

5.3 Biological Resources

This section addresses potential impacts to biological resources (vegetation; wildlife and wildlife habitats; and jurisdictional waters) of the PHPP. It discusses the LORS related to biological resources and characterizes the biological resources of the Project site and linear facilities routes. It then discusses potential Project impacts on those resources during construction and operation, and identifies mitigation measures as needed for identified adverse impacts. Additional detail on the biological surveys and studies that were performed including personnel qualifications of key staff conducting the surveys can be found in the Biological Resources Technical Report (BRTR) provided as AFC Appendix H.

5.3.1 LORS Compliance

The Project will comply with applicable Federal, State, and local LORS throughout Project construction and operation. Potentially applicable LORS are summarized in Table 5.3-1 and discussed in the following text.

Table 5.3-1 LORS Applicable to Biological Resources

LORS	Applicability	Where Discussed In AFC
Federal:		
Endangered Species Act (ESA) of 1973 and implementing regulations, 16 USC §1531 et seq.; 50 CFR §17.1 et seq.	Designates and protects federally threatened and endangered plants and animals and their critical habitats. Requires federal agency consultation with the U.S. Fish and Wildlife Service (USFWS) and issuance of Biological Opinion and incidental take authorization for listed species.	Sections 5.3.3 and 5.3.4
Migratory Bird Treaty Act (MBTA) 16 USC §703-711	Prohibits take of protected migratory birds.	Section 5.3.3
Bald and Golden Eagle Protection Act, 16 USC §668	Prohibits take of bald and golden eagles.	Section 5.3.3
Clean Water Act (CWA) §404	Regulates discharge of pollutants into "Waters of the U.S."	Section 5.3.3
Clean Water Act (CWA) §401	Certifies that the activity will not cause or contribute to a violation of a State's water quality standards.	Section 5.3.3
Clean Air Act (CAA) (42 USC §85)	Establish federal standards for air pollutants from stationary and mobile sources and to work with states to regulate polluting emissions.	Section 5.3.3
State:		
California Environmental Quality Act (CEQA), Public Resources Code §§21000 et seq.	Identifies significant environmental effects of proposed projects and avoidance (where feasible) or mitigation of the significant effects. The CEC licensing process under the Warren-Alquist Act is a CEQA-equivalent process.	Sections 5.3.3 and 5.3.4

5.3 Biological Resources

LORS	Applicability	Where Discussed In AFC
California Endangered Species Act (CESA) of 1984, Fish and Game Code §§2050-2098	Protects California’s endangered and threatened species, including species designated as candidates for listing. Requires incidental take authorization under Sections 2080.1 or 2081 for listed species.	Sections 5.3.3 and 5.3.4
Fish and Game Codes (FGC) §§3503, 3503.5, §3511	Prohibits taking, possessing, or needlessly destroying the nest or eggs of any bird. Prohibits the taking of “Fully Protected” birds in California.	Sections 5.3.3 and 5.3.4
FGC §§4700, 5050, 5515	Prohibits the taking of “Fully Protected” mammals, reptiles and amphibians, and fishes in California.	Sections 5.3.3 and 5.3.4
Native Plant Protection Act (NPPA) of 1977, Fish and Game Code §1900 <i>et seq.</i>	Provides specific protection measures for identified populations of state rare and endangered plants.	Sections 5.3.3 and 5.3.4
California Desert Native Plant Act (CDNPA), Fish and Game Code §§1925-1926	Protects non-listed California desert native plants from unlawful harvesting on both public and privately owned lands.	Sections 5.3.3 and 5.3.4
Title 14 California Code of Regulations (CCR) §§670.2 and 670.5	Listings of plants and animals of California declared to be threatened or endangered.	Sections 5.3.3 and 5.3.4
FGC §§1600-1607, Streambed Alteration Agreement (SAA)	Requires California Department of Fish and Game (CDFG) to review project impacts to State jurisdictional waters (bed, banks, channel, or associated riparian areas of a river, stream, or lake), including impacts to wildlife and vegetation from sediments, diversions, and other disturbances.	Section 5.3.1.2
Local:		
Los Angeles County General Plan	Identifies the valuable biological resources within Los Angeles County and establishes the goals and policy direction to utilize and conserve these resources for existing and future generations.	Sections 5.3.3 and 5.3.4
City of Palmdale General Plan	Sets forth goals to preserve and protect biological resources	Sections 5.3.3 and 5.3.4

5.3.1.1 Federal LORS

Endangered Species Act (ESA) (16 USC §§1531 *et seq.*)

This 1973 law, administered by the USFWS, is designed to minimize impacts to imperiled plants and animals, as well as facilitate recovery of such species. Declining plant and animal species are listed as “endangered” or “threatened” based on a variety of factors. Applicants for projects requiring federal agency action that could adversely affect listed species are required to consult with and mitigate impacts in consultation with the USFWS. Adverse impacts are defined as “take” (defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct.”), which is prohibited

except as authorized through consultation under Section 7 or through issuance of an Incidental Take Statement under Section 10. Because the Project will require a PSD permit from the EPA, Section 7 consultation will occur between EPA and USFWS. The Ventura Field Office of the USFWS oversees permitting actions relative to the ESA in the Project vicinity.

Migratory Bird Treaty Act (MBTA) (16 USC §§703-711)

This law prohibits actions resulting in the pursuit, capture, killing, and/or possession of any protected migratory bird, nest, egg or parts thereof. The USFWS maintain a list of designated migratory birds occurring in various regions of the United States. The agency also administers a permitting mechanism allowing for their incidental take where unavoidable impacts to nesting birds arise. The Ventura Field Office of the USFWS oversees actions relative to the MBTA in the Project vicinity.

Bald and Golden Eagle Protection Act (BGEPA) (16 USC §668)

This law specifically protects bald and golden eagles from harm and from trade in parts of these species.

Clean Water Act (CWA) (§404)

This section of the Clean Water Act (1977) is administered by the U.S. Army Corps of Engineers (USACE) and regulates placement of dredged and fill material into "Waters of the U.S." (WUS). The USACE has created a series of nationwide permits (NWP) that authorize certain activities within WUS, provided that the proposed activity does not exceed certain impact thresholds. Per this nationwide program, steps must also be taken to avoid impacts to wetlands where practicable, minimize potential impacts to wetlands, and provide compensation for any remaining, unavoidable impacts. For projects that exceed identified thresholds for nationwide permits, individual permits under Section 404 are required. The USACE Los Angeles District Office oversees regulatory permitting for projects in the Project vicinity. As currently designed, the PHPP will not affect WUS, and thus no Clean Water Act permitting will be required.

Clean Water Act (CWA) (§401)

Section 401 requires that federal agencies issuing licenses or permits for construction (e.g., a Section 404 permit) obtain a written certification that the activity will not cause or contribute to a violation of a state's water quality standards. After receiving the certification, the federal agency issuing the permit must include conditions in the permit to prevent the Project from degrading water quality of a downstream state or tribe. In California, such certifications are provided by the applicable Regional Water Quality Control Board (RWQCB). The Lahontan RWQCB oversees permitting actions in the Project vicinity.

Clean Air Act (CAA) (42 USC §85)

The primary objective of the CAA is to establish federal standards for air pollutants from stationary and mobile sources and to work with states to regulate polluting emissions. There are certain pollutants that are found almost everywhere that are harmful to humans if their concentration in the ambient air is above certain levels. In the United States, National Ambient Air Quality Standards (NAAQS) have been set for each of these pollutants. These standards include six pollutants: particulate matter (PM), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), carbon monoxide (CO), photochemical oxidants (O₃), and lead (Pb). The Project would occur within the Antelope Valley in California, which is regulated by the Antelope Valley Air Quality Management District (AVAQMD).

5.3.1.2 State LORS

California Environmental Quality Act (CEQA) (Public Resources Code §§21000 et seq.)

CEQA requires identification of significant environmental effects of proposed Projects (including impacts on biological resources), and avoidance (where feasible) or mitigation of the significant effects. CEQA applies to "projects" proposed to be undertaken or requiring approval by state and/or local governmental agencies. "Projects" are activities that have the potential to have a physical impact on the environment. The CEC licensing process under the Warren-Alquist Act is a CEQA-equivalent process.

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

This state law prohibits the "take" (defined as to hunt, pursue, catch, capture or kill) of state-listed species except as otherwise provided in state law. CESA, administered by CDFG, is similar to the federal ESA, although unlike the federal law, CESA applies incidental take prohibitions to species currently petitioned for state-listing status (i.e., candidate species). State lead agencies are required to consult with the CDFG to ensure that their authorized actions are not likely to jeopardize the continued existence of any state-listed species or result in the degradation of occupied habitat. Under Section 2081, CDFG authorizes "take" of state-listed endangered, threatened, or candidate species through incidental take permits or memoranda of understanding. These acts, which are otherwise prohibited, may be authorized through permits or "memoranda of understanding" if (1) the take is incidental to otherwise lawful activities, (2) impacts of the take are minimized and fully mitigated, (3) the permit is consistent with regulations adopted in accordance with any recovery plan for the species in question, and (4) the applicant ensures suitable funding to implement the measures required by the CDFG. Should a species be both federally and state-listed, and if the federal ESA incidental take authorization fulfills CESA requirements, CDFG may streamline the CESA process by adopting a "Consistency Determination" (Section 2081.1), that concurs with the federal ESA authorization. Under the Warren-Alquist Act, the CEC issues CESA incidental take authorizations as part of its power plant licensing process, with the concurrence of CDFG.

California Fish and Game Code §§3503, 3503.5, and 3511

Fish and Game Code Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the Code or any associated regulation. Section 3503.5 makes it unlawful to take, possess, or destroy birds of prey. It also prohibits the take, possession, or destruction of nests or eggs of any bird of prey. Section 3511 describes bird species, primarily raptors, that are "fully protected." Fully protected birds may not be taken or possessed, except under specific permit requirements. No incidental take permit may be issued for a fully protected species.

California Fish and Game Code §§4700, 5050, 5515

These sections list mammal, amphibian, reptile, and fish species that are classified as fully protected in California.

Native Plant Protection Act (NPPA) (Fish and Game Code §§1900 et seq.)

The NPPA includes measures to preserve, protect and enhance rare and endangered native plant species.

California Desert Native Plant Act (CDNPA) (Fish and Game Code §§1925-1926)

The CDNPA was passed in 1981 to protect non-listed California desert native plants from unlawful harvesting on both public and privately owned lands. Harvest, transport, sale, or possession of specific native desert plants is prohibited unless a person has a valid permit, or wood receipt, and the required tags and seals.

Title 14, California Code of Regulations §§670.2, 670.5

These sections list plant and animal species designated as threatened and endangered in California. California species of special concern (CSC) is a category applied by the CDFG to those species that are indicators of regional habitat changes or are considered potential future protected species. CSCs do not have any special legal status, but are intended by CDFG for use as a management tool to take these species into special consideration when decisions are made concerning the future of any land parcel.

California Fish and Game Code §§1600-1607

Pursuant to these sections, CDFG regulates all changes to the natural flow, bed or bank, of any river, stream, or lake that support fish or wildlife resources. A stream is defined broadly as a body of water that flows at least periodically, or intermittently, through a channel that has banks, and that supports fish or other aquatic biota. Such areas are formally referred to as "Waters of the State of California" (WSC). Impacts to vegetation and wildlife from sediment, diversions, and other disturbances are included in the review. As currently designed, the PHPP will not affect WSC, and thus, no Streambed Alteration Agreement will be required.

