak woodlands or individual trees. The following information will be recorded during each monitoring visit and the data will be compared to previous monitoring results:
 - Trunk diameter at breast height (dbh), measured at 4.5 feet above ground (according to standard practices)
 - Number of stems
 - Overall tree height (based on ocular estimates)
 - Tree crown spread (measurement in each cardinal direction, based on ocular estimate)
 - Overall tree health condition (Good, Fair, Poor, Dead)
 - Overall tree structural condition (Good, Fair, Poor, Dead)
 - Pest presence (Type, Extent – minimal, moderate, high)
 - Disease presence (Type, Extent – minimal, moderate, high)
 - Other specific comments

In particular, monitoring evaluations will focus on examining crowns for discoloration, loss of vigor, foliage curling, and/or pest presence; and trunks and root crowns for beetle/borer symptoms, bleeding cankers, or seeping areas (indicative of fungal infections). These and similar signs may indicate that a tree or a grouping of trees is experiencing stress, which can be corroborated by tensiometer readings. Trees under stress are more susceptible to disease and insect attacks.

Biological Resources Report for the Tierra del Sol Solar Farm Project

The following mitigation criteria will be established to protect groundwater resources and groundwater-dependent habitat in the Project area:

- If the groundwater levels at off-site wells located within 0.5 miles of Well B (RM-1, RM-3 or RSD-1) drops 10 feet below the baseline water levels, groundwater pumping at Well B will cease until the water level at the well that experienced the threshold exceedance has increased above the threshold and remained there for at least 30 continuous days. Additionally, written permission from the County Planning & Development Services (PDS) must be obtained before production may be resumed.
- If the groundwater levels in the vicinity of the groundwater dependent habitat (RM-1 or RM-3) drops below 10 feet of the pre-pumping static water level and there is evidence of deteriorating oak tree health by the Arborist or Forester, there may be a temporary or permanent cessation of pumping at Well B. If evidence of deterioration persists after the 5 year period, mitigation will consist of offsite wetland/ oak woodland credits at a 3:1 ratio.
- If an impact to the oak woodland habitat is observed by the monitoring Certified Arborist or Registered Professional Forester over the duration of the Project construction period, routine monitoring of the oak woodland will continue for a maximum up to 5 years following initiation of Project-related groundwater extraction. The monitoring Certified Arborist or Registered Professional Forester will base mitigation recommendations on the type and extent of tree issues observed. If groundwater drawdown is determined to be the cause of tree stress, resulting in the presence of secondary pests (insects and/or disease), halting groundwater extraction may be recommended.
- If less than 3 feet of drawdown is observed at monitoring wells RM-1 and RM-3 at the end of Project construction and no deleterious health effects are observed in the oak woodland habitat, monitoring can cease at the end of the first year of project operation as long as the wells operate only as intended under the Project's conditions of approval.
- For the 1 year construction period 18 acre-feet of water is proposed to be pumped from on-site supply Well B. For subsequent years 6 afy will be pumped from Well B for O&M of the Project. The groundwater storage within 0.5-mile radius study area surrounding Well B is estimated at 387 acre-feet. The average annual recharge for the study area within 0.5-mile radius of Well B is estimated at 27 afy. Thus, average annual recharge within the 0.5-mile radius study area is sufficient to meet Project construction and operational water demands.

Biological Resources Report for the Tierra del Sol Solar Farm Project

A groundwater monitoring report will be completed by a Certified Hydrogeologist registered in the State of California and submitted to the County PDS each month, no later than 28 days following the end of the monitoring month. The report will include the following information:

- Water level hydrographs and tabulated water level data for each monitoring well.
- Tabulated groundwater production volumes from each production well.
- Documentation of groundwater drawdown at off-site monitoring wells RM-1 and RM-3.
- Documentation of any threshold-included curtailment of groundwater production.
- Appendix documenting groundwater dependent habitat monitoring as described above.

If the baseline water levels at the off-site monitoring wells RM-1, RM-3 and RSD-1 are exceeded by 5 feet, the County PDS will be notified via letter and electronic mail within five working days of the exceedance. Additionally, if water level thresholds at the off-site wells are exceeded by 10 feet, pumping of Well B shall cease and the County PDS notified via letter and electronic mail within five working days.

In addition to the monthly groundwater monitoring reports, annual reports will also be submitted to the county PDS summarizing groundwater-dependent habitat monitoring efforts and any mitigation recommendations implemented in the field during the monitoring year. The monitoring year will coincide with the calendar year. The annual reports will document tree health and mortality, tensiometer readings, water level readings, well production and success of mitigation efforts (if any were necessary). Annual reports will be completed prior to the end of January in the next calendar year.

Mitigation for short-term and long-term indirect impacts to special-status vegetation communities include Mitigation Measures MM-1 (habitat preservation and management), MM-2 (biological monitoring), MM-3 (preparation and implementation of an SWPPP), MM-4 (preparation of a biological monitoring report), MM-5 (implementation of a Fugitive Dust Control Plan), MM-6 (biological review of landscape plans), MM-7 (restrictions on operation and maintenance personnel activity), MM-8 (implementation of a Fire Protection Plan), and MM-9 (regulated herbicide application), which are described in Section 3.4.

Biological Resources Report for the Tierra del Sol Solar Farm Project

4.5 Conclusions

Impact V-1 The significant short-term, direct impacts to special-status upland vegetation communities will be reduced to less than significant through implementation of Mitigation Measures MM-2, MM-3, and MM-4, which require biological monitoring, restrictions on construction vehicle speeds, and preparation of a biological monitoring report.

Impact V-2 The significant permanent, direct impact to 408.3 acres of special-status upland vegetation communities will be reduced to less than significant through implementation of Mitigation Measure MM-1, which provides for 429.8 acres of habitat conservation and management of equivalent function and value.

Implementation of MM-1 would reduce the impact to vegetation because in-kind habitat/vegetation preservation and management of sensitive vegetation communities, based on the appropriate ratio specific to each type of vegetation community, in conformance with the mitigation ratios required by the County of San Diego Guidelines for Determining Significance for Biological Resources (2010) has been proposed. The required mitigation ratios were determined through consideration of the rarity and sensitivity of each individual vegetation community throughout the county and are appropriate to maintain, preserve, and protect each specific habitat community. Typically, the required mitigation ratios are higher (i.e., 3:1) for vegetation communities that are most sensitive and rare to provide a higher level of preservation and protection. The RMP (within MM-1) provides for the long-term funding, management, and monitoring efforts including performance standards to measure the success of mitigation and will ensure that impacts to the habitat communities are truly mitigated. All mitigation land will be located within an open space easement (or owned by a governmental agency for the purpose of conservation) and is part of the ECMSCP Focus Conservation Area which is an area that significantly contributes to important resources in the region and protects resources that are to be impacted by the Proposed Project. For these reasons, implementation of these mitigation measures will reduce significant impacts to vegetation communities to less than significant.

Impact V-3 The proposed project has the potential to cause water levels in Wells RM-1, RM-3 and RSD-1 to drop more than 3 feet below baseline which would be a significant impact. The significant permanent, direct impact of groundwater depletion to the detriment of groundwater-dependent habitat would be reduced to less than significant through MM-14, groundwater monitoring and management plan. If water levels in Wells RM-1, RM-3 and RSD-1 do not drop more than 3 feet below baseline during the 1st year

Biological Resources Report for the Tierra del Sol Solar Farm Project

construction period, monitoring will cease at that time because impacts would be expected to be less than significant.

Impact V-4

The significant short-term, indirect impacts to special-status upland vegetation communities and jurisdictional wetlands and waters will be reduced to less than significant through implementation of Mitigation Measures MM-2, MM-3, MM-4, and MM-5, which require biological monitoring, restrictions on construction vehicle speeds, preparation of a biological monitoring report, and implementation of a Fugitive Dust Control Plan.

Impact V-5

The significant long-term, indirect impacts to special-status upland vegetation communities will be reduced to less than significant through implementation of Mitigation Measures MM-1, MM-5, MM-6, MM-7, MM-8, and MM-9, which provide for 429.8 acres of habitat conservation and management of equivalent function and value; require implementation of a Fugitive Dust Control Plan, biological review of landscape plans, restrictions on operation and maintenance personnel activity, and implementation of a Fire Protection Plan; and regulate herbicide application.

Biological Resources Report for the Tierra del Sol Solar Farm Project

5.0 JURISDICTIONAL WETLANDS AND WATERWAYS

5.1 Guidelines for the Determination of Significance

The County of San Diego's (County's) Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources (County of San Diego 2010a) are based on the criteria in Appendix G of the California Environmental Quality Act Guidelines (14 CCR 15000 et seq.) and were used to analyze potential direct and indirect impacts to biological resources. The following guideline for the determination of significance comes directly from the County's guidelines (County of San Diego 2010a) and refers only to federally protected wetlands.