5.3.1.3 Local LORS**Los Angeles County General Plan**

The Biological Resources section of the Los Angeles County Draft Preliminary General Plan (2007) identifies the valuable biological resources within Los Angeles County (County) and establishes the goals and policy direction to utilize and conserve these resources for existing and future generations.

Significant Ecological Areas

The primary mechanism used by the County to conserve biological diversity is a zoning designation called Significant Ecological Areas (SEA). SEAs are ecologically important land and water systems that are valuable as plant or animal communities, often important to the preservation of threatened or endangered species, and conservation of biological diversity in the County. Ecological Transition Areas (ETAs), a subset of significant ecological areas, are areas where the natural ecological systems have been degraded as a result of past or on-going land use activities, but are functionally integral to the SEA by virtue of their location. SEAs are not preserves, but instead, are areas where the County deems it important to facilitate a balance between new development and resource conservation.

Typically, projects in an SEA, unless exempt, are subject to one of two regulatory processes depending on the type of project being proposed: (1) Minor Conditional Use Permit for SEA (Minor SEA-CUP) without Significant Ecological Area Technical Advisory Committee (SEATAC) review, or (2) Conditional Use Permit for SEA (SEA-CUP) with SEATAC review. Large projects in an SEA, particularly land divisions, require an SEA-CUP with an accompanying public hearing process that provides for an additional level of

5.3 Biological Resources

environmental review to help ensure that the proposal complies with the County's natural resource protection measures. Through the CUP, the County sets limitations and conditions on the Project to ensure consistency with the General Plan and allow the public, who may potentially be affected by the Project, an opportunity to comment during the hearing process.

But for the CEC's exclusive jurisdiction, the PHPP would undergo one of these two County regulatory processes. However, the Project's need for a CUP is subsumed by the CEC's exclusive jurisdiction. The Applicant expects that the CEC will ensure Project compliance with otherwise applicable County requirements.

City of Palmdale General Plan

The City of Palmdale General Plan (1993) sets forth goals to preserve and protect biological resources, including: (1) preserve significant natural and man-made open space areas; (2) protect significant ecological resources and ecosystems, including, but not limited to, sensitive flora and fauna habitat areas; (3) preserve designated natural hillsides and ridgelines in the Planning Area, to maintain the aesthetic character of the Antelope Valley; (4) protect the quality and quantity of local water resources; and (5) promote the attainment of state and federal air quality standards.

The City will require biological assessments and reports for projects in known or suspected natural habitat areas prior to Project approval. These reports will be used to establish significant natural habitat areas and ecologically sensitive zones to prevent disturbance and degradation of these areas. Recommended mitigation measures as identified in the reports will be required to be implemented as development occurs.

City of Palmdale Native Desert Vegetation Ordinance

The City has adopted Ordinance No. 952, referred to as the Native Desert Vegetation Ordinance. This ordinance is designed to preserve a number of specimen quality juniper (*Juniperus californica*) and Joshua trees (*Yucca brevifolia*) that add to community identity, and to encourage the use of native vegetation in new development landscaping. All landscaping for new developments must conform to the requirements set forth in the Native Desert Vegetation Ordinance.

The ordinance requires issuance of a native desert vegetation removal permit prior to removal of any native desert vegetation. It also requires development of a desert vegetation preservation plan which involves preparing an inventory and evaluation of the Joshua trees and junipers on a site that identifies the specimens that can be saved or relocated, a landscaping plan showing the proposed locations of Joshua trees and junipers that will remain on the site, and a long-term maintenance program for the desert vegetation that will remain onsite. Joshua trees are the major element of the Conceptual Landscaping Plan that has been developed for the PHPP plant site. For this reason, the City's Native Desert Vegetation Ordinance also is addressed in Section 5.17, Visual Resources.

5.3.1.4 Involved Agencies

Federal, State, and local agencies involved in biological resource issues related to PHPP are provided in Table 5.3-2.

Table 5.3-2 Agencies and Agency Contacts

Agency Contact	Phone/E-mail	Permit/Issue
Julie Vance CDFG 1234 East Shaw Avenue Fresno, CA 93710	(559) 243-4017 JVance@dfg.ca.gov	California Endangered Species Act Incidental Take Authorization requirements
Ray Bransfield USFWS 2493 Portola Road, Suite B Ventura, CA 93710	(805) 644-1766, e.317 ray_bransfield@fws.gov	Federal Endangered Species Act Section 7 Consultation
Asoka Herath City of Palmdale Planning Department 38250 Sierra Highway Palmdale, CA 93550	(661) 267-5200 aherath@cityofpalmdale.org	Compliance with City Native Desert Vegetation Ordinance

5.3.1.5 Required Permits and Permit Schedule

As shown in Table 5.3-3, the PHPP may require several permits that are specific to biological resources issues.

Table 5.3-3 Required Biological Resource Permits and Permitting Schedule

Permit/Approval	Schedule
California Endangered Species Act Incidental Take Authorization	CESA permit authorization will be required for species listed under CESA. A draft Section 2081 permit application will be submitted to CEC and CDFG shortly after AFC submittal.
Endangered Species Act Section 7 Consultation	Consultation will be initiated by EPA following submittal by the PHPP to EPA of a draft Biological Assessment (BA)
City of Palmdale Native Desert Vegetation Removal Permit	Preparation of required native desert plant (Joshua tree) inventory and evaluation will begin after AFC submittal so that the required landscaping plan and long-term maintenance plan for the planned onsite relocation of Joshua trees can be approved by City staff prior to the start of ground disturbance for construction.

5.3.2 Affected Environment

5.3.2.1 Regional Setting

The City of Palmdale (City) is located in the High Desert region of Los Angeles County, approximately 60 freeway miles north of downtown Los Angeles. It is separated from Los Angeles by the San Gabriel Mountain range. Palmdale is one of two incorporated cities and several unincorporated communities within the Antelope Valley. The City is bordered by the City of Lancaster and the unincorporated community of Quartz Hill to the north; the unincorporated communities of Lake Los Angeles and Littlerock to the east; the unincorporated community of Acton to the south; and the unincorporated community of Leona Valley to the

west. The City of Palmdale Planning Area encompasses approximately 174 square miles within a transitional area between the foothills of the San Gabriel and Sierra Pelona Mountains and the Mojave Desert to the north and east (City of Palmdale, 1993).

In general, the Planning Area slopes from south to north-northeast, with surface and subsurface flows trending away from the foothills to Rosamond Dry Lake. The major watercourses flowing through Palmdale are Amargosa Creek, Anaverde Creek, Little Rock Wash, and Big Rock Wash. While foothill areas within and adjacent to the City contain significant slopes, a majority of the Planning Area is relatively flat. The climate of Palmdale and the Antelope Valley is dominated by the region's Pacific high pressure system, which contributes to the area's hot, dry summers and relatively mild winters (City of Palmdale, 1993).

The native plants and wildlife of the Antelope Valley have adapted to the arid climate and quick-draining, sandy soils. However, the expanding human settlement of the region has upset this natural balance. Development has resulted in replacement of the existing desert species with landscaping materials not native to the region that require regular watering to survive. Development has also blocked access to and eliminated foraging and nesting areas, and introduced air and water pollution that can adversely affect habitat quality. Past development patterns have created habitat "islands," isolating populations of species, thereby reducing their local long-term viability (City of Palmdale, 1993).

5.3.2.2 Project Site Location

The Project site consists of a number of different elements, as listed below and discussed in Section 2.0, Project Description. All of these components are addressed in this biological resources evaluation with the exception of the potable water pipeline. The potable water pipeline follows the same route as a portion of the reclaimed water supply pipeline and thus discussion of its biological resources and potential impacts is included in the discussion of the other linear feature. The locations of each of the Project elements addressed are shown on the various figures that are provided at the end of this AFC section.

The Project components are:

- A 377-acre power plant site and adjacent 50-acre construction laydown area,
- A 35.6-mile transmission line in two segments,
- A 7.4-mile reclaimed water supply pipeline,
- An 8.7 mile natural gas supply pipeline,
- A 1.0-mile sanitary wastewater disposal pipeline, and
- A 1.0-mile potable water pipeline.

5.3.2.3 Literature Review

A literature review was conducted to identify special-status biological resources known from the vicinity of the Project site. For the purpose of assessing the occurrence potential of sensitive biological resources, vicinity in this context is defined as areas within 10 miles of the Project site. The literature review included:

- CDFG's California Natural Diversity Data Base (CNDDDB) version 3.1.0 RAREFIND application (CDFG, 2008); review included all elements within the following USGS 7.5' Quadrangles: Lancaster West,

Lancaster East, Alpine Butte, Hi Vista, Ritter Ridge, Palmdale, Littlerock, Lovejoy Buttes, Acton, Pacifico Mountain, Juniper Hills, and Valyermo;

- California Native Plant Society's (CNPS) Rare and Endangered Vascular Plants of California;
- Soil Survey of Los Angeles County, California, Antelope Valley Area, California (U.S.D.A. Soil Conservation Service, 1986);
- Other biological surveys from the general vicinity (i.e., Eremico Biological Services, 2006; CSU Stanislaus, 2006) and species accounts incorporated into the West Mojave Plan (BLM, 2006); and
- County and City General Plans.

5.3.2.4 Biological Surveys

Field surveys included a general biological resource and habitat assessment and inventory in addition to focused surveys for special-status plant species, desert tortoise, burrowing owl, and MGS. Surveys in 2008 for special-status plants, desert tortoise, and burrowing owl were conducted concurrently and involved transects spaced no more than 30 feet apart covering 100 percent of all areas of the Project site involving proposed ground disturbance (power plant site, construction laydown area, and linear ROWs). Buffer zone transects were spaced 100' apart out to 500' from the edge of the Project site. Zone of Influence (ZOI) transects, where possible, around all of these areas were also performed at 100', 300', 500' (these three ZOIs conducted concurrently with buffer zone transects), 1,200', 2,400', 3,960' (power plant site only), and 5,280' (power plant site only) intervals, as required by the desert tortoise survey guidelines (USFWS, 1992; CEC, 2007). See Figure 5.3-1 for survey areas.

Field surveys were conducted April 1 to 26, 2008 by AMEC Biologists Matt Amalong, Nathan Moorhatch, and Heather Rothbard and biological sub-consultants Nathan Mudry, Steve Ferrand, Jim Boone, Alex Heindl, and Dennis Strong (see Appendix H, Attachment 1 for qualifications). Focused surveys for special-status plant species, desert tortoise, burrowing owl burrows, and jurisdictional waters were also conducted on the power plant site in 2006 by AMEC Biologists John Green, Dave Kajtaniak, and Daryl Trumbo and biological sub-consultant Ted Rado. All flora and fauna detected (e.g., through direct observation, vocalizations, presence of scat, tracks, and/or bones) were recorded.

Special-status biological resources observed were plotted by using handheld Global Positioning Systems (GPS) equipment and later transferred to a Geographic Information System (GIS) ESRI ArcView 9.1 format. Unknown species of plants were collected and identified by Andrew C. Sanders, Botanist and Herbarium Collection Curator for the University of California at Riverside (UCR). Plant communities were described in accordance with Robert F. Holland's (1986) Descriptions of the Terrestrial Natural Communities of California. Sawyer and Keeler-Wolf (1995) series were also referenced as a plant community classification guide where necessary.

One portion of Segment 1 of the transmission line route (along 105th Street from Ave M-4 to Avenue P) was changed after field surveys were conducted, so 3.75 miles of ROW were not surveyed. However, a cursory field survey identified the habitat communities along this revised route to be very similar to surveyed areas, so species composition is expected to be similar.

Biological Resource and Habitat Assessment

The general biological resource and habitat assessment and inventory, conducted concurrently with the focused surveys, involved walking transects of various widths over various areas of the site, buffer zone, and ZOI. A general habitat assessment, where possible, was also conducted at the one-mile radius mark around the power plant site and 1,000 feet from linear facilities.

Jurisdictional Waters Preliminary Determination

The determination of status and extent of potential jurisdictional WUS and WSC in the Project area was based on assessments of available background information, discussions with regulatory community (Trinh, 2008; Larkin, 2008), and interpretation of aerial photography in reference to the proposed Project area. Information was obtained from topographic maps and aerial photographs (GlobXplorer, 2007). Project boundaries were plotted over high resolution, true-color, georectified aerial photography. A 250-foot buffer was included around all project operations including either side of transmission and pipeline corridors. Boundaries of potential jurisdictional waters were estimated based on photo interpretation of defined channels and adjacent riparian vegetation communities, where applicable. The data were then exported to GIS and overlaid with delineated boundaries of WUS and WSC.

Special-Status Plants Focused Survey

Focused surveys for special-status plant species potentially occurring were conducted throughout the power plant site and linear ROWs (concurrently with the desert tortoise and burrowing owl surveys). Surveys adhered to CDFG (2000) and CNPS (2001) guidelines. The surveys included focused searches for San Gabriel manzanita, San Antonio milkvetch, Lancaster milkvetch, alkali mariposa lily, Peirson's morning-glory, white pygmy-poppy, brown fox sedge, Mt. Gleason paintbrush, Parry's spineflower, Kern Canyon clarkia, pale-yellow layia, lemon lily, San Gabriel linanthus, sagebrush loeflingia, Peirson's lupine, California muhly, short-joint beavertail, Rock Creek broomrape, Parish's popcornflower, Mason's neststraw, and Greata's aster, as these species have been reported from the general vicinity of the Project site and are associated with vegetation communities or habitat types present on the site. Surveys were conducted during appropriate flowering periods for the annual species; cacti were detectable during all field surveys.

Various segments of the transmission line, reclaimed water pipeline, and natural gas supply pipeline were not surveyed because of unsuitable habitat (e.g., developed, agricultural), inaccessible/fenced areas (e.g., Air Force Plant 42, LA World Airports), and/or precipitous terrain (e.g., mountainous portion of transmission line Segment 2) (Figure 5.3-1).

Desert Tortoise Focused Survey

Focused surveys for desert tortoise were conducted throughout the power plant site, linear ROWs, and ZOIs (concurrently with the plant and burrowing owl surveys). Surveys adhered to USFWS (1992) survey protocols. Belt transects of 30 feet in width were walked throughout the aforementioned areas. A 10 percent Quality Survey (10-foot belt transects) was conducted on the power plant site. ZOI surveys were conducted in all directions around all areas of the power plant site (where possible) at transect intervals of 100', 300', 500', 1,200', 2,400', 3,960', and 5,280'. ZOI surveys were conducted on both sides of linear facilities (where possible) at transect intervals of 100', 300', 500', 1,200', and 2,400'. All desert tortoise sign (i.e., live tortoises, burrows, scat, carcasses and fragments thereof) was documented on appropriate survey forms

(Desert Tortoise Handbook 1992). Observed desert tortoise sign (one Class 5 burrow, which may or may not be a tortoise burrow) was photographed with a digital camera and mapped using handheld GPS equipment. Desert woodrat (*Neotoma lepida*) middens and animal burrows of various kinds (e.g., desert tortoise, kit fox (*Vulpes macrotis*), coyote (*Canis latrans*), California ground squirrel (*Spermophilus beecheyi*, etc.) were carefully inspected for presence of desert tortoises and/or their sign.

Various segments of the transmission line, reclaimed water pipeline, and natural gas supply pipeline were not surveyed because of unsuitable habitat (e.g., developed, agricultural), inaccessible/fenced areas (e.g., Air Force Plant 42, LA World Airports), and/or precipitous terrain (e.g., mountainous portion of transmission line Segment 2) (Figure 5.3-1). Since desert tortoises have been documented living in mountainous areas, these precipitous areas (unable to be walked) were scanned using binoculars.

Burrowing Owl Survey

A burrowing owl habitat assessment and surveys for burrowing owl were conducted throughout the power plant site, linear ROWs, and 500' buffer zones (concurrently with the desert tortoise and plant surveys). Surveys adhered to California Burrowing Owl Consortium (1993) and CDFG (1995) protocols. Various segments of the transmission line, reclaimed water pipeline, and natural gas supply pipeline were not surveyed because of unsuitable habitat (e.g., developed, agricultural), inaccessible/fenced areas (e.g., Air Force Plant 42, LA World Airports), and/or precipitous terrain (e.g., mountainous portion of transmission line Segment 2) (Figure 5.3-1).

Burrowing Owl Habitat Assessment

The Project site and a 500-foot buffer (where possible and appropriate based on habitat) were surveyed to assess the presence or potential presence of burrowing owls and/or suitable habitat (conducted concurrently with desert tortoise and plant surveys). Pedestrian survey transects were spaced to allow 100 percent visual coverage of the ground surface. The distance between transect center lines was no more than 100' and was reduced to account for differences in terrain, vegetation density, and ground surface visibility.

Focused Burrowing Owl Burrow Survey

A focused burrow survey to detect natural burrows or suitable man-made structures was conducted concurrently with the burrowing owl habitat assessment as well as the desert tortoise and plant surveys. Biologists walked areas of suitable habitat while searching for burrowing owls, potential and active burrows, and owl sign such as feathers, pellets, and prey items. The 500' buffer zone was surveyed to identify burrows and owls outside of the Project site boundaries which may be impacted by factors such as noise and vibration created by heavy equipment during project construction. Pedestrian survey transects were spaced to allow 100 percent visual coverage of the ground surface. The distance between transect center lines was no more than 100' and was reduced to account for differences in terrain, vegetation density, and ground surface visibility. The location of all suitable burrowing owl habitat, potential owl burrows, burrowing owl sign, and any owls observed were recorded and mapped.

Focused Burrowing Owl Survey

Focused burrowing owl nesting season surveys will be conducted on four separate days before August 15, 2008, throughout areas of suitable habitat (Figure 5.3-2). Surveys will be conducted either in the morning (one hour before sunrise to two hours after sunrise) or late afternoon (two hours before sunset to one hour

after sunset). Binoculars will be used to scan all suitable habitat, locations of mapped burrows, and potential perch locations. Surveys will be conducted from fixed points and provided 100 percent visual coverage of the site. Surveys will be conducted during weather conducive to observing owls outside their burrows.

Mohave Ground Squirrel Focused Survey and Habitat Assessment

Trapping surveys for MGS were conducted on the power plant site in 2006 by Eremico Biological Services and California State University, Stanislaus Endangered Species Recovery Program. A habitat assessment was conducted of the Project site by a well-known MGS expert, Dr. Phil Leitner, in July 2008. Detailed methods can be found in the respective reports in Appendix H, Attachment 2.

5.3.2.5 Survey Results

General Topography and Soils

The power plant site, transmission line Segment 1, reclaimed water pipeline, natural gas supply pipeline, and sanitary sewer pipeline are primarily flat (approximately 2,500-3,000 feet above mean sea level (AMSL)). Transmission line Segment 2 leaves the West Mojave Desert basin and enters the foothills of the San Gabriel Mountain range (approximately 3,000-4,200 feet AMSL). The overall highest elevation of all the site features combined is approximately 4,200 feet AMSL, located near the southwestern terminus of the transmission line before the tie-in to the Vincent Substation. The lowest elevation is approximately 2,490 feet AMSL, located at the northeast corner of the power plant site.

The Soil Survey of Los Angeles County, California, Antelope Valley Area, California (USDA Soil Conservation Service, 1986) and the USDA Natural Resources Conservation Service Web Soil Survey were referenced to determine the soil types occurring throughout the Project site. Also see AFC Section 5.12, Soils.

Jurisdictional Waters

A Preliminary Jurisdictional Determination report describing potential jurisdictional waters in the Project vicinity is provided in Appendix H as Attachment 3. The potential jurisdictional waters within 250 feet of the Project’s transmission line corridor are identified in Table 5.3-4 and shown on Figure 5.3-3. As designed, the PHPP will avoid all of the identified potential State and Federal jurisdictional waters.

Table 5.3-4 Potential Jurisdictional Status of Ephemeral Drainages and Perennial Waterways Found within 250 Feet of PHPP Transmission Line Corridor

Waterway (Figure Number in Appendix H)	Potential Jurisdictional Status	Description
1 (5-A)	WSC	Unnamed ephemeral wash routed along eastern edge of roadway
2 (5-B)	WSC	Segment of ephemeral Little Rock Wash
3 (5-C)	WSC	Segment of ephemeral Rock Creek

Waterway (Figure Number in Appendix H)	Potential Jurisdictional Status	Description
4 (5-D)	WSC and WUS	California Aqueduct. Relatively permanent water with potential connection to navigable waters with link to interstate or foreign commerce
5 (5-E)	WSC	Unnamed ephemeral wash
6 (5-E)	WSC	Unnamed ephemeral wash
7 (5-F)	WSC	Unnamed ephemeral wash
8 (5-G)	WSC	Unnamed ephemeral wash
9 (5-G)	WSC	Unnamed ephemeral wash
10 (5-H)	WSC	Unnamed ephemeral wash
11 (5-I)	WSC	Unnamed ephemeral wash
12 (5-J)	WSC	Unnamed ephemeral wash
13 (5-K)	WSC	Unnamed ephemeral wash
14 (5-L)	WSC	Segment of ephemeral Little Rock Wash
15 (5-M)	WSC and WUS	Palmdale Ditch. Relatively permanent water with potential connection to navigable waters with link to interstate or foreign commerce
16 (5-N)	WSC	Unnamed ephemeral wash with riparian canopy
17 (5-O)	WSC	Unnamed ephemeral wash with riparian canopy
18 (5-P)	WSC	Unnamed ephemeral wash
19 (5-Q)	WSC	Unnamed ephemeral wash
20 (5-Q)	WSC	Unnamed ephemeral wash
21 (5-R)	WSC	Unnamed ephemeral wash

Habitat Communities

The biological composition of the Palmdale area presents a transition zone from montane plant communities to communities more commonly found in Mojave Desert conditions. The results of the general biological field assessment indicate that nine habitat communities occur throughout the various areas of the Project site. These include:

- Mojave Creosote Bush Scrub,
- Joshua Tree Woodland,
- Desert Saltbush Scrub,
- Rabbitbrush Scrub,
- Mojavean Juniper Scrub,
- Mojave Riparian Forest,
- Mojave Desert Wash Scrub,
- Agricultural Land (active and fallow) and Orchards, and
- Urban and Disturbed/Developed Land.

Figure 5.3-4 illustrates the general habitat communities on the Project site within a one-mile radius of the power plant site and within a 1,000-foot radius of the Project's linear features. Photographs in Appendix H, Attachment 4 illustrate these habitat types. These communities are summarized separately below.

Mojave Creosote Bush Scrub.