Guideline 4.3 The project would have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

The significance of impacts shall be determined under Guideline 4.2B, C, and E, if federally protected wetlands will be affected.

5.2 Analysis of Project Effects

5.2.1 Project Effects Relevant to Guideline 4.3

No wetlands under the jurisdiction of ACOE were identified within the solar farm site and therefore this Guideline will not be further addressed.

Within the gen-tie alignment site, riparian habitat and wetlands under the jurisdiction of ACOE, were identified. There are no proposed impacts to wetlands as a result of the Proposed Project.

Refer to Section 4.2.3 regarding impacts to groundwater and well drawdown (Impact B-JW1).

5.3 Cumulative Impact Analysis

Cumulative impacts are not assessed in this document; they will be discussed thoroughly in the Proposed Project's environmental impact report.

5.4 Mitigation Measures and Design Considerations

See MM B-JW1.

Biological Resources Report for the Tierra del Sol Solar Farm Project

5.5 Conclusions

See Section 4.5.

Biological Resources Report for the Tierra del Sol Solar Farm Project

6.0 WILDLIFE MOVEMENT AND NURSERY SITES

6.1 Guidelines for the Determination of Significance

The County of San Diego's (County's) Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources (County of San Diego 2010a) are based on the criteria in Appendix G of the California Environmental Quality Act Guidelines (14 CCR 15000 et seq.) and were used to analyze potential direct and indirect impacts to biological resources. The following guidelines for the determination of significance come directly from the County's guidelines (County of San Diego 2010a).

Guideline 4.4

The project would interfere substantially with the movement of a 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.

- A. The project would impede wildlife access to foraging habitat, breeding habitat, water sources, or other areas necessary for their reproduction.
- B. The project would substantially interfere with connectivity between blocks of habitat, or would potentially block or substantially interfere with a local or regional wildlife corridor or linkage. For example, if the project proposes roads that cross corridors, fencing that channels wildlife to underpasses located away from interchanges will be required to provide connectivity. Wildlife underpasses shall have dimensions (length, width, height) suitable for passage by the affected species based on a site-specific analysis of wildlife movement. Another example is increased traffic on an existing road that would result in significant road-kill or interference with an existing wildlife corridor/linkage.
- C. The project would create artificial wildlife corridors that do not follow natural movement patterns; for example, constraining a corridor for mule deer or mountain lion to an area that is not well-vegetated or that runs along the face of a steep slope instead of through the valley or along the ridgeline.
- D. The project would increase noise and/or nighttime lighting in a wildlife corridor or linkage to levels likely to affect the behavior of the animals identified in a site-specific analysis of wildlife movement.

Biological Resources Report for the Tierra del Sol Solar Farm Project

- E. The project does not maintain an adequate width for an existing wildlife corridor or linkage and/or would further constrain an already narrow corridor through activities such as (but not limited to) reduction of corridor width, removal of available vegetative cover, placement of incompatible uses adjacent to it, and placement of barriers in the movement path. The adequacy of the width shall be based on the biological information for the target species, the quality of the habitat within and adjacent to the corridor, topography, and adjacent land uses. Where there is limited topographic relief, the corridor should be well-vegetated and adequately buffered from adjacent development. Corridors for bobcats, deer, and other large animals should reach rim-to-rim along drainages.
- F. The project does not maintain adequate visual continuity (i.e., long lines of site) within wildlife corridors or linkage. For example, development (such as homes or structures) sited along the rim of a corridor could present a visual barrier to wildlife movement. For stepping-stone/archipelago corridors, a project does not maintain visual continuity between habitat patches.

6.2 Analysis of Project Effects

6.2.1 Project Effects Relevant to Guideline 4.4.A

Short-term, construction-related, or temporary direct impacts to potential foraging and breeding habitat for species that use the project area (e.g., special-status birds) would primarily result from construction activities. Clearing, trampling, or grading of foraging and breeding habitat outside designated construction zones could occur in the absence of avoidance and mitigation measures. Potential temporary direct impacts to foraging and breeding habitat on site would be significant, **(Impact WM-1)**. However, these short-term, direct impacts will be mitigated to a level below significance through implementation of Mitigation Measures MM-2 (biological monitoring), MM-3 (restrictions on construction vehicle speed limits), and MM-4 (preparation of a biological monitoring report).

Permanent direct impacts to approximately 420 acres of potential foraging and breeding habitat for species that use the project area (e.g., special-status birds) would occur as a result of the Tierra Del Sol Project. Permanent direct impacts to foraging and breeding habitat would be considered a significant impact **(Impact WM-2)**. This impact will be mitigated through Mitigation Measure MM-1 (habitat preservation and management), which will conserve

Biological Resources Report for the Tierra del Sol Solar Farm Project

approximately 429.8 acres of equivalent function and value. Table 4-1 summarizes the impacts and required mitigation for vegetation communities in the project area.

Short-term and long-term indirect impacts to wildlife access to foraging, breeding, or watering habitat are significant for small and mid-sized animals as discussed in detail in Section 2.6 (**Impact WM-3**). This impact will be mitigated through Mitigation Measure MM-1 (habitat preservation and management), which will conserve approximately 429.8 acres of equivalent function and value.

6.2.2 Project Effects Relevant to Guideline 4.4.B

The proposed project vicinity includes is surrounded by rural residences to the north, east, and west, and an impermeable fence at the border of Mexico to the south. In addition, the project area itself is fenced and the residence to the immediate east of the project is surrounded by a large chain-link fence. All of these factors limit the ability of wildlife to access and traverse the site. The existing conditions are that the project site is not likely to be part of a regional corridor for large mammals at this time due to the lack of topography and resources on the site, and the fencing, especially along the International Border fencing south of the project area and where residential properties have used tall chain linked fencing west of the project area. Due to the constrained nature of the site, specifically the fencing surrounding the project and to the south and east, the project is unlikely to serve as a local or regional wildlife corridor. Therefore, development of the site and installation of the new 6-foot fencing with barbed wire around the perimeter of the property will not substantially interfere with connectivity between blocks of habitat, or potentially block or substantially interfere with a local or regional wildlife corridor or linkage, and impacts would not be a significant impact for large mammals.

Smaller wildlife species (e.g., lizards and small mammals) will still be able to access the site through openings in the fence; however, vegetation within the solar farm site would be maintained at a maximum height of 6-inches above ground, thereby removing suitable on-site habitat. Smaller wildlife species would not be able to navigate through the site to access habitat on the far side since the size of the site would be insurmountable for small wildlife. Therefore, impacts to movement of small and mid-sized wildlife would be potentially significant (**Impact WM-4**).

6.2.3 Project Effects Relevant to Guideline 4.4.C

As described above, the Proposed Project is surrounded by existing fencing and is not considered to be a significant local or regional wildlife corridor and therefore, the Proposed Project would not create any artificial wildlife corridors and would not have a less than significant impact.

Biological Resources Report for the Tierra del Sol Solar Farm Project

6.2.4 Project Effects Relevant to Guideline 4.4.D

Permanent lighting associated with the Proposed Project includes the building and parking areas. These areas would include security lighting designed to minimize light pollution and preserve dark skies, while enhancing safety, security, and functionality. There would be short-term, construction-related noise as described in Section 2.6. Long-term noise associated with routine maintenance would not be expected to impact wildlife movement because these activities will typically occur on an as-needed basis and be within the project footprint. The potential noise and lighting impacts as a result of the Proposed Project would not be considered less than significant.

6.2.5 Project Effects Relevant to Guideline 4.4.E

The majority of the project area will be impacted by the Proposed Project. Although the project area is not considered a local or regional wildlife corridor, wildlife does utilize the area. Small wildlife species (e.g., lizards and small mammals) will be able to access the project area through openings in the fence; however, loss of habitat and soil compaction, combined with soil binders will reduce the amount of small wildlife utilizing the project area and the value of habitat onsite to wildlife. Larger wildlife is not expected to utilize the area frequently due to existing fencing surrounding the project area and fencing to the east and south of the project area. The site is adjacent to the International Border Fence which is permeable to small wildlife and birds, but not to large wildlife. The site would not provide good habitat for small species (**Impact WM-4**), but it would not preclude movement. The site's location would not preclude large wildlife from crossing the International Fence elsewhere at mountainous locations where there are gaps in the fence. There is a potential for birds to collide with the gen-tie during migration, but that risk was assessed to be low due to the position of the gen-tie. As discussed in Section 2.4.2.2, glare and pseudo-lake effect were deemed to be a low risk due to a number of factors, including array design, solar unit design, and site location. Although the Proposed Project will remove habitat suitable for wildlife it is not expected to impact an existing wildlife corridor or linkage (of either regional or local scale) and would not be considered significant. As described in Section 2.4.2.2, the utility poles associated with the gen-tie alignment would provide perches from which avian species may forage, thereby increasing the potential risk of fatality associated with collisions and electrocutions and resulting in a potentially significant impact (**Impact WM-5**). This impact would be mitigation through mitigation measure (implement recommendations by the Avian Power Line Interaction Committee).