Mojave creosote bush scrub (Holland, 1986) is the dominant plant community below 3,000 or 4,000 feet in the southwestern region of the United States. It is extensive from the Death Valley region southward across the Mojave Desert to the little San Bernardino Mountains, eastward to northwestern Arizona and southern Nevada. This plant community is generally composed of widely-spaced shrubs of approximately two to ten feet in height with bare ground between, and it typically intergrades with Joshua tree woodland and other desert scrub communities. This community is dominated by creosote bush and white bursage. Other common plant species present throughout this community within the Project site include Nevada joint fir, spiny hop-sage, cheesebush, winter fat, and Joshua tree. Plant growth generally occurs during late winter and early spring months, when annual precipitation is sufficient. Many species of ephemeral herbs may flower in late March and April if the winter rains are sufficient.

Mojave creosote bush scrub is one of the three dominant vegetation communities of the power plant site, found primarily in the southeastern portion. Along the northern portion of the transmission line route, it is found in small concentrations until becoming dominant in the southeastern portions of the route. It is not found along the other linear facilities.

Joshua Tree Woodland

Joshua tree woodland (Holland, 1986) is an open woodland with Joshua trees usually as the only arborescent species and numerous shrub species. This community is present on the desert slopes of the Southern Sierra Nevada, Tehachapi, and Transverse Ranges of Inyo, Kern, Los Angeles, San Bernardino, and northern Riverside counties from 2,500-5,000 feet elevation. It reaches eastward across the Mojave Desert to southwestern Utah, mostly on the slopes of mountains and mesas. This community is dominated by Yucca spp., evergreen shrubs, semideciduous shrubs, semisucculents, and succulents. It typically

intergrades with Mojave creosote bush scrub at lower elevations and Mojavean pinyon-juniper woodland at higher elevations. The main growing season is spring, with most growth limited by cold in winter and drought in summer and fall. Many species of ephemeral herbs may germinate following sufficient late fall or winter rains and flower in mid-spring.

Joshua tree woodland is one of the three dominant vegetation communities of the power plant site, stretching diagonally from the northeast portion to the southwest portion. Although Joshua trees are present throughout the linear facilities, this habitat community is only dominant in a few areas.

Desert Saltbush Scrub

Desert saltbush scrub (Holland, 1986) is characterized by low-growing, grayish, microphyllous shrubs and the presence of some succulent species. This community is widely scattered on margins of dry lakebeds in the Colorado, Mojave, and Great Basin deserts. Although the percent cover is typically low, with much bare ground exposed between the widely spaced shrubs, densely vegetated areas are also present. Although a variety of saltbush species can be present, this vegetation community is often dominated by a single saltbush species. The dominant saltbush species on-site included four-winged saltbush and allscale.

Desert saltbush scrub is not present on the power plant site, reclaimed water pipeline, or natural gas supply pipeline. However, it is dominant along the northern and eastern portions of the transmission line route.

Rabbitbrush Scrub

Rabbitbrush scrub (Holland, 1986) is a disturbance-maintained community (fire, grazing, soil tilling). This community is found in the Great Basin and western margin of the Mojave Desert, reaching west across the Sierra-Cascade Axis into the drainages of Kern, Feather, and Pit Rivers. It is dominated by rubber rabbitbrush, usually about 3 feet tall, with fairly evenly spaced gray shrubs flowering in late summer or fall.

Rabbitbrush scrub is one of the three dominant vegetation communities of the power plant site, found in the northwest portion. It is only found in a couple locations along the transmission line route, but is much more abundant along the reclaimed water pipeline and natural gas supply pipeline routes.

Mojavean Juniper Scrub

Mojavean juniper scrub (Holland, 1986) is a low, open woodland community that is dominated by California juniper. This community is restricted to the southern Sierra Nevada, the Tehachapi Mountains, and the desert slopes of the Transverse and Peninsular ranges. Other species present within this community include Joshua tree, rabbitbrush, and Nevada joint fir.

Mojavean juniper scrub is only found along the southwestern portion of the transmission line, once the Project enters the foothills of the San Gabriel Mountain range. One other isolated community occurs at the southern end of the natural gas supply pipeline.

Mojave Riparian Forest

Mojave riparian forest (Holland, 1986) is characterized by a relatively open forest community that occurs along the larger rivers and streams in the Mojave Desert. Unlike forest communities exhibiting a more closed canopy, a dense, shrubby understory is able to become established in this community, which adds to both its species diversity and structural composition. The trees within this community are generally less than

5.3 Biological Resources

approximately 82 feet in height and consist of Fremont cottonwood, which is the dominant species, Goodding's black willow, red willow, California sycamore, Arizona ash, and white alder. Shrubs and variable surface vegetation provide a ground cover ranging from continuous to infrequent and consist of California rose, cocklebur, mulefat and cattail in the wetter areas. Some areas within this plant community are dominated by relatively homogenous stands of Fremont cottonwood. These areas often exhibit very little understory.

One small patch of Mojave riparian forest occurs along the transmission line, just west of where it crosses Little Rock Wash. Several cottonwood trees are present along with standing water.

Mojave Desert Wash Scrub

Mojave desert wash scrub (Holland, 1986) is characterized by a low scrubby, remarkably diverse scrub, but lacking the conspicuous microphyllous trees of desert dry wash woodland. This community is found in throughout the Mojave Desert, typically occurring in the sandy bottoms of wide canyons, incised arroyos of upper bajadas, and within braided, shallow washes of the lower bajadas, usually below 5,000 feet.

Two areas of Mojave Desert wash scrub are crossed by the transmission line. Both areas are part of the Little Rock Wash SEA.

Agricultural Land and Orchards

Agricultural land (Holland, 1986) may be defined broadly as land used primarily for production of food and fiber. This type occurs throughout California but is most widespread in and adjacent to the Great Central Valley and to a lesser extent in coastal plains and valleys. Orchards in California are typically open, single species tree-dominated habitats, with an open understory.

Active and fallow agricultural lands are present along the northern portion of the transmission line. Abandoned (fallow) agricultural fields and overgrazed desert scrub areas support ruderal (weedy) plant species. The orchards present along Pearblossom Highway in the southern portion of the route are pear orchards enclosed by chain-link fencing.

Urban and Disturbed/Developed Land

Urban land (Holland, 1986) is comprised of areas of intensive use with much of the land covered by structures. Included in this category are cities, transportation, power, and communications facilities, and areas such as those occupied by mills, shopping centers, industrial, commercial, and residential complexes, and institutions that in some instances may be isolated from urban areas.

Disturbed/developed lands are generally characterized as those areas that are either devoid of vegetation as a result of site grading, or developed or occupied with structures and/or landscaped with non-native ornamental plants or shade trees. In general, these areas are so heavily disturbed that native and non-native vegetation cannot become established. Examples of disturbed/developed areas include paved and unsurfaced roads, graded or cleared areas, driveways, parking areas, houses, cement foundations, and existing structures.

Disturbed areas/developed lands are present throughout various areas of the sites. These areas include unsurfaced and paved roads, as well as developed areas supporting structures, and recently graded areas. Vegetative cover of these areas varies from being entirely void of vegetation to having moderate ornamental

landscaping. Garbage dumping is evident in some of these areas and storage of various forms of property (e.g., vehicles, scrap wood, appliances, furniture) occurs on others.

Plants

During the course of the general biological assessment and focused surveys, 162 plant species, including Joshua tree and two species of cacti, were detected on the Project site, buffer zone, and ZOI. Joshua trees and native cacti are managed as special-status plants by the CDNPA and regulated by the City. Appendix H, Attachment 5 includes the scientific and common names for all plant species detected on the Project site.

According to National Oceanic and Atmospheric Association (NOAA) data, mean rainfall totals for the winter season (i.e., December, January, February) in Palmdale from 1971 through 2000 equal 4.34 in. A total of 4.31 in. was recorded during the 2007-2008 winter season. Notwithstanding that the timing of precipitation is a critical factor influencing the germination and growth of plants, the 2007-8 winter precipitation for Palmdale suggests that plant productivity was adequate in Spring 2008 for conducting plant surveys.

General Wildlife

During the course of the 2008 general biological assessment and focused surveys, a total of 87 vertebrate species were detected on the Project site, buffer zone, and ZOI. These included 11 reptiles, 66 birds, and 10 mammals. Appendix H, Attachment 6 includes the scientific and common names for these species. It should be noted that relatively short-term inventories of this nature are limited in their scope by the seasonality, timing and duration of surveys, and the nocturnal and fossorial habits of many desert-dwelling animals. Therefore, the list of vertebrate species in Appendix H, Attachment 6 does not necessarily reflect the total number of animals that potentially occupy the Project site.

Fish and Wildlife Species of Commercial or Recreational Value

Species of commercial or recreational value include those species that provide local or regional financial resources to individuals or groups and could include fisheries, small game hunting, large game hunting, etc. Areas of undeveloped open space lands in the Mojave Desert have the potential to support fish and wildlife species of commercial and/or recreational value to the general public. Examples may include lands used for the legal hunting of, or fishing for, respective game or sport fish species and bird watching or wildlife viewing.

The City of Palmdale, within which the PHPP plant site, all pipelines except a small portion of the reclaimed water supply pipeline, and much of Segment 1 of the transmission line route are located, does not allow hunting within its corporate boundaries. Therefore permanent and temporary loss of habitat within the Project site is not expected to impact legal hunting of game species. Resources for sport fishing activities are not present since the sites do not support bodies of water. Additionally, it is unlikely that the sites are used by anyone for bird and/or wildlife watching, with the exception of perhaps the current residents of the City, who may bird watch or view wildlife incidentally. Furthermore, some areas near the sites are inhabited by people possessing unleashed, free-ranging, sometimes aggressive dogs, which have expressed aggression towards field personnel and are destructive to wildlife habitat. For the reasons discussed above, fish and wildlife species of commercial and recreational value do not occur within the Project site or vicinity.

Wildlife Movement Corridors

Wildlife movement corridors, also referred to as dispersal corridors, landscape linkages or ETAs, are generally defined as linear features along which animals can travel from one habitat or resource area to another. Corridor areas are also where plants can propagate and genetic interchange can occur. Populations can move through corridors in response to environmental changes, natural disasters, and normal dispersal. Declining species can also be replenished from other areas (Bond, 2003) via corridors. Many species of wildlife are known to routinely move through the landscape during their daily and/or seasonal activities. Many resident species in a given area may travel only short distances within their home ranges or territories daily, annually, or even during their entire lifetime. Other species, such as migratory birds, routinely travel great distances seasonally. Some large mammalian predators are known to have large home ranges and travel significant distances to access the biological resources that they need to survive. Predation is a key process in sustaining biodiversity, therefore it is important to preserve corridors or linkages between preserved large, core habitat areas to allow large predators, and other wildlife (and plants) to disperse or travel.

Extensive long-term species ecology, movement patterns, and dispersal behavior studies would be required to conclusively demonstrate whether a particular site or feature of a site served as an important movement corridor. This type of data is unavailable for most of the species occurring or potentially occurring on the Project site. However, drainages, ridgelines, and other natural and man-made linear features and barriers often serve as areas that wildlife routinely use to access essential natural resources. Such areas (i.e., on-site drainages, ridgelines, small valleys) within the Project site may serve as potential wildlife corridors. Wildlife that would be most likely to routinely use on-site corridors would be coyote, kit fox, rabbit, bobcat, and migrating/foraging bird species. However, because of the highly fragmented habitat (e.g., highways, railroad tracks, development), corridors for flightless species are limited by these barriers.

Special-Status Biological Resources

Plant or animal taxa may be considered "sensitive" or "special-status" due to declining populations, vulnerability to habitat change or loss, or because of restricted distributions. Some of these species have been listed as threatened or endangered by the USFWS and/or the CDFG, and are thus protected by the federal and state ESAs, respectively. State-listed species and certain other desert-occurring plants are also protected under provisions of the NPPA and CDNPA. Other species have been identified as sensitive or special-status by the USFWS and CDFG. Still others have been designated as special-status species by private conservation organizations, including the CNPS. Although some of these species have not been formally listed as threatened or endangered, they can still be considered significant under CEQA. Pursuant to Title 14, California Code of Regulations, Chapter 3: Guidelines for Implementation of the California Environmental Quality Act. Under CEQA, conservation status (endangered, rare, or threatened) is also applied to species that may not be included in any formal federal or state listing if the species is considered to likely become endangered within the foreseeable future throughout all or a significant portion of its range. Local jurisdictions (e.g., City of Palmdale) also regulate specified biological resources (e.g., Joshua trees, cacti, and other plant species) as locally sensitive.

The literature review consisted of an analysis of the CNDDDB, CNPS Inventory, other biological reports, and consultation with other biologists having experience in the vicinity of the Project site. This review identified 60 special-status biological resources known to occur in the vicinity (within approximately 10 miles) of the Project site (Figure 5.3-5). These resources include: two fish, 25 plants, two amphibians, six reptiles, 10

birds, nine mammals, and six habitat communities. Table 5.3-5 provides a complete list of these sensitive biological resources and their respective conservation status and occurrence potential in the Project vicinity.

The general biological assessment and focused field surveys resulted in the detection of six special-status biological resources throughout various areas of the Project site, buffer zone, and ZOI (Figure 5.3-6). All six of these species were birds. GPS coordinates for the special-status species and sign observed, including all bird nests identified during surveys, are provided in Appendix H, Table 3. In addition, for the purposes of this assessment, MGS are assumed to be present on the power plant site and along portions of the transmission line (see Appendix H, Attachment 2). A summary of these special-status biological resources is provided below.

Special-Status Fish

Two special-status fish species have been reported from the vicinity of the Project site based on the literature review conducted (Table 5.3-5). These include Santa Ana sucker (*Catostomus santaanae*) and unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*). Neither of these species was observed during 2006 or 2008 surveys, nor do they have potential to occur on the Project site because of a lack of suitable habitat.

Special-Status Plants

Twenty-one special-status plant species have been reported from the vicinity of the Project site based on the literature review conducted (Table 5.3-5). These include San Gabriel manzanita, San Antonio milkvetch, Lancaster milkvetch, alkali mariposa lily, Peirson's morning-glory, white pygmy-poppy, brown fox sedge, Mt. Gleason paintbrush, Parry's spineflower, Kern Canyon clarkia, pale-yellow layia, lemon lily, San Gabriel linanthus, sagebrush loeflingia, Peirson's lupine, California muhly, short-joint beavertail, Rock Creek broomrape, Parish's popcornflower, Mason's neststraw, and Greata's aster. None of these species was observed during the 2008 surveys. Focused surveys on the power plant site conducted in 2006 also did not detect special-status plants.

Four species protected under the City of Palmdale Native Desert Vegetation Ordinance and CDNPA were observed during surveys: golden cholla, California juniper, beavertail cactus, and Joshua tree. These species, not listed as endangered or threatened by any of the regulatory agencies, were observed on the plant site. Surveying and mapping of these species in areas of disturbance will be completed prior to the start of Project construction.

Special-Status Amphibians

Two special-status amphibian species have been reported from the vicinity of the Project site based on the literature review conducted (Table 5.3-5). These include arroyo toad (*Bufo californicus*) and Sierra Madre yellow-legged frog (*Rana muscosa*). Neither of these species was observed during 2006 or 2008 surveys nor have potential to occur on the Project site because of a lack of suitable habitat.

Special-Status Reptiles

Six special-status reptile species have been reported from the vicinity of the Project site based on the literature review conducted (Table 5.3-5). These include southwestern pond turtle (*Actinemys marmorata pallida*), silvery legless lizard (*Anniella pulchra pulchra*), desert tortoise, coast (San Diego) horned lizard (*Phrynosoma coronatum blainvillii*), coast (California) horned lizard (*Phrynosoma coronatum frontale*), and

two-striped garter snake (*Thamnophis hammondi*). None of these species was observed during 2008 surveys. Focused surveys on the power plant site conducted in 2006 also did not detect these species. Three of these species are considered to have some potential to occur on the Project site and are discussed below.

Desert tortoise

The Mojave population segment of the desert tortoise is listed as threatened under Federal and State endangered species laws. The Mojave population segment includes all tortoises occurring west and north of the Colorado River. The desert tortoise is most common in desert scrub, desert wash, and Joshua tree habitats in a variety of terrain types, including alluvial fans, valleys, rocky hillsides, and washes. They require friable soil for burrow and nest construction. Burrows are typically found at the base of shrubs, in the interspaces between shrubs, and occasionally in caliche soil bank areas or underneath boulders/rocks. They are herbivores and feed on a variety of plants including annual herbs and perennial grasses.

Tortoise activity is greatest during the spring and early summer, and to a lesser extent during the fall; however, tortoises can be active at any time of the year during appropriate weather conditions. Although tortoises hibernate during the winter and typically emerge in late February or early March, hatchlings and juveniles can be fairly active during the winter months. Adults will also emerge from their burrows to drink if water resources have been limited during the previous activity season and/or winter precipitation has provided standing water. Their activity is usually much reduced during hot summer months, but they may be active following summer rains or if temperatures are moderate (Boarman, 2003).

Threats to desert tortoises include loss or degradation of habitat, vandalism, poaching, intentional killing, predation on young tortoises by the common raven and other predators (e.g., kit fox, snakes, etc.), and disease (e.g., Mycoplasmosis). Off-road vehicles, military training maneuvers, mining, and livestock grazing also affect tortoise habitat by collapsing burrows, eroding soils, reducing availability of food plants, eliminating shrubs which would provide shade for tortoises and support for their burrows, and ultimately results in surface disturbance that promotes conditions more conducive to invasion by exotic plant species, which provide less nutritional value to tortoises than the native species that were replaced. Human activities, including garbage dumping, landfills, roads, increased nesting opportunities, irrigation, and increased vehicle use have lead to increased numbers of common ravens in California deserts. Ultimately, the increased predation on young tortoises by common ravens (*Corvus corax*) reduces recruitment into breeding populations (Boarman, 2003).

All areas of the Project site are located outside of designated critical habitat for the desert tortoise. The nearest designated critical habitat for this species is located approximately 16 miles northeast of the Project site within the Fremont-Kramer Desert Wildlife Management Area (DWMA). In 1984, the desert tortoise range boundary was located near the proposed Project site, but by 2002, that boundary had receded north to Edwards Air Force Base (BLM, 2006).

Tortoises are most often detected by their scats and burrows. Tortoises themselves can sometimes be detected in burrows by reflecting sunlight inside the burrow with a mirror. Other tortoise sign include carcasses, or fragments thereof, courtship rings, and drinking depressions. Any of these signs are an indication that tortoises either occur, or have recently occurred, at a particular location. Sign can be detected at any time of the year and always indicates suitable habitat, if not occupied habitat.

Although there is no desert tortoise critical habitat present on or near the Project site (Figure 5.3-6), the vegetation occurring on the Project site (e.g., desert scrub, desert wash, and Joshua tree) are types typically utilized by desert tortoises. Therefore, focused surveys were conducted in 2006 and 2008. Focused surveys conducted in 2006 on the power plant site did not detect desert tortoise or sign. Focused surveys conducted in 2008 (Table 5.3-5) did not detect desert tortoise on the Project site, buffer zone, or ZOI. One possible desert tortoise burrow (Class 5: good condition, undetermined species, but possibly tortoise based on its location and characteristics) was found during surveys (Figure 5.3-6; photograph in Appendix H, Attachment 4). This burrow was located on the 3,960' ZOI transect for the power plant site (west of site). The mouth of the burrow was overgrown with vegetation, and no sign of recent use (e.g., scat, tracks, etc.) was evident.

Completed survey data forms are presented in Appendix H, Attachment 7. No desert tortoises were observed during focused surveys, and no sign were observed (with the possible exception of the one burrow mentioned above that may or may not be a desert tortoise burrow). The highly fragmented nature of the Project site with numerous barriers (e.g., highways, railroad tracks, development) makes it highly unlikely that desert tortoises are present or could wander onto the Project site from adjacent lands – the connectivity to known occupied habitat is very low. Known occupied habitat is 16 miles northeast of the Project site, spanning numerous barriers. Therefore, the occurrence potential on the power plant site, reclaimed water pipeline, natural gas supply pipeline, and sanitary wastewater pipeline is absent. The occurrence potential along the north-south portion of transmission line Segment 1 and the southeast portion of transmission line Segment 2 is considered to be low.

Coast (San Diego) horned lizard

The coast (San Diego) horned lizard is designated as a CSC. Populations are known from the Mojave Desert along the base of the San Gabriel and San Bernardino Mountains from the Antelope Valley California Poppy State Reserve to Joshua Tree National Park (Jennings and Hayes 1994). It is found in a variety of habitats including coastal sage scrub, chaparral, broad-leaved woodlands, washes, and grasslands. Its diet consists primarily of harvester ants, although other insects are also readily taken. Habitat requirements include: the presence of harvester ants; loose sandy soil where it buries itself; cover (rocks or brush) to escape from predators; and sunny/warm basking sites (Stebbins, 2003; Sherbrooke, 1981). Populations are declining due to loss, degradation, and fragmentation of suitable habitat, extensive collecting, and introduction of the Argentine ant, which out-competes the preferred native harvester ants (CDFG, 2005).

Known occurrences (16 records from 1922-2004) range from 0.1 to 12 miles from the Project site (CDFG, 2008). Although the coast (San Diego) horned lizard was not observed during focused surveys, historic records and suitable habitat along the foothills make the occurrence potential for this species moderate.

Coast (California) horned lizard

The coast (California) horned lizard is designated a CSC and BLM sensitive species. The *P. c. frontale* subspecies intergrades with the *P. c. blainvillii* subspecies in southern Kern County and much of northern Santa Barbara, Ventura, and Los Angeles counties (CDFG, 2005). It occurs in sandy loam areas and on alkali flats in several habitat types, including areas with an exposed gravelly-sandy substrate containing scattered shrubs, clearings in riparian woodlands, dry uniform chamise chaparral, and annual grassland with scattered perennial seepweed or saltbush (Jennings and Hayes, 1994). The California horned lizard appears to have a life history very similar to the related San Diego horned lizard. California horned lizards

5.3 Biological Resources

are recorded as preying on beetles and ants, but probably take many other insects which are seasonally abundant (Stebbins, 2003). Populations are becoming increasingly fragmented with continued development of the region.

The known occurrence (1991) is five miles west of the Project site (CDFG, 2008). Because the coast (California) horned lizard was not observed during focused surveys, the occurrence potential for this species is low.

Special-Status Birds

Ten special-status bird species have been reported from the vicinity of the Project site, based on the literature review conducted (see Table 5.3-5). These include Cooper's hawk, tricolored blackbird (*Agelaius tricolor*), burrowing owl, ferruginous hawk, Swainson's hawk (*Buteo swainsoni*), Vaux's swift, mountain plover (*Charadrius montanus*), prairie falcon (*Falco mexicanus*), loggerhead shrike, and Le Conte's thrasher. Six of these species (Cooper's hawk, burrowing owl, ferruginous hawk, Vaux's swift, loggerhead shrike, Le Conte's thrasher) were observed during the 2008 field surveys. Surveys on the power plant site conducted in 2006 detected three species (prairie falcon, loggerhead shrike, Le Conte's thrasher). Nine of these species occur or are considered to have some potential to occur on the Project site and are discussed below.