6.2.6 Project Effects Relevant to Guideline 4.4.F

The fencing between the border of Mexico and the U.S. already creates a visual and structural barrier to wildlife movement to the south. The proposed project will be situated

Biological Resources Report for the Tierra del Sol Solar Farm Project

adjacent to the border fencing, and although visual continuity within the project area could be exacerbated by the addition of solar panels and fencing, the topography is not steep in and around the project area and wildlife can likely use a variety of local wildlife corridors outside of the project area to move east, west and north of the project.

While focused wildlife corridor studies have not been completed within the vicinity, based on knowledge of the area, probable key wildlife species, and typical wildlife movement patterns the following discussion applies. Likely species of focus related to the Tierra Del Sol project site include mule deer, coyotes, and bobcat. It is unlikely that mountain lion frequent the area due to existing fencing along the border and proximity of occupied properties. Avian species use the area during migrations, but those movements typically are oriented in a north-south direction, are broad-fronted, and are not focused on this site. Potential regional wildlife corridors probably connect between the Laguna Mountains to the west and north, and to the east, the Anza-Borrego Desert and the eastern slope of the Peninsular Range, but those connections likely occur north of the site; probably on the north side of Interstate 8. Much of this area would be considered to be large, core blocks of habitat for which wildlife would be free to move through with minimal constraint. Local wildlife movement probably occurs where open space occurs between rural residences. Rural residences to the north, east and west are immediately outside the project area and provide pockets of open space that would allow wildlife life to traverse the area. In addition, large areas of undeveloped lands to the east of the project area, specifically the mitigation site, likely provide for local wildlife movement. The site does not exist between lakes/ponds, loafing spots, foraging areas, or nesting sites which might entice local movement of birds or larger wildlife, so it is not perceived to be an important local wildlife corridor for avian species.

6.3 Cumulative Impact Analysis

Cumulative impacts are not assessed in this document; they will be discussed thoroughly in the Proposed Project's environmental impact report.

6.4 Mitigation Measures and Design Considerations

Mitigation for short-term, direct impacts to potential foraging and breeding habitat includes Mitigation Measures MM-2 (biological monitoring), MM-3 (preparation and implementation of a storm water pollution prevention plan), and MM-4 (preparation of a biological monitoring report), which are described in Section 3.4.

Mitigation for long-term direct impacts to potential foraging and breeding habitat for wildlife species includes Mitigation Measure MM-1 (habitat preservation and management), described in Section 3.4.

Biological Resources Report for the Tierra del Sol Solar Farm Project

6.5 Conclusions

Impact WM-1 The significant short-term direct impacts to potential foraging and breeding habitat will be reduced to less than significant through implementation of Mitigation Measures MM-2, MM-3, and MM-4, which require biological monitoring, restrictions on construction vehicle speeds, and preparation of a biological monitoring report.

Impact WM-2/WM-3 The significant permanent, direct impact to the loss of potential foraging and breeding habitat will be reduced to less than significant through implementation of Mitigation Measure MM-1, which provides commensurate for off-site habitat and habitat management and conservation that has been demonstrated to contain suitable foraging and breeding habitat for these species. Avoidance of direct impacts on-site for the individuals would be done during construction. These impacts have been reduced to less than significant because the off-site habitat and its management will provide and management equivalent or better function and value for these species and be managed and monitored in perpetuity.

Impact WM-4 Short-term or long-term impacts to wildlife corridors and habitat linkages for larger wildlife species would be less than significant as a result of the Proposed Project and no mitigation is proposed. The significant impact to movement of small wildlife species from loss of wildlife corridors would be reduced to a level that is less than significant through implementation of mitigation measure MM-1 because this measure requires off-site habitat preservation and management of equivalent or greater function and value.

Impact WM-5 Significant impacts to resulting from collision and electrocution impacts would be mitigated through implementation of MM-13 (implement recommendations by the Avian Power Line Interaction Committee). This mitigation measure requires the implementation of measures that will protect raptors and other birds from electrocution.

Biological Resources Report for the Tierra del Sol Solar Farm Project

7.0 LOCAL POLICIES, ORDINANCES, AND ADOPTED PLANS

7.1 Guidelines for the Determination of Significance

The County of San Diego's (County's) *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a) are based on the criteria in Appendix G of the California Environmental Quality Act Guidelines (14 CCR 15000 et seq.) and were used to analyze potential direct and indirect impacts to biological resources. The following guidelines for the determination of significance come directly from the County's guidelines (County of San Diego 2010a).

Guideline 4.5

The project would conflict with one or more local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, and/or would conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP.

- A. For lands outside of the Multiple Species Conservation Plan (MSCP), the project would impact coastal sage scrub (CSS) vegetation in excess of the County's 5% habitat loss threshold as defined by the Southern California Coastal Sage Scrub Natural Communities Conservation Planning Process (NCCP) Guidelines.
- B. The project would preclude or prevent the preparation of the subregional Natural Communities Conservation Planning Process (NCCP). For example, the project proposes development within areas that have been identified by the County or resource agencies as critical to future habitat preserves.
- C. The project will impact any amount of wetlands or sensitive habitat lands as outlined in the Resource Protection Ordinance (RPO).
- D. The project would not minimize and/or mitigate coastal sage scrub habitat loss in accordance with Section 4.3 of the Natural Communities Conservation Planning Process (NCCP) Guidelines.
- E. The project does not conform to the goals and requirements as outlined in any applicable Habitat Conservation Plan (HCP), Habitat Management Plan (HMP), Special Area Management Plan (SAMP), Watershed Plan, or similar regional planning effort.
- F. For lands within the Multiple Species Conservation Program (MSCP), the project would not minimize impacts to Biological

Biological Resources Report for the Tierra del Sol Solar Farm Project

Resource Core Areas (BRCAs), as defined in the Biological Mitigation Ordinance (BMO).

- G. The project would preclude connectivity between areas of high habitat values, as defined by the Southern California Coastal Sage Scrub Natural Communities Conservation Planning Process (NCCP) Guidelines.
- H. The project does not maintain existing movement corridors and/or habitat linkages as defined by the Biological Mitigation Ordinance (BMO).
- I. The project does not avoid impacts to MSCP narrow endemic species and would impact core populations of narrow endemics.
- J. The project would reduce the likelihood of survival and recovery of listed species in the wild.
- K. The project would result in the killing of migratory birds or destruction of active migratory bird nests and/or eggs (Migratory Bird Treaty Act).
- L. The project would result in the take of eagles, eagle eggs, or any part of an eagle (Bald and Golden Eagle Protection Act).

7.2 Analysis of Project Effects

7.2.1 Project Effects Relevant to Guideline 4.5.A

The project area does not support nor would it impact coastal sage scrub vegetation.

7.2.2 Project Effects Relevant to Guideline 4.5.B

The Tierra Del Sol solar farm would not preclude or prevent the preparation of the subregional NCCP because the project has been planned in accordance with the with the planning principles of the MSCP and in consideration of preparation of the East County Multiple Species Conservation Plan (ECMSCP) Subarea Plan. The project design has been evaluated according to the Preliminary Conservation Objectives outlined in the Planning Agreement for ECMSCP (County 2008). These objectives are and project applicability/compliance is listed in Table 7-1.

**Table 7-1
ECMSCP Planning Agreement Conservation Objectives**

Conservation objective	Applicability/compliance
Provide for the protection of species, natural communities, and ecosystems on a landscape level;	Project, with mitigation, will provide for protection and conservation of special-status species and natural communities.

Biological Resources Report for the Tierra del Sol Solar Farm Project

**Table 7-1
ECMSCP Planning Agreement Conservation Objectives**

Conservation objective	Applicability/compliance
Preserve the diversity of plant and animal communities throughout the Planning Area;	Not applicable
Protect threatened, endangered, or other special status plant and animal species, and minimizes and mitigate the take or loss of proposed Covered Species;	Project, with mitigation, will provide for protection and conservation of special-status species and natural communities.
Identify and designate biologically sensitive habitat areas;	Biological studies have been conducted for the site to determine sensitive habitat areas.
Preserve habitat and contribute to the recovery of Covered Species;	Project, with mitigation, will provide for protection and conservation of special-status species and natural communities.
Reduce the need to list additional species;	Not applicable
Set forth species-specific goals and objectives; and	Not applicable
Set forth specific habitat-based goals and objectives expressed in terms of amount, quality, and connectivity of habitat	Not applicable

7.2.3 Project Effects Relevant to Guideline 4.5.C

No wetlands or “waters of the United States” under the jurisdiction of ACOE, RWQCB, CDFW or County were identified within the solar farm site; therefore, this portion of the project will not directly impact any wetlands or wetland buffers as outlined in the RPO (County of San Diego 2007).

Wetlands and “waters of the United States” under the jurisdiction of ACOE, RWQCB, CDFW and County were identified within the gen-tie alignment site. No wetlands will be impacted as a result of the Proposed Project. Additional protection measures for these areas are not necessary because the project will avoid all wetlands on site. Biological monitoring during construction will ensure that crews do not enter these areas. Wetlands are located along the gen-tie alignment in areas where only overhead wires are proposed. Poles will be placed on either side of the wetland with the closest work activity taking place at least 170-250 feet from wetlands. The project off site wells may affect the adjacent creek and could have significant impacts to RPO wetlands, unless mitigated (**Impact P-2**). Refer to Section 4.2.3 regarding groundwater and well draw down (MM-14).

Sensitive habitat lands (unique vegetation communities, land that supports endangered species, lands essential to a natural ecosystem and wildlife corridors) were not identified on the solar farm site or within the gen-tie alignment and therefore, sensitive habitat lands will not be directly impacted as a result of the Proposed Project.

Biological Resources Report for the Tierra del Sol Solar Farm Project

7.2.4 Project Effects Relevant to Guideline 4.5.D

The Tierra Del Sol solar farm does not support nor would it impact coastal sage scrub vegetation.

7.2.5 Project Effects Relevant to Guideline 4.5.E

The Tierra Del Sol solar farm conforms to the goals and requirements as outlined in all applicable regional planning efforts.

7.2.6 Project Effects Relevant to Guideline 4.5.F

The Tierra Del Sol solar farm is located approximately 13 miles east of the approved South County MSCP.

Since there is no approved ECMSCP and no associated BMO, this guideline does not apply to the Tierra Del Sol project.

7.2.7 Project Effects Relevant to Guideline 4.5.G

The Tierra Del Sol solar farm is not expected to preclude habitat connectivity as discussed in Section 6.2.2.

7.2.8 Project Effects Relevant to Guideline 4.5.H

Since there is no approved ECMSCP and no associated BMO, this guideline does not apply to the Tierra Del Sol project.

7.2.9 Project Effects Relevant to Guideline 4.5.I

Narrow endemic species are evaluated under the County Guidelines for Determining Significance for Biological Resources. There are none on the project site.

7.2.10 Project Effects Relevant to Guideline 4.5.J

No federally or state-listed plant or wildlife species have been observed in the project area.

7.2.11 Project Effects Relevant to Guideline 4.5.K

Short-term, temporary, or construction-related impacts to migratory birds and active migratory bird nests and/or eggs protected under the Migratory Bird Treaty Act (MBTA) are considered a significant impact (Impact P-2). This impact will be mitigated through Mitigation Measure MM-10 (preconstruction surveys for nesting birds and setbacks).

Biological Resources Report for the Tierra del Sol Solar Farm Project

7.2.12 Project Effects Relevant to Guideline 4.5.L

Impacts to eagles would be significant to 68 acres of marginal foraging habitat (included with raptor foraging impacts, **Impact W-7**). The project, including the gen-tie does not have site specific impacts on golden eagle nesting.

7.3 Cumulative Impact Analysis

The ordinances and policies that protect biological resources are applied to each discretionary project in accordance with their associated legally established compliance requirements. Therefore cumulative impacts would not occur.

7.4 Mitigation Measures and Design Considerations

Project construction will be phased, where appropriate, to avoid work during the bird breeding season (i.e., January through August). If construction activity is to commence during the breeding season, a biological survey for nesting bird species must be conducted within the proposed impact area 72 hours prior to construction, as described in Mitigation Measure MM-10 in Section 3.4. For consistency with RPO, wetland mitigation requirements of MM-14 (groundwater monitoring and management plan) will minimize potential offsite groundwater drawdown impacts to wetlands along Rattlesnake Creek.

No other mitigation is proposed for impacts to local policies, ordinances, and plans because the Proposed Project remains consistent with all approved planning documents/plans.

7.5 Conclusions

Application of the currently established local policies, ordinances, and plans to the proposed project and implementation of appropriate mitigation has not resulted in any conflicts or inconsistencies. Therefore impacts are reduced to less than significant.

Impact P-1 The significant short-term direct impacts to active nests or the young protected by the federal MBTA will be reduced to less than significant through implementation of Mitigation Measure MM-10, which requires preconstruction surveys for nesting birds and setbacks for avoiding impacts to active nests.

Impact P-2 RPO requirements to avoid wetland impacts to the maximum extent has resulted in wetland mitigation requirements of MM- 14 (groundwater monitoring and management plan) which will monitor and avoid offsite groundwater drawdown impacts to wetlands along Rattlesnake Creek.

Biological Resources Report for the Tierra del Sol Solar Farm Project

INTENTIONALLY LEFT BLANK

Biological Resources Report for the Tierra del Sol Solar Farm Project

8.0 SUMMARY OF PROJECT IMPACTS AND MITIGATION

Habitat Types/Vegetation Communities

Implementation of the proposed development would result in direct impacts to approximately 429.8 acres of vegetation communities and land covers (Table 2-1). Of these direct impacts, approximately 408.3 acres of vegetation impacts would require mitigation based on the County of San Diego's mitigation requirements (Table 5, County of San Diego 2010b). Required mitigation ratios range from 0.5:1 to 3:1. Mitigation of approximately 304.1 acres of vegetation is required, which averages out to an approximately 0.7:1 mitigation ratio.

There would be direct impacts to potential foraging and breeding habitat for wildlife species, discussed in Section 6.0. No impacts to local policies, ordinances, and adopted plans are anticipated to result from implementation of the Proposed Project. Impacts associated with the Migratory Bird Treaty Act are discussed in both Sections 3.0 and 7.0.

Direct impacts to groundwater-dependent vegetation from well drawdown may result from implementation of the Proposed Project. Mitigation would require groundwater monitoring and production would be capped if well drawdown exceeded pre-established thresholds.

Sensitive Plant Species

There would be significant impacts to special-status species that have been documented in the project area, including Tecate tarplant, desert beauty, Jacumba milk-vetch, and sticky geraea as discussed in Section 3.0.

Mitigation measures during construction needed to reduce these impacts to less than significant will include the implementation of best management practices (BMPs), biological monitoring and reporting and compensatory mitigation. For sensitive species, mitigation must consist of compensatory habitat that provides equal or greater benefit to the species. For the high-level sensitive plants (A- and B-listed species), the mitigation requirement shall be ratio based. Therefore, off-site preservation of native habitat will mitigate for the loss of special-status plant species at a minimum 2:1 mitigation to impact ratio for Jacumba milk-vetch and Tecate tarplant, individuals and 1:1 mitigation to impact ratio for sticky geraea and desert beauty. Survey results for the mitigation site have demonstrated that it meets this basic mitigation requirement.

Sensitive Wildlife Species

There would be potentially significant impacts to special-status species that have been observed or have potential to occur in the project area (see Table 8-1). Impacts would occur to suitable habitat and/or individual species, discussed in Section 3.0. Species-based mitigation shall be

Biological Resources Report for the Tierra del Sol Solar Farm Project

provided for Group I animal species. The mitigation site shall directly benefit the species (presence verified) and provide greater benefit to the species than that impacted. The mitigation shall propose measures above normal habitat mitigation and may propose occupation by an equal or greater number of Group I individuals. Adequate mitigation includes preservation and management of the mitigation site, construction limitations during breeding season, and measures to minimize edge effects (including biological monitoring and implementation of the FPP). Species-based mitigation land may also satisfy the habitat/vegetation community mitigation requirements of the same project. Therefore, off-site preservation of 429.8 acres of native habitats will provide mitigation for impacts to special-status species equal to the total acreage of impacts on the project site and greater than the project impacts to 408.3 acres of special-status upland vegetation communities.

Wildlife Movement and Nursery Sites

There would be direct impacts to potential foraging and breeding habitat for wildlife species, discussed in Section 6.0. Impacts associated with the MBTA are discussed in both Sections 3.0 and 7.0.

There would be potentially significant impacts to wildlife movement through core habitat, primarily for small and medium sized wildlife. Mitigation shall be provided to directly benefit the affected species (presence verified) and provide greater benefit to the species than that impacted. Adequate mitigation includes preservation and management of the mitigation site and measures to minimize edge effects (including biological monitoring and implementation of the FPP). The wildlife movement and nursery sites mitigation land also satisfy the habitat/vegetation community mitigation requirements of the same project. Therefore, off-site preservation of 429.8 acres of native habitats will provide compensatory mitigation for impacts to wildlife movement.