Cooper's hawk

The Cooper's hawk is designated as a CSC. It has declined throughout California as a breeding bird. It prefers dense stands of live oak, riparian deciduous, or other forest habitats near water. Nests are usually located in deciduous trees, usually 20-50 feet above the ground. Cooper's hawks forage over adjacent areas, primarily preying on smaller bird species (Curtis et al., 2006). Habitat destruction, mainly in lowland riparian areas, is probably the main threat, although direct or indirect human disturbance at nest sites can be equally detrimental (CDFG, 2005).

Two Cooper's hawks were observed in 2008 flying over the power plant site during the field surveys. Although suitable nesting habitat is not present on the Project site, this species has been observed foraging over the power plant site. During winter, Cooper's hawk populations increase in the area (due to migratory birds arriving from more northerly latitudes), and a corresponding increase in foraging birds is expected throughout the Project site.

Burrowing owl

The burrowing owl is federally designated as a Bird of Conservation Concern (BCC), State designated as a CSC, and designated BLM sensitive. It is a small ground-dwelling owl that occurs in open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation (Haug et al., 1993). In southern California, burrowing owls are not only found in undisturbed natural areas, but also follow agricultural fields, margins of active agricultural areas, livestock farms, airports, and vacant lots. It is a subterranean nester, typically utilizing pre-existing burrows (e.g., California ground squirrel, kit fox, drain pipes, culverts, etc.). The entrance of the burrow is often adorned with animal dung, feathers, debris, and other small objects (CDFG, 2005). The species is active both day and night, and may be seen perching conspicuously on fence posts or standing at the entrance of their burrows. In spite of their apparent tolerance to human activities, burrowing owl populations in California are clearly declining and, if declines continue, the species may qualify for listing under the state and/or federal ESA(s) (CDFG, 1995). The declines in burrowing owl populations are attributed to loss and degradation of habitat, ongoing residential and commercial development, and rodent control programs.

Evidence of burrowing owls (i.e., one live individual, suitable habitat with potential burrows present, speaking with landowners) was apparent throughout various areas of the Project site footprint, 500-foot buffer areas, and within the 2,400-foot ZOI during the general biological surveys and focused surveys (Figures 5.3-6 and 5.3-8). Known occurrences (eleven records from 1999-2006) range from two to six miles from the Project site (CDFG, 2008). One live individual was observed in 2008 along the 1,200-foot ZOI transect for the transmission line. Although this owl is technically off-site (outside the proposed disturbance footprint and the 500-foot buffer zone area as defined by the Burrowing Owl Consortium Survey Guidelines), it could fly into the disturbance area. Additionally, numerous areas of suitable habitat containing small mammal burrows (primarily California ground squirrels) were observed across much of the Project site and within the ZOI. These burrows provide ample nesting opportunities for this species.

Ferruginous hawk

The ferruginous hawk is designated as a CSC. It is a fairly common winter resident of grasslands and agricultural areas in southwestern California. It frequents open grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys, and fringes of pinyon-juniper habitats, and roosts in open areas, usually in a lone tree or utility pole. Ferruginous hawks eat mostly rabbits, ground squirrels, and mice (Bechard and Schmutz 1995). Urban development may contribute to loss of suitable wintering habitat in California (CDFG, 2005).

One ferruginous hawk was observed in 2008 on the 1,200-foot ZOI survey along the transmission line. Although the species has not been observed to breed in California, suitable foraging habitat is present over the Project site. During winter, ferruginous hawk populations increase in the area (due to migratory birds arriving from more northerly latitudes), and a corresponding increase in foraging birds is expected on-site (CDFG, 2005). Known occurrences (two records from 1998-1999) range from eight to nine miles from the Project site (CDFG, 2008).

Swainson's hawk

The Swainson's hawk is federally designated as a BCC and state listed as threatened. The Swainson's hawk population in California numbers between 700 and 1,000 breeding pairs (most of which nest in the Central Valley), which is approximately 10 percent of the historic population (www.swainsonshawk.org). The majority of Swainson's hawk territories in the Central Valley are in riparian systems adjacent to suitable foraging habitats. Swainson's hawks often nest peripherally to riparian systems of the valley as well as utilizing lone trees or groves of trees in agricultural fields. Swainson's hawks require large, open grasslands with abundant prey in association with suitable nest trees. Suitable foraging areas include native grasslands or lightly grazed pastures, alfalfa and other hay crops, and certain grain and row croplands. Unsuitable foraging habitat includes crops such as vineyards, orchards, certain row crops, rice, corn and cotton crops (England et al., 1997). Threats include the loss of agricultural lands to various residential and commercial developments, habitat loss due to riverbank protection projects, conversion from agricultural crops that provide abundant foraging opportunities to crops such as vineyards and orchards which provide fewer foraging opportunities, shooting, pesticide poisoning of prey animals and hawks on wintering grounds, and competition from other raptors (CDFG, 2005).

Known occurrences (three records from 1979-1999) range from three to four miles from the Project site (CDFG, 2008). Swainson's hawks only very rarely breed or nest in southern California (CDFG, 2005). Considering the thoroughness and timing of the biological surveys on the Project site, PHPP biologists are confident that this species would have been detected had it been nesting on any of the Project site. For this reason, nesting Swainson's hawks are considered to be absent from the Project site. Suitable foraging habitat is present throughout the Project site, so the occurrence potential for foraging individuals is low.

5.3 Biological Resources

Vaux's swift

Vaux's swift is designated as a CSC. It nests in hollowed out tree trunks in coniferous forests from Western British Columbia south to northwestern California. This species generally forages over openings in forest and along stream courses where it eats high flying insects (Bull and Collins, 2007).

No known records have been reported from the Project vicinity, but Vaux's swifts were observed in 2008 foraging over the sites during spring migration (Figure 5.3-8). However, this species does not nest in southern California (CDFG, 2005). Therefore, Vaux's swift is expected to forage over the sites during migration only.

Mountain plover

The mountain plover is federally designated as a BCC, state designated as a CSC, and designated BLM sensitive. It is a winter resident and occurs in coastal prairies, alkaline flats, tilled fields, and Bermuda grass fields (CDFG, 2005). Generally a bird of open, flat, dry tablelands with low, sparse vegetation, it avoids forested or shrubby montane landscapes and seeks areas of local aridity, disturbance, or when found on prairies, of short, intensively grazed grass (Knopf and Wunder, 2006).

One known occurrence (2004) of a mountain plover was observed foraging in an agricultural field less than one mile from the transmission line (CDFG, 2008). Because of suitable foraging habitat in the Project vicinity, the occurrence potential for this species is low.

Prairie falcon

The prairie falcon is federally designated as a BCC and state designated as a CSC. Populations in the California deserts are still very high and probably close to carrying capacity, but will be negatively affected if recreational use of these lands increases at its current rate (CDFG, 2005). It typically nests on cliffs that provide ample nesting niches (e.g., holes, cracks, ledges, rock shelters) and forages widely over varied habitats. Prairie falcons predate mammals, especially ground squirrels and rabbits, and ground-dwelling birds such as California quails and chukars. During the winter, horned larks and western meadowlarks are also significant sources of prey (Steenhof, 1998).

Seven known occurrences (1976-1997) have been reported in the Project vicinity (CDFG, 2008). One individual was observed foraging on the power plant site during the 2006 surveys, but none were observed during the 2008 surveys. Suitable nesting habitat is not present, but suitable foraging habitat is present. The occurrence potential for foraging individuals is moderate.

Loggerhead shrike

The loggerhead shrike is federally designated as a BCC and state designated as a CSC. This species has declined throughout much of its range, particularly in Canada, as well as the Gulf States and Midwest, where a variety of factors including habitat loss and pesticide use have impacted this species. It occurs in open country with short vegetation: pastures with fence rows, old orchards, mowed roadsides, cemeteries, golf courses, agricultural fields, riparian areas, and open woodlands (Yosef, 1996). Breeders usually settle near isolated trees or large shrubs. Creosote bush scrub and Joshua tree woodland plant communities are favored by the species within the western Mojave Desert (CDFG, 2005).

The loggerhead shrike was observed on the Project site, buffer zone, and ZOI by Project biologists on several occasions during the 2006 and 2008 surveys (Figure 5.3-8). Because the species appears to be resident on the Project site, it is likely that the loggerhead shrike nests on the site.

Le Conte's thrasher

The Le Conte's thrasher is federally designated as a BCC and state designated as a CSC. It is a desert resident, primarily of open desert wash, desert scrub, alkali desert scrub, and desert succulent scrub habitats. It commonly nests in a dense, spiny shrub or densely branched cactus in desert wash habitat, usually 2-8 feet above ground (Sheppard 1996). Within the west Mojave Desert, the species occurs in the Antelope Valley north to eastern Kern County, including California City, and Ridgecrest. In the southern portion of the west Mojave Desert, the species occurs throughout Joshua Tree National Park and west along the northern bases of the San Bernardino and San Gabriel Mountains. Most of its habitat is also preferred racing grounds for the growing numbers of off-road vehicle enthusiasts (CDFG, 2005).

Two Le Conte's thrashers were observed on the power plant site and in the buffer zone during the 2008 surveys (Figure 5.3-8). They were also observed during the 2006 surveys. Additionally, suitable nesting habitat is present throughout much of the Project site.

Special-Status Mammals

Nine special-status mammal species have been reported from the vicinity of the Project site based on the literature review conducted (see Table 5.3-5). These include pallid bat (*Antrozous pallidus*), pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*), western mastiff bat (*Eumops perotis californicus*), long-eared myotis (*Myotis evotis*), Yuma myotis (*Myotis yumanensis*), southern grasshopper mouse (*Onychomys torridus ramona*), San Joaquin pocket mouse (*Perognathus inornatus inornatus*), MGS, and American badger (*Taxidea taxus*). None of these species was observed during the 2008 surveys. Focused surveys on the power plant site conducted in 2006 also did not detect these species. Eight of these species are considered to have some potential to occur on the Project site and are discussed below.

Pallid bat, Western mastiff bat, Long-eared myotis, Yuma myotis

All four bat species are designated BLM sensitive. The pallid bat and western mastiff bat are also designated CSC.

The pallid bat prefers a wide variety of habitats, including deserts, grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests. It is most common in open, dry habitats with rocky areas for roosting (CDFG, 2005).

The western mastiff bat prefers open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, and desert scrub. It roosts in crevices in cliff faces, high buildings, trees, and tunnels (CDFG, 2005).

The long-eared myotis prefers coniferous woodlands and forests. Nursery colonies are in buildings, crevices, spaces under bark, and snags. It uses caves primarily as night roosts (CDFG, 2005).

The Yuma myotis prefers open forests and woodlands with sources of water over which to feed. Its distribution is closely tied to bodies of water. Maternity colonies are in caves, mines, buildings or crevices (CDFG, 2005).

5.3 Biological Resources

Each bat species has been reported once (pallid: 1942; western mastiff: 1929; long-eared: 1998; Yuma: 1999), and those records range from one to 12 miles from the Project site (CDFG, 2008). Because of potential habitat present, there is a low occurrence potential that these species are present. Comprehensive bat surveys were not performed for this Project.