A summary of the aforementioned significance criteria, references to their locations within this document, and the significance determination is provided in Table 8-1.

Biological Resources Report for the Tierra del Sol Solar Farm Project

**Table 8-1
Summary of Significant Impacts**

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
<i>Guideline 4.1: The project would have a substantial adverse effect, either directly or through habitat modifications, on a candidate, sensitive, or special status species listed in local or regional plans, policies, or regulations, or by California Department of Fish and Game or U.S. Fish and Wildlife Service.</i>						
3.2.2.1	Impact SP-1	Special-Status Plants , County List A and B: Tecate tarplant Desert beauty Jacumba milk-vetch Sticky geraea	Short-term Direct	MM-2 (biological monitoring) MM-3 (preparation and implementation of a SWPPP) MM-4 (preparation of a biological monitoring report) landscape monitoring and maintenance	Less than significant	4.1, B
3.2.2.1	Impact SP-2	Special-Status Plants , County List A and B: Tecate tarplant Desert beauty Jacumba milk-vetch Sticky geraea	Long-Term Direct	MM-1 (off-site habitat preservation and management)	Less than significant	4.1, B
3.2.2.2	Impact W-1	Special-Status Wildlife , County Group I	Short-term Direct	MM-2 (biological monitoring) MM-3 (preparation and implementation of a SWPPP) MM-4 (preparation of a biological monitoring report) MM- 6 (biological review of landscape plans) MM-7 (restrictions on operation and maintenance personnel activity) MM-11 (monitoring excavated areas and soil piles) MM-12 (minimize night lighting) MM-13 (implement recommendations by the Avian Power Line Interaction Committee) Landscape monitoring and maintenance	Less than significant	4.1, B

Biological Resources Report for the Tierra del Sol Solar Farm Project

**Table 8-1
Summary of Significant Impacts**

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
3.2.2.2	Impact W-2	Special-Status Wildlife , County Group I or CDFG Species of Special Concern Impacts to active nests or young of nesting County Group I or CDFG Species of Special Concern	Short-term Direct	MM-10 (preconstruction surveys for nesting birds and setbacks)	Less than significant	4.1, B
3.2.2.2	Impact W-3	Special-Status Wildlife , County Group I or CDFG Species of Special Concern Removal of suitable habitat of County Group I wildlife species (see Table 3-2 for details) including: Bell's sage sparrow Cooper's hawk Prairie falcon Golden eagle Loggerhead shrike Turkey vulture	Long-term Direct	MM-1 (off site habitat preservation and management)	Less than significant	4.1, B
3.2.3.2	Impact W-4	Special-Status Wildlife , County Group II Species Western bluebird Coastal western whiptail Rosy boa Belding's orange-throated whiptail Blainville's horned lizard Northern red-diamond rattlesnake San Diego black-tailed jackrabbit San Diego desert woodrat	Short-term Direct	MM-2 (biological monitoring) MM-3 (preparation and implementation of a SWPPP) MM-4 (preparation of a biological monitoring report) MM-11 (monitoring excavated areas and soil piles) Landscape monitoring and maintenance	Less than significant	4.1, C
3.2.3.2	Impact W-5	Special-Status Wildlife , County Group II Impacts to active nests or young of nesting County Group I or CDFG Species of Special Concern	Short-term Direct	MM-10 (preconstruction surveys for nesting birds and setbacks)	Less than significant	4.1, C

Biological Resources Report for the Tierra del Sol Solar Farm Project

**Table 8-1
Summary of Significant Impacts**

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
3.2.3.2	Impact W-6	Special-Status Wildlife , County Group II Loss of suitable habitat	Long-term Direct	MM-1 (off site habitat preservation and management)	Less than significant	4.1, C
3.2.6	Impact W-7	Special-Status Wildlife , Loss of foraging habitat for raptors	Long-term Direct	MM-1 (off site habitat preservation and management)	Less than significant	4.1, F
3.2.7	Impact W-8	Loss of Core Wildlife Area, Loss of habitat	Long-term Direct	MM-1 (off site habitat preservation and management)	Less than significant	4.1, G
3.2.8.1	Impact SP-3	Special-Status Plants , County List A and B: Tecate tarplant Desert beauty Jacumba milk-vetch Sticky geraea	Short-term Indirect	MM-2 (biological monitoring) MM-3 (preparation and implementation of a SWPPP) MM-4 (preparation of a biological monitoring report) MM-5 (implementation of a Fugitive Dust Control Plan)	Less than significant	4.1, H
3.2.8.1	Impact SP-4	Special-Status Plants , County List A and B: Tecate tarplant Desert beauty Jacumba milk-vetch Sticky geraea	Long-term Indirect	MM-1 (off-site habitat preservation and management) MM-5 (implementation of a Fugitive Dust Control Plan) MM-6 (biological review of landscape plans) MM-7 (restrictions on operation and maintenance personnel activity) MM-8 (implementation of a Fire Protection Plan) MM-9 (regulated herbicide application)	Less than significant	4.1, H
3.2.8.2	Impact W-9	Special-Status Wildlife Detected or Potentially Occurring (Appendix E)	Short-term Indirect	MM-2 (biological monitoring) MM-3 (preparation and implementation of a SWPPP) MM-4 (preparation of a biological monitoring report)	Less than significant	4.1, H

Biological Resources Report for the Tierra del Sol Solar Farm Project

**Table 8-1
Summary of Significant Impacts**

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
				MM-5 (implementation of a Fugitive Dust Control Plan) MM-10 (preconstruction surveys for nesting birds and setbacks) MM-11 (monitoring excavated areas and soil piles) MM-12 (minimize night lighting)		
3.2.8.2	Impact W-10	Special-Status Wildlife Detected or Potentially Occurring (Appendix E)	Long-term Indirect	MM-1 (off site habitat preservation and management) MM-5 (implementation of a Fugitive Dust Control Plan) MM-6 (biological review of landscape plans) MM-7 (restrictions on operation and maintenance personnel activity) MM-8 (implementation of a Fire Protection Plan) MM-13 (implement recommendations by the Avian Power Line Interaction Committee)	Less than significant	4.1, H
3.2.12	Impacts W-11	Special-Status Wildlife , Nesting Success of Tree-Nesting Raptors, Construction-related (e.g., noise)	Short-term Indirect	MM-10 (preconstruction surveys for nesting birds and setbacks)	Less than significant	4.1, L
3.2.12	Impact W-12	Special-Status Wildlife , Nesting Success of Tree-Nesting Raptors, Loss of Suitable Nesting Habitat	Long-term Direct	MM-1 (off site habitat preservation and management)	Less than significant	4.1, L

Biological Resources Report for the Tierra del Sol Solar Farm Project

**Table 8-1
Summary of Significant Impacts**

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
<i>Guideline 4.2: The project would have a substantial adverse effect on riparian habitat or another sensitive natural community identified in local or regional plans, policies, regulations, or by California Department of Fish and Game or U.S. Fish and Wildlife Service.</i>						
4.2.1	Impact V-1	Special-Status Upland Vegetation Communities	Short-term Direct	MM-2 (biological monitoring) MM-3 (preparation and implementation of a SWPPP) MM-4 (preparation of a biological monitoring report)	Less than significant	4.2, A
4.2.1	Impact V-2	Special-Status Upland Vegetation Communities	Long-term Direct	MM-1 (off-site habitat preservation and management)	Less than significant	4.2, A
4.2.2	Impact B-JW1	Special-Status Wetland Vegetation Communities	Long-term Direct	MM-14 (groundwater monitoring and mitigation plan)	Less than significant	4.2, C
4.2.4	Impact V-3	Special-Status Upland Vegetation Communities	Short-term Indirect	MM-2 (biological monitoring) MM-3 (preparation and implementation of a SWPPP) MM-4 (preparation of a biological monitoring report) MM-5 (implementation of a Fugitive Dust Control Plan)	Less than significant	4.2, D
4.2.4	Impact V-4	Special-Status Upland Vegetation Communities	Long-term Indirect	MM-1 (off site habitat preservation and management) MM-5 (implementation of a Fugitive Dust Control Plan) MM-6 (biological review of landscape plans) MM-7 (restrictions on operation and maintenance personnel activity) MM-8 (implementation of a Fire Protection Plan) MM-9 (regulated herbicide application)	Less than significant	4.2, D

Biological Resources Report for the Tierra del Sol Solar Farm Project

**Table 8-1
Summary of Significant Impacts**

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
Guideline 4.3: <i>The project would have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption or other means.</i>						
5.2.1	See Section 4.2.2	Jurisdictional Wetlands and Waterways	See Section 4.2.2	See Section 4.2.2	See Section 4.2.2	4.3
4.2.3	Impact B-JW1	Well Drawdown	Long-term Direct	MM-14 (groundwater monitoring and management plan)	Less than significant	4.2, C and 4.3
Guideline 4.4: <i>The project would interfere substantially with the movement of a 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.</i>						
6.2.1	Impact WM-1	Foraging and Breeding Habitat	Short-term Direct	MM-2 (biological monitoring) MM-3 (preparation and implementation of a SWPPP) MM-4 (preparation of a biological monitoring report)	Less than significant	4.4, A
6.2.1	Impact WM-2	Foraging and Breeding Habitat	Long-term Direct	MM-1 (off site habitat preservation and management)	Less than significant	4.4, A
6.2.1	Impact WM-3	Foraging and Breeding Habitat	Short-term and long-term Indirect	MM-1 (off site habitat preservation and management)	Less than significant	4.4, A
6.2.1	Impact WM-4	Wildlife Movement , small and mid-sized animals	Long-term Direct	MM-1 (off site habitat preservation and management)	Less than significant	4.4, B
6.2.1	Impact WM-5	Collision and Electrocutation	Long-term Direct	MM-13 (implement recommendations by the Avian Power Line Interaction Committee)	Less than significant	4.4, E
Guideline 4.5: <i>The project would conflict with one or more local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, and/or would conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state HCP.</i>						
7.2.3	Impact P-1	Impacts to off-site RPO wetlands	Long-term Direct	MM-14 (groundwater monitoring and management plan)	Less than significant	4.5, C
7.2.11	Impact P-2	Migratory Bird Treaty Act	Short-term Direct	MM-10 (preconstruction surveys for nesting birds and setbacks)	Less than significant	4.5, K

Biological Resources Report for the Tierra del Sol Solar Farm Project

9.0 REFERENCES

- 14 CCR 15000–15387 and Appendix A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.
- 16 U.S.C. 1531–1544. Endangered Species Act, as amended.
- 16 U.S.C. 703–712. Migratory Bird Treaty Act, as amended.
- 33 CFR 328.1–328.5. Definition of Waters of the United States.
- 40 CFR Part 230. Compensatory Mitigation for Losses of Aquatic Resources; Final Rule. April 10, 2008.
- 66 FR 3853–3856. Executive Order 13186 of January 10, 2001: “Responsibilities of Federal Agencies to Protect Migratory Birds.” Presidential Documents. January 17, 2001.
- ACOE (U.S. Army Corps of Engineers). 1987. *Corps of Engineers Wetland Delineation Manual*. Online ed. Environmental Laboratory, Wetlands Research Program Technical Report Y-87-1. Vicksburg, Mississippi: U.S. Army Engineer Waterways Experiment Station. January 1987. Accessed May 2012. http://www.fedcenter.gov/Bookmarks/index.cfm?id=6403&pge_id=1606.
- ACOE. 1997. Indicator Species for Vernal Pools in Special Public Notice Regional General Conditions to the Nationwide Permits. Los Angeles District. November 1997.
- ACOE. 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*. Environmental Laboratory, ERDC/EL TR-08-28. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center. September 2008. Accessed May 2012. http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/reg_supp/trel08-28.pdf.
- ACOE and EPA (U.S. Environmental Protection Agency). 2008. Clean Water Act Jurisdiction Following the U.S. Supreme Court’s Decision in *Rapanos v. United States & Carabell v. United States*. Washington, D.C.: EPA. December 2, 2008.
- AOU (American Ornithologists’ Union). 2012. “Check-List of North American Birds: List of the 2,078 Bird Species Known from the AOU Check-list Area.” <http://www.aou.org/checklist/north/full.php>.
- APLIC (Avian Power Line Interaction Committee). 2006. *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006*. Washington, D.C., and

Biological Resources Report for the Tierra del Sol Solar Farm Project

Sacramento, California: Edison Electric Institute, APLIC, and California Energy Commission.

- Banks, R.C., C. Cicero, J.L. Dunn, A.W. Kratter, P.C. Rasmussen, J.V. Remsen, Jr., J.D. Rising, and D.F. Stotz. 2002. Forty-Third Supplement to the American Ornithologists' Union Check-List of North American Birds. *Auk* 119: 897–906.
- Banks, R.C., C. Cicero, J.L. Dunn, A.W. Kratter, P.C. Rasmussen, J.V. Remsen, Jr., J.D. Rising, and D.F. Stotz. 2003. Forty-Fourth Supplement to the American Ornithologists' Union Check-List of North American Birds. *Auk* 120:923–931.
- Banks, R.C., C. Cicero, J.L. Dunn, A.W. Kratter, P.C. Rasmussen, J.V. Remsen, Jr., J.D. Rising, and D.F. Stotz. 2004. Forty-Fifth Supplement to the American Ornithologists' Union Check-List of North American Birds. *Auk* 121: 985–995.
- Banks, R.C., C. Cicero, J.L. Dunn, A.W. Kratter, P.C. Rasmussen, J.V. Remsen, Jr., J.D. Rising, and D.F. Stotz. 2005. Forty-Sixth Supplement to the American Ornithologists' Union Check-List of North American Birds. *Auk* 122:1,026–1,031.
- Banks, R.C., C. Cicero, J.L. Dunn, A.W. Kratter, P.C. Rasmussen, J.V. Remsen, Jr., J.D. Rising, and D.F. Stotz. 2006. Forty-Seventh Supplement to the American Ornithologists' Union Check-List of North American Birds. *Auk* 123: 926–936.
- Banks, R.C., R.T. Chesser, C. Cicero, J.L. Dunn, A.W. Kratter, I.J. Lovette, P.C. Rasmussen, J.V. Remsen, Jr., J.D. Rising, and D.F. Stotz. 2007. Forty-Eighth Supplement to the American Ornithologists' Union Check-List of North American Birds. *Auk* 124:1,109–1,115.
- Banks, R.C., R.T. Chesser, C. Cicero, J.L. Dunn, A.W. Kratter, I.J. Lovette, P.C. Rasmussen, J.V. Remsen, Jr., J.D. Rising, D.F. Stotz, and K. Winker. 2008. “Forty-Ninth Supplement to the American Ornithologists' Union Check-List of North American Birds.” *Auk* 125(3):758–768.
- Beier, P., and S. Loe. 1992. “A Checklist for Evaluating Impacts to Wildlife Movement Corridors.” *Wildlife Society Bulletin* 20:434–440.
- Bond, S.I. 1977. “An Annotated List of the Mammals of San Diego County, California.” *Transactions of the San Diego Soc. Nat. Hist.* 18:229–248.
- Bossard, C.C., J.M. Randall, and M.C. Hoshovsky. 2000. *Invasive Plants of California's Wildlands*. Berkeley, California: University of California Press.

Biological Resources Report for the Tierra del Sol Solar Farm Project

- Bowman, R.H. 1973. *Soil Survey, San Diego Area, California, Part 1*. United States Department of the Agriculture. December 1973.
- Brown, L. 1976. "The Golden Eagle." In *British Birds of Prey: A Study of Britain's 24 Diurnal Raptors*, 175–196. The New Naturalist [Series]: A Survey of British Natural History. London, England: Bloomsbury Books.
- Brehme, C., D. Clark, C. Rochester, and R. Fisher. 2011. "Wildfires Alter Rodent Community Structure Across Four Vegetation Types in Southern California, USA." *Fire Ecology* 7(2): 81-98.
- Bury, R.B. 1972. "Status Report on California's Threatened Amphibians and Reptiles." California Department of Fish and Game, Inland Fisheries Administrative Report (72 1):1–31.
- California Fish and Game Code, Section 2050–2098. California Endangered Species Act.
- Call, M. W. 1978. *Nesting Habitats and Surveying Techniques for Common Western Raptors*. Technical Note TN-316. Denver, Colorado: U.S. Department of the Interior, Bureau of Land Management.
- CDFG (California Department of Fish and Game. 2000. *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities*. December 9, 1983. Revised May 8, 2000. http://www.slocounty.ca.gov/Assets/PL/environmental/CDFG_botanical_survey_guidelines.pdf.
- CDFG. 2010. *List of Vegetation Alliances and Associations*. Vegetation Classification and Mapping Program. Sacramento, California: CDFG. September 2010. Accessed April 2012. http://www.dfg.ca.gov/biogeodata/vegcamp/natural_comm_list.asp.
- CDFG. 2011. "Special Animals (898 taxa)." CDFG, Biogeographic Data Branch. January 2011. Accessed November 21, 2011. http://www.dfg.ca.gov/biogeodata/cnddb/plants_and_animals.asp.
- CDFG. 2012a. *RareFind*, Version 3.1.0. California Natural Diversity Database (CNDDDB). Accessed May 2012. <http://www.dfg.ca.gov/biogeodata/cnddb/rarefind.asp>.
- CDFG. 2012b. *Natural Communities – Background Information*. Vegetation Classification and Mapping Program, Sacramento, California: CDFG. Accessed April 2012. http://www.dfg.ca.gov/biogeodata/vegcamp/natural_comm_background.asp.