Pallid San Diego pocket mouse

The pallid San Diego pocket mouse is designated as a CSC. It occurs in sandy herbaceous areas, usually in association with rocks or coarse gravel, in desert wash, desert scrub, desert succulent scrub, and pinyon-juniper habitats. This subspecies occurs primarily on the margins of the western Mojave Desert and the northern slopes of the San Bernardino and San Gabriel mountains (CDFG, 2005).

Known occurrences (three records from 1951-1967) range from five to 10 miles from the Project site (CDFG, 2008). Because of potential habitat present, there is potential that this species is present. Comprehensive nocturnal trapping surveys were not performed for this Project.

Southern grasshopper mouse

The southern grasshopper mouse is designated as a CSC. It occurs in arid desert habitats of the Mojave Desert, especially scrub habitats with friable soils for digging and prefers low to moderate shrub cover (CDFG, 2005).

One known occurrence (1988) of a southern grasshopper mouse has been reported from 6.5 miles east of the Project site (CDFG, 2008). Because of potential habitat present, there is potential that this species is present. Comprehensive nocturnal trapping surveys were not performed for this Project.

Mohave ground squirrel

The Mohave ground squirrel (MGS) is state listed as threatened. It is restricted to the western Mojave Desert, and occurred historically from near Palmdale on the southwest, southeast to Lucerne Valley, northwest to Olancho, and northeast to the Avawatz Mountains (Gustafson 1993). There are a few recent records of the species in the southern portion of its range (Palmdale to Victorville area). Habitats used by this species include creosote bush scrub, various types of saltbush scrub, and Joshua tree woodland (CDFG, 2005). The topography throughout its range is primarily flat, but the squirrel can also occur on gentle to moderate slopes, especially in the northern portion of its range. It is active only seasonally, spending much of the year in torpidity underground, emerging to feed following winter and spring rains. It feeds on the leaves and seeds of forbs and shrubs, with perennial shrubs forming a large part of the diet, especially when annual forbs are not available. The MGS is threatened by loss and degradation of its habitat due to clearing for agriculture and military activities and for urban, suburban, and rural development, livestock grazing, and off-road vehicle use (CDFG, 2005).

Known occurrences (21 records from 1930-1992) range from 0.5 to 10 miles from the Project site (CDFG, 2008). MGS trapping surveys conducted on the power plant site in 2006 by Eremico Biological Services (2006) and CSU Stanislaus (2006) (both reports located in Appendix H, Attachment 2) did not detect any MGS, but no MGS trapping survey was conducted in 2008. Leitner (2008, report located in Appendix H, Attachment 2) conducted a habitat assessment of the power plant site and linear facilities. His results can be briefly summarized as:

- Power plant site – good quality habitat is present, but its value is reduced since it is an isolated patch of habitat surrounded by unsuitable habitat; 377 acres would be permanently disturbed (MGS presence assumed).
- Construction laydown area – unsuitable habitat.
- Transmission line – composed of suitable and unsuitable habitat (28 of the 35.6 miles is in the historic range of MGS); 6.5 acres would be permanently disturbed.
- Reclaimed water pipeline – composed of poor quality habitat and unsuitable habitat.
- Natural gas supply pipeline – composed of poor quality habitat and unsuitable habitat.
- Sanitary wastewater pipeline – suitable habitat. No disturbance anticipated since using City street ROWs.

As noted earlier, despite the negative trapping results obtained in 2006, the Project Applicant (City of Palmdale) has elected to assume presence of the MGS in suitable habitats on the power plant site and along portions of the transmission line (Figure 5.3-6), and will consult with CDFG with respect to Project impacts to this species and appropriate mitigation measures. Take permits will be obtained and mitigation measures incorporated to reduce Project impacts below a level of significance.

American badger

The American badger is designated as a CSC. Badger populations have declined drastically in California within the last century. The principal habitat requirements seem to be sufficient food, friable soils, and relatively open, uncultivated ground. Grasslands, savannas, and mountain meadows near timberline are preferred. Badgers prey primarily on burrowing rodents such as gophers, ground squirrels, marmots, and kangaroo rats. Deliberate shooting and trapping, cultivation (they do not survive on cultivated land), and agricultural and urban developments have been major factors in their decline (CDFG, 2005).

One known occurrence (1930) of a badger has been reported from six miles east of the Project site (CDFG, 2008). Because of potential habitat present, there is a low occurrence potential that this species is present. Comprehensive mammal surveys were not performed for this Project.

Special-Status Habitat Communities

Six special-status habitats have been reported from the vicinity of the Project site based on the literature review conducted (see Table 5.3-5). These include Canyon Live Oak Ravine Forest, Mojave Riparian Forest, Southern California Threespine Stickleback Stream, Southern Cottonwood Willow Riparian Forest, Southern Riparian Scrub, and Southern Sycamore Alder Riparian Woodland. These communities are either known or believed to be of high priority for inventory in CNDDB (CDFG, 2008). Two communities that occur on the Project site are Mojave Riparian Forest and Southern Riparian Scrub.

Significant Ecological Areas

There are 11 individual Significant Ecological Areas (SEAs) within 10 miles of the Project site (Figure 5.3-7). The County of Los Angeles General Plan proposes all-inclusive SEAs to include the present individual SEAs. The 11 individual SEAs would be included in the three SEAs discussed below.

5.3 Biological Resources

Antelope Valley SEA

The proposed Antelope Valley SEA would include Little Rock Wash, Big Rock Wash, Alpine Butte, Lovejoy Butte, Piute Butte, Saddleback Butte State Park, Edwards Air Force Base, and Rosamond Lake. Only Little Rock Wash is crossed by the Project; the other SEAs range from approximately 0.6 to eight miles from the Project site.

Little Rock Wash runs from the San Gabriel Mountains to the Mojave Desert and is crossed by the transmission line twice. It contains desert saltbush scrub, Mojave creosote bush scrub, and desert riparian habitats and provides nesting habitat for birds and a variety of mammals. Little Rock Wash supports diverse wildlife, serves as a migration corridor, and helps in the seed dispersal of desert plants.

San Andreas Rift Zone SEA

Ritter Ridge, located within the proposed San Andreas Rift Zone SEA, is located between the Sierra Pelona foothills and the Antelope Valley (approximately four miles west of the Project site). Ritter Ridge has a mix of Joshua trees and California junipers on the northern slopes, creosote bush scrub in the desert floor, and desert chaparral on the southern slopes. The area is a refuge for migratory birds and a habitat of 97 vertebrate species. The combination of desert and foothill plant species makes it a valuable ecological area.

Santa Clara River SEA

The proposed Santa Clara River SEA would include Kentucky Springs and Santa Clara River. Kentucky Springs is located at the terminus of the transmission line at the Vincent Substation. Santa Clara River is approximately five miles southwest of Vincent Substation.

Table 5.3-5 Special-status Species Occurring or Potentially Occurring in the Project Vicinity

Resource Name	Common Scientific Name	Status ^{1/}			Habitat and Distribution	Activity/Bloom Period	Occurrence Probability
		Federal	State	CNPS/BLM			
Fish							
Santa Ana sucker <i>Catostomus santaanae</i>		T	CSC	None	Endemic to Los Angeles basin south coastal streams. Habitat generalist, but prefers sand-rubble-boulder bottoms. Usually found in small to medium-sized (<7 m wide) permanent streams in water ranging in depth from a few centimeters to a meter or more. Los Angeles, San Gabriel, and Santa Ana Rivers.	Year-round	Absent. Suitable habitat not present.
Unarmored threespine stickleback <i>Gasterosteus aculeatus williamsoni</i>		E	E	None	Weedy pools, backwaters, and among emergent vegetation at the stream edge in small southern CA streams. Currently restricted to the upper Santa Clara River drainage in Los Angeles & Ventura Co., San Antonio Creek on Vandenberg Air Force Base, San Luis Obispo Co., and an isolated population in San Felipe Creek in San Diego Co. A remnant population exists in Shay Creek, San Bernardino County.	Year-round	Absent. Suitable habitat not present.
Plants							
San Gabriel manzanita <i>Arctostaphylos gabrielensis</i>		None	None	1B.2	Rocky outcrops in chaparral habitat. Known only from Mill Creek Summit divide in the San Gabriel Mountains.	Mar	Absent. Not observed during focused surveys.
San Antonio milkvetch <i>Astragalus lentiginosus</i> var. <i>antoniuis</i>		None	None	1B.3	Dry slopes in upper and lower montane coniferous forest.	Apr-Jul	Absent. Not observed during focused surveys.
Lancaster milkvetch <i>Astragalus preussii</i> var. <i>laxiflorus</i>		None	None	1B.1	Alkaline clay flats or gravelly or sandy washes and along draws in gullied badlands. Chenopod scrub. Known in CA only from near Lancaster and Edwards AFB, where extremely rare.	Mar-May	Absent. Probably extirpated. Last observed in 1902.
Alkali mariposa lily <i>Calochortus striatus</i>		None	None	1B.2 S	Alkaline meadows and ephemeral washes in chaparral, chenopod scrub, Mojavean desert scrub, and meadows.	Apr-Jun	Absent. Not observed during focused surveys.
Peirson's morning-glory <i>Calystegia peirsonii</i>		None	None	4.2	Chaparral, coastal scrub, chenopod scrub, cismontane woodland, lower montane coniferous forest. Often in disturbed areas or along roadsides or in grassy, open areas.	Apr-Jun	Absent. Not observed during focused surveys.
White pygmy-poppy <i>Canbya candida</i>		None	None	4.2 S	Sandy habitats in Joshua tree woodland, Mojavean desert scrub, and pinyon and juniper woodland.	Mar-Jun	Absent. Not observed during focused surveys.
Brown fox sedge <i>Carex vulpinoidea</i>		None	None	2.2	Marshes and swamps, riparian woodland.	May-Jun	Absent. Not observed during focused surveys.