Biological Resources Report for the Tierra del Sol Solar Farm Project

- CDFW (California Department of Fish and Wildlife). 2013a. *RareFind*, Version 3.1.0. California Natural Diversity Database (CNDDDB). Accessed March 2013.
<http://www.dfg.ca.gov/biogeodata/cnddb/rarefind.asp>.
- CDFW. 2013b. CNDDDB. *Special Vascular Plants, Bryophytes, and Lichens List*. California Natural Diversity Database. January 2013. Accessed March 2013.
http://www.dfg.ca.gov/biogeodata/cnddb/plants_and_animals.asp.
- CDFW. 2013c. "State and Federally Listed Endangered, Threatened, and Rare Plants of California." California Natural Diversity Database. CDFW, Biogeographic Data Branch. January 2013. Accessed March 2013.
http://www.dfg.ca.gov/biogeodata/cnddb/plants_and_animals.asp.
- CNPS (California Native Plant Society). 2001. *CNPS Botanical Survey Guidelines*. December 9, 1983. Revised June 2, 2001. Accessed April 15, 2011.
http://cnps.org/cnps/rareplants/pdf/cnps_survey_guidelines.pdf.
- CNPS. 2012. *Inventory of Rare and Endangered Plants*. Online ed. Version 8-01a. Sacramento, California: CNPS. Accessed May 2012. <http://www.rareplants.cnps.org/>
- CNPS. 2013. *Inventory of Rare and Endangered Plants*. Online ed. Version v7-13feb. Sacramento, California: CNPS. Accessed March 2013. <http://www.rareplants.cnps.org/>
- County of Riverside. 2008. "Bell's Sage Sparrow." Understanding the Plants and Animals of the Western Riverside County MSHCP (Multiple Species Habitat Conservation Plan). Prepared by Dudek and Associates Species Accounts.
- County of San Diego. 2007. *An Ordinance Codifying and Amending the Resource Protection Ordinance, Relating to Wetlands, Prehistoric and Historic Sites, Agricultural Operations, Enforcement, and Other Matters*. Ordinance No. 9842. March 21.
- County of San Diego. 2008. "Planning Agreement by and among the County of San Diego, the California Department of Fish and Game, and the United States Fish and Wildlife Services regarding the North and East County Multiple Species Conservation Program Plans: Natural Community Conservation Program Plans and Habitat Conservation Plan." October 29.
- County of San Diego. 2009. "East County Plan – Species List." Accessed May 2012.
http://www.sdcounty.ca.gov/dplu/mscp/ec_species.html.

Biological Resources Report for the Tierra del Sol Solar Farm Project

- County of San Diego. 2010a. *County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources*. Fourth Revision. Land Use and Environment Group, Department of Land Use and Planning & Development Services, Department of Public Works. September 15, 2010.
- County of San Diego. 2010b. *County of San Diego Report Format and Content Requirements: Biological Resources*. Fourth Revision. September 15, 2010.
- County of San Diego. 2010c. *County of San Diego Biological Mitigation Ordinance*. Ordinance No. 8845. April 2, 2010.
- County of San Diego. 2012. Draft County of San Diego Soitec Tierra Del Sol Solar Farm; Preapplication Summary Letter, dated January 5, 2012.
- Crother, B.I. 2008. Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in our Understanding. 6th ed. Herpetological Circular No. 37. Edited by J.J. Moriarty. Shoreview, Minnesota: Society for the Study of Amphibians and Reptiles. January 2008.
- CPUC and BLM (California Public Utilities Commission and Bureau of Land Management). 2011. *Final Environmental Impact Report/Environmental Impact Statement for the SDG&E East County Substation Project, Tule Wind, LLC, Tule Wind Project, and Energia Sierra Juarez U.S. Transmission, LLC, Energia Sierra Juarez Gen-Tie Project*. SCH No. 2009121079. Prepared by Dudek. October 2011.
- Cypher, E.A. 2002. *General Rare Plant Survey Guidelines*. Bakersfield, California: USFWS. Revised July 2002.
- Dudek. 2012. 2012 Focused Quino Checkerspot Butterfly Survey Report for the Proposed Tierra Del Sol Solar Farm, San Diego County, California. Letter report. Prepared by Dudek. May 23, 2012.
- Dudek. 2013a. 2013 Focused Quino Checkerspot Butterfly Survey Report for the Proposed Gen-Tie Alignment Component of the Tierra del Sol Solar Farm, San Diego County, California. Letter report. Prepared by Dudek. June 6, 2013.
- Dudek. 2013b. "Evaluation of Biological Resources for the Soitec Mitigation Site." Memorandum prepared from B. Ortega (Dudek) and V. Joshi (Dudek) to P. Brown (Soitec Development LLC). August 21, 2013.

Biological Resources Report for the Tierra del Sol Solar Farm Project

- Emmel, T.C., and J.F. Emmel. 1973. *The Butterflies of Southern California*. Natural History Museum of Los Angeles County, Science Series 26:1–148.
- Environmental Laboratory. 1987. *Wetland Delineation Manual*. Wetlands Research Program Technical Report &-87-1. Final version. Prepared for U.S. Army Corps of Engineers. January 1987.
- Garrett, K. and J. Dunn. 1981. *Birds of Southern California: Status and Distribution*. Los Angeles, California: Los Angeles Audubon Society.
- Hall, E.R. 1981. *The Mammals of North America*. 2nd ed. New York, New York: John Wiley and Sons, Inc.
- Holland, R. F. 1986. *Preliminary descriptions of the terrestrial natural communities of California*. Nongame-Heritage Program, California Department of Fish and Game. October 1986.
- Holland, D.C. and R.H. Goodman. 1998. *A Guide to the Amphibians and Reptiles of MCB Camp Pendleton, San Diego County, California*. Prepared for AC/S Environmental Security Resource Management Division MCB Camp Pendleton, California. Contract M00681-94-C-0039. Fallbrook, California: Camp Pendleton Amphibian and Reptile Survey. November 6, 1998.
- Holland R.A., Helm B. 2013. A strong magnetic pulse affects the precision of departure direction of naturally migrating adult but not juvenile birds. *J R Soc Interface* 10: 20121047. <http://dx.doi.org/10.1098/rsif.2012.1047>
- Hunt, L.E. 1983. “A Nomenclatural Rearrangement of the Genus *Anniella* (*Sauria: anniellidae*).” *Copeia* 1983(1):79–89.
- Jepson Flora Project. 2012. Jepson eFlora. Berkeley, California: University of California. Accessed October May 2, 2012. http://ucjeps.berkeley.edu/cgi-bin/get_JM_name_data.pl
- Jennings, M.R., and M.P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California*. Final report. Commissioned by the California Department of Fish and Game, Inland Fisheries Division Endangered Species Project. November 1, 1994. Accessed February 9, 2010. http://www.dfg.ca.gov/wildlife/nongame/publications/docs/herp_ssc.pdf.
- Johnsgard, P.A. 1990. *Hawks, Eagles, and Falcons of North America: Biology and Natural History*. Washington, D.C.: Smithsonian Institution Press.
- Keeley, J.E. 1987. “Role of Fire in Seed Germination of Woody Taxa in California Chaparral.” *Ecology* 68: 434–442.

Biological Resources Report for the Tierra del Sol Solar Farm Project

- Kirk, D.A., and M.J. Mossman. 1998. "Turkey Vulture." *The Birds of North America Online*. Edited by A. Poole. Ithaca, New York: Cornell Lab of Ornithology. Accessed February 8, 2008. <http://bna.birds.cornell.edu/bna/species/339>.
- Kochert, M.N., K. Steenhof, C.L. McIntyre and E H. Craig. 2002. "Golden Eagle (*Aquila chrysaetos*)." *The Birds of North America Online*. Edited by A. Poole. Ithaca, New York: Cornell Lab of Ornithology. <http://bna.birds.cornell.edu/bna/species/684>. doi:10.2173/bna.684.
- Lemm, Jeffrey M. 2006. *Field Guide to Amphibians and Reptiles of the San Diego Region*. Berkeley, California: University of California Press.
- Lovich, J.E., and J.R. Edden. 2011. "Wildlife Conservation and Solar Energy Development in the Desert Southwest, United States." *BioScience* 61(12):982–992.
- Lowe, C.H., C.J.C. Wright, and R.L. Bezy. 1970. "Chromosomes and Evolution of the Species Groups *Cnemidophorus* (Reptilia: Teiidae)." *Systematic Zoology* 19:128–141.
- Malanson, G.P., and J.F. O'Leary. 1982. "Post-Fire Regeneration Strategies in California Coastal Sage Shrubs." *Oecologia* 53:355–358.
- Miller, M.R. 1944. "Ecologic Relations and Adaptations of the Limbless Lizards of the Genus *Anniella*." *Ecological Monographs* 14(3):271–289.
- NABA (North American Butterfly Association). 2001. *North American Butterfly Association (NABA) Checklist & English Names of North American Butterflies*. 2nd ed. Morristown, New Jersey: NABA. Accessed August 16, 2010. <http://www.naba.org/pubs/checklst.html>.
- NABA. 2003. "Report of the NABA Names Committee." By M. Caterino, J. Glassberg, and J. Heraty. *American Butterflies*:24–27. Update to *North American Butterfly Association (NABA) Checklist & English Names of North American Butterflies* (2nd ed., 2001). Accessed August 16, 2010. <http://www.naba.org/pubs/checklst.html>.
- NABA. 2004. "Checklist of North American Butterflies Occurring North of Mexico." September 8, 2004. Update to *North American Butterfly Association (NABA) Checklist & English Names of North American Butterflies* (2nd ed., 2001). Accessed August 15, 2010. <http://www.naba.org/pubs/checklst.html>.
- Nafis. 2012. *A Guide to the Reptiles and Amphibians of California*. Accessed April 2012. <http://www.californiaherps.com>.

Biological Resources Report for the Tierra del Sol Solar Farm Project

- NatureServe. 2012. *NatureServe Explorer: An Online Encyclopedia of Life*. Arlington, Virginia: NatureServe. Updated February 2012. Accessed April 2012. <http://www.natureserve.org/explorer/index.htm>.
- Oberbauer, T., M. Kelly, and J. Buegge. 2008. *Draft Vegetation Communities of San Diego County*. Prepared by Robert F. Holland, PhD, for the State of California, The Resources Agency, Department of Fish and Game (October 1986). March 2008.
- O’Leary, J.F., D. Murphy, and P. Brussard. 1992. *The Coastal Sage Scrub Community Conservation Planning Region: An NCCP Special Report*. Natural Community Conservation Planning/Coastal Sage Scrub Special Report 2.
- Papenfuss, T.J. and J.F. Parham. 2013. Four new species of California legless lizards (*Anniella*). *Breviora: Museum of Comparative Zoology*. 536:1-17.
- Reid, F.A.. 2006. *A Field Guide to Mammals of North America, North of Mexico*. The Peterson Field Guide Series. 4th ed. Boston, Massachusetts: Houghton Mifflin.
- SDNHM (San Diego Natural History Museum). 2012a. Data retrieved from Herbarium and Plant Atlas databases for grid squares R24–R27, S24–S27, T24–T27, and U24–U27. *San Diego County Plant Atlas Project*. Online ed. Accessed April 2012. <http://www.sdplantatlas.org/publicsearch.aspx>.
- SDNHM (San Diego Natural History Museum). 2012b. Data retrieved for grid squares R24–R27, S24–S27, T24–T27, and U24–U27. *San Diego County Bird Atlas*. Google Earth presentation. Accessed April 2012. <http://www.sdnhm.org/science/birds-and-mammals/projects/san-diego-county-bird-atlas/>.
- Shuford, D.W., N. Warnock, and R.L. McKernan. 2003. “Patterns of Shorebird Use of the Salton Sea and Adjacent Imperial Valley, California.” In Press, *Studies in Avian Biology*. <http://www.prbo.org/cms/119#salton>.
- Spiteri, D.E. 1988. “The Geographic Variability of the Species *Lichanura trivirgata* and a Description of a New Species.” In *Proceedings of the Conference on California Herpetology*. Edited by H.F. DeLisle, P.R. Brown, B. Kaufman, and B.M. McGurty. Special Publications of the Southwestern Herpetologists Society.
- Stebbins, R.C. 2003. *Western Reptiles and Amphibians*. Peterson Field Guide, 3rd ed. New York, New York: Houghton Mifflin Company.

Biological Resources Report for the Tierra del Sol Solar Farm Project

- USDA (U.S. Department of Agriculture). 2012. "California." State PLANTS Checklist. Accessed May 2, 2012. http://plants.usda.gov/dl_state.html. USDA. 2012. NRCS. *Web Soil Survey* [web application]. <http://websoilsurvey.nrcs.usda.gov/app/>.
- USFWS (U.S. Fish and Wildlife Service). 2002a. Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey Protocol Information. Carlsbad Field Office, California, February 2002.
- USFWS. 2002b. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Quino Checkerspot Butterfly (*Euphydryas editha quino*). Federal Register Vol 67: 18355- 18395. April 2.
- USFWS. 2003. *Recovery Plan for the Quino Checkerspot Butterfly (Euphydryas editha quino)*. Portland, Oregon: USFWS. August 11, 2003. 179 pp.
- USFWS. 2008. *Birds of Conservation Concern 2008*. December 2008.
- USFWS. 2012. "Critical Habitat and Occurrence Data" [map]. Accessed May 2012. <http://www.fws.gov/data>.
- USFWS. 2013. "Critical Habitat and Occurrence Data" [map]. Accessed March 2013. <http://www.fws.gov/data>.
- USGS (U.S. Geological Survey). 2013. "Stream data" [digital GIS data]. National Hydrography Dataset website. Accessed March 2013. <http://nhd.usgs.gov/>.
- Unitt, P. 2004. *San Diego County Bird Atlas*. San Diego, California: San Diego Natural History Museum.
- Weather Underground. 2012. History for Campo, CA. Accessed May 2012. <http://www.wunderground.com/history/airport/KCZZ/2012/6/24/MonthlyHistory.html#calendar>
- Western Regional Climate Center. 2012. Historical Climate Information: Campo. Accessed May 2012: <http://www.wrcc.dri.edu/index.html>.
- Wiens, J.A., and J.T. Rotenberry. 1981. "Habitat Associations and Community Structure of Birds in Shrubsteppe Environments." *Ecological Monographs* 51:21–41.
- Wiens, J.A., and J.T. Rotenberry. 1981. "Habitat Associations and Community Structure of Birds in Shrubsteppe Environments." *Ecological Monographs* 51:21–41.

Biological Resources Report for the Tierra del Sol Solar Farm Project

- Wilcove, D.S., C.H. McLellan, and A.P. Dobson. 1986. "Habitat Fragmentation in the Temperate Zone." In *Conservation Biology: The Science of Scarcity and Diversity*, edited by M.E. Soulé, 237–256. Sunderland, Massachusetts: Sinauer Associates Inc.
- Wilcox, B., and D. Murphy. 1985. "Conservation Strategy: The Effects of Fragmentation on Extinction." *The American Naturalist* 125:879–887.
- Wilson, D.E., and D.M. Reeder, eds. 2005. *Mammal Species of the World: A Taxonomic and Geographic Reference*. 3rd ed. Online version. Baltimore, Maryland: Johns Hopkins University Press. Accessed August 17, 2010. <http://www.bucknell.edu/msw3/>.
- Wilson, D.E., and S. Ruff. 1999. *North American Mammals*. Washington, D.C.: Smithsonian Institution Press.
- WRI. 2013. *Golden Eagles and the Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Projects in San Diego County, California*. Final Report. Prepared for J. Whalen Associates, Inc. Golden Eagle History Report. April 11, 2013.
- Yingling, R.P. 1982. "Lichanura, L. trivirgata." *Catalogue of American Amphibians and Reptiles* 294.1–294.2.
- Zeiner, D.C., W.F. Laudenslayer Jr., and K.E. Mayer. 1988. *California's Wildlife: Volume I. Amphibians and Reptiles*. Sacramento, California: California Statewide Wildlife Habitat Relationships System, California Department of Fish and Game.
- Zeiner, D.C., W.F. Laudenslayer Jr., K.E. Mayer, and M. White, eds. 1990a. *California's Wildlife: Volume II. Birds*. Sacramento, California: California Department of Fish and Game.
- Zeiner, D.C., W.F. Laudenslayer Jr., K.E. Mayer, and M. White, eds. 1990b. *California's Wildlife: Volume III. Mammals*. Sacramento, California: California Department of Fish and Game.

Biological Resources Report for the Tierra del Sol Solar Farm Project

10.0 LIST OF PREPARERS AND PERSONS AND ORGANIZATIONS CONTACTED

This report was prepared by Dudek biologists Britney Strittmater, Callie Ford, Patricia Schuyler, Emily Wier, and Thomas Liddicoat. Dudek senior biologists Brock Ortega and Vipul Joshi provided review assistance and coordination with the client and County as the County Approved biologist. Graphics and GIS mapping and analyses were provided by Andrew Greis. Dee Bakker and Lauren Courtney provided editorial support. Devin Brookhart provided formatting.

Biological Resources Report for the Tierra del Sol Solar Farm Project

INTENTIONALLY LEFT BLANK