5.3 Biological Resources

Resource Name	Common Scientific Name	Status ^{1/}			Habitat and Distribution	Activity/Bloom Period	Occurrence Probability
		Federal	State	CNPS/BLM			
Mt. Gleason paintbrush <i>Castilleja gleasonii</i>		None	R	1B.2	Occurs on open flats or slopes in granitic soil in chaparral, pinyon and juniper woodland, and lower montane coniferous forest. Restricted to the San Gabriel Mountains.	May-Jun	Absent. Not observed during focused surveys.
Parry's spineflower <i>Chorizanthe parryi</i> var. <i>parryi</i>		None	None	3.2	Dry, sandy soils on dry slopes and flats in coastal scrub and chaparral habitats.	Apr-Jun	Absent. Not observed during focused surveys.
Kern Canyon clarkia <i>Clarkia xantiana</i> ssp. <i>parviflora</i>		None	None	4.2	Often sandy, sometimes rocky, slopes, sometimes roadsides in chaparral, cismontane woodland, Great Basin scrub, and valley and foothill grassland.	May-Jun	Absent. Not observed during focused surveys.
Golden cholla <i>Cylindropuntia echinocarpa</i>		None	None	None	Mojave and Sonoran deserts, desert grasslands, juniper and oak-juniper woodlands, flats, bajadas, canyons, sandy, loam, alluvial to gravelly substrates.	Mar-Jun	Occurs. Protected by City of Palmdale Native Desert Vegetation Ordinance.
California juniper <i>Juniperus californica</i>		None	None	None	Pinyon and juniper woodland, Joshua tree woodland, foothill woodland.	N/A	Occurs. Protected by City of Palmdale Native Desert Vegetation Ordinance.
Pale-yellow layia <i>Layia heterotricha</i>		None	None	1B.1 S	Open areas of alkaline or clay soils in cismontane woodland, coastal scrub, pinyon and juniper woodland, and valley and foothill grassland.	Mar-Jun	Absent. Not observed during focused surveys.
Lemon lily <i>Lilium parryi</i>		None	None	1B.2	Wet, mountainous terrain, generally in forested areas. On shady edges of streams, in open boggy meadows & seeps, lower montane coniferous forest, riparian forest, upper montane coniferous forest.	Jul-Aug	Absent. Not observed during focused surveys.
San Gabriel linanthus <i>Linanthus concinnus</i>		None	None	1B.2	Dry rocky slopes, often in Jeffrey pine/canyon oak forest, but also found in chaparral, upper and lower montane coniferous forest.	Apr-Jul	Absent. Not observed during focused surveys.
Sagebrush loeflingia <i>Loeflingia squarrosa</i> var. <i>artemisiarum</i>		None	None	2.2 S	Sandy flats and dunes, sandy areas around clay slicks. Desert dunes, Great Basin scrub, Sonoran desert scrub.	Apr-May	Absent. Not observed during focused surveys.
Peirson's lupine <i>Lupinus peirsonii</i>		None	None	1B.3	Decomposed granite slide and talus, on slopes and ridges in Joshua tree woodland, upper and lower montane coniferous forest, and pinyon and juniper woodland. Known only from the San Gabriel Mountains.	Apr-Jun	Absent. Not observed during focused surveys.
California muhly <i>Muhlenbergia californica</i>		None	None	4.3	Usually found near streams or seeps in coastal sage scrub, chaparral, lower montane coniferous forest, and meadows.	Jun-Sep	Absent. Not observed during focused surveys.
Beavertail cactus <i>Opuntia basilaris</i>		None	None	None	Dry, rocky desert slopes.	Mar-Jun	Occurs. Protected by City of Palmdale Native Desert Vegetation Ordinance.

5.3 Biological Resources

Resource Name	Common Scientific Name	Status ^{1/}			Habitat and Distribution	Activity/Bloom Period	Occurrence Probability
		Federal	State	CNPS/BLM			
Short-joint beavertail <i>Opuntia basilaris</i> var. <i>brachyclada</i>		None	None	1B.2 S	Sandy soil or coarse, granitic loam in chaparral, Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland, and riparian woodland.	Apr-Jun	Absent. Not observed during surveys.
Rock Creek broomrape <i>Orobanche valida</i> ssp. <i>valida</i>		None	None	1B.2	On slopes of loose decomposed granite; parasitic on various chaparral shrubs. Chaparral, pinyon and juniper woodland.	May-Sep	Absent. Not observed during focused surveys.
Parish's popcornflower <i>Plagiobothrys parishii</i>		None	None	1B.1	Alkaline soils, mesic sites in Great Basin scrub and Joshua tree woodland. 750-1400m.	Mar-Jun	Absent. Not observed during focused surveys.
Mason's neststraw <i>Stylocline masonii</i>		None	None	1B.1 S	Sandy washes in chenopod scrub and pinyon and juniper woodland. 100-1200m.	Mar-May	Absent. Not observed during focused surveys.
Greata's aster <i>Symphotrichum greatae</i>		None	None	1B.3	Mesic canyons in broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, and riparian woodland. 300-2010m.	Jun-Oct	Absent. Not observed during focused surveys.
Joshua tree <i>Yucca brevifolia</i>		None	None	None	Joshua tree woodland and within interface zone of that vegetation community & others. 500-2000 m.	Apr-May	Occurs. Protected by City of Palmdale Native Desert Vegetation Ordinance.
Amphibians							
Arroyo toad <i>Bufo californicus</i>		E	CSC	None	Breeding adults require overflow pools adjacent to inflow channels free of predatory fishes. Exposed pools that are shallow, sand- or gravel-based, and have a low current velocity are strongly favored. Breeding pools must occur in the vicinity (10-100 meters) of juvenile and adult habitat, which consists of a shoreline or central bar and stable, sandy terraces. Stable, sandy terraces should possess a moderately well-developed, but scattered shrub and tree vegetation overstory, and typically have mulefat, California sycamore, Fremont's cottonwood, or coast live oak present.	Jan-Aug	Absent. Lack of suitable habitat. Two historic records from Little Rock Creek, but greater than 1 km away.
Mountain yellow-legged frog <i>Rana muscosa</i>		E	CSC	None	Inhabits shallow, permanent rocky streams that are partially shaded or have filtered light at moderate to high elevations. Absent from small creeks because of insufficient depth for adequate refuge and overwintering.	Year-round	Absent. Lack of suitable habitat.
Reptiles							
Southwestern pond turtle <i>Actinemys marmorata pallida</i>		None	CSC	S	Inhabits permanent or nearly permanent bodies of water. Requires basking sites and upland oviposition sites in the vicinity of the aquatic site. May be active year-round; typically become active in March or April, and disappear to overwintering sites in October or November.	Mar-Nov	Absent. Lack of suitable habitat.

5.3 Biological Resources

Resource Name	Common Scientific Name	Status ^{1/}			Habitat and Distribution	Activity/Bloom Period	Occurrence Probability
		Federal	State	CNPS/BLM			
Silvery legless lizard <i>Anniella pulchra pulchra</i>		None	CSC	None	Occur primarily in areas with sandy or loose loamy soils under the sparse vegetation of beaches, chaparral, or pine-oak woodland. Also occur in desert scrub at the western edge of the Mojave Desert. They are often found under, or in the close vicinity of, surface objects such as logs, rocks, old boards and the compacted debris of woodrat nests. Prefer soils with high moisture content.	Year-round	Absent. Lack of suitable habitat.
Desert tortoise <i>Gopherus agassizii</i>		T	T	None	Most common in desert scrub, desert wash, and Joshua tree habitats. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Feb-Nov	Power plant site, reclaimed water pipeline, natural gas supply pipeline, sanitary wastewater pipeline: Absent. North-south portion of transmission line Segment 1 and southeast portion of transmission line Segment 2: Low.
Coast (San Diego) horned lizard <i>Phrynosoma coronatum blainvillii</i>		None	CSC	None	Inhabits coastal sage scrub and chaparral in arid and semi-arid climate conditions. Prefers friable, rocky, or shallow sandy soils.	Mar-Oct	Moderate. Historic records near alignments (transmission line, reclaimed water pipeline, and natural gas supply pipeline).
Coast (California) horned lizard <i>Phrynosoma coronatum frontale</i>		None	CSC	S	Occurs in sandy loam areas and on alkali flats in several habitat types, including areas with an exposed gravelly-sandy substrate containing scattered shrubs, clearings in riparian woodlands, dry uniform chamise chaparral, and annual grassland with scattered perennial seepweed or saltbush.	Apr-Oct	Low. Potential habitat present.
Two-striped garter snake <i>Thamnophis hammondi</i>		None	CSC	S	Inhabits perennial and intermittent streams having rocky beds bordered by willow thickets or other dense vegetation.	Mar-Nov	Absent. Lack of suitable habitat.
Birds							
Cooper's hawk <i>Accipiter cooperii</i>		None	CSC	None	Dense stands of live oak, riparian deciduous, or other forest habitats near water used most frequently. Nests in deciduous trees, usually 6-15 m (20-50 ft) above the ground.	Year-round	Nesting: Absent. Lack of suitable habitat. Foraging: Occurs. Observed at power plant site.
Tricolored blackbird <i>Agelaius tricolor</i>		BCC	CSC	S	Breeds in freshwater marshes dominated by cattails or bulrushes, willows, blackberries, thistles, and diverse upland and agricultural areas. May forage in various scrub plant associations. Preferred roost sites include cattail and bulrush marshes near suitable foraging areas in pasturelands and croplands.	Year-round	Absent. Lack of suitable habitat.
Burrowing owl <i>Athene cunicularia</i>		BCC	CSC	S	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Year-round	Occurs. One individual observed on transmission line Segment 1 (1,200' zone of influence). Others areas with suitable habitat present.

5.3 Biological Resources

Resource Name	Common Scientific Name	Status ^{1/}			Habitat and Distribution	Activity/ Bloom Period	Occurrence Probability
		Federal	State	CNPS/ BLM			
Ferruginous hawk <i>Buteo regalis</i>		None	CSC	None	Fairly common winter resident of grasslands and agricultural areas in southwestern California. Frequents open grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys, and fringes of pinyon-juniper habitats. Roosts in open areas, usually in a lone tree or utility pole.	Sep-Apr (Wintering)	Nesting: Absent. Lack of suitable habitat. No breeding records from California. Foraging: Occurs. One individual observed along transmission line Segment 1 (1,200' ZOI).
Swainson's hawk <i>Buteo swainsoni</i>		BCC	T	None	Generally migrate in flocks that can be as large as 5,000–10,000 individuals, always during daylight, typically soaring in thermals, and rarely over water. Birds rest and feed in grasslands and harvested fields, especially where grasshoppers are numerous, often perching on fence posts, telephone poles, and power poles. Large flocks may roost at night in trees	Mar-May Jul-Oct (Migration)	Nesting: Absent. Migratory. Foraging: Low. Potentially could forage in agricultural fields.
Vaux's swift <i>Chaetura vauxi</i>		None	CSC	None	During migration, utilizes forests and open areas. Roost trees and chimneys important during migration as they allow swifts to avoid exposure and conserve body heat.	Apr-May Sep (Migration)	Nesting: Absent. Migratory. Foraging: Occurs. Observed on transmission line Segment 1.
Mountain plover <i>Charadrius montanus</i>		BCC	CSC	S	Coastal prairies, alkaline flats, tilled fields, and Bermuda grass fields. Generally a bird of open, flat, dry tablelands with low, sparse vegetation. Avoids forested or shrubby montane landscapes and seeks areas of local aridity, disturbance, or when found on prairies, of short, intensively grazed grass.	Sep-Mar (Wintering)	Nesting: Absent. Migratory. Foraging: Low. Historic record of foraging birds in agricultural fields near transmission line Segment 1.
Prairie falcon <i>Falco mexicanus</i>		BCC	CSC	None	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Extensive foraging, to marshlands and ocean shores.	Year-round	Nesting: Absent. Suitable nesting habitat not present. Foraging: Moderate. Suitable foraging habitat and prey present.
Loggerhead shrike <i>Lanius ludovicianus</i>		BCC	CSC	None	Open country with short vegetation: pastures with fence rows, old orchards, mowed roadsides, cemeteries, golf courses, agricultural fields, riparian areas, and open woodlands. Breeders usually settle near isolated trees or large shrubs.	Year-round	Occurs. Observed on Project site.
Le Conte's thrasher <i>Toxostoma lecontei</i>		BCC	CSC	None	Desert resident; primarily of open desert wash, desert scrub, alkali desert scrub, and desert succulent scrub habitats. Commonly nests in a dense, spiny shrub or densely branched cactus in desert wash habitat, usually 2-8 feet above ground.	Year-round	Occurs. Observed on Project site.
Mammals							

5.3 Biological Resources

Resource Name	Common Scientific Name	Status ^{1/}			Habitat and Distribution	Activity/Bloom Period	Occurrence Probability
		Federal	State	CNPS/BLM			
Pallid bat <i>Antrozous pallidus</i>		None	CSC	S	A wide variety of habitats, including deserts, grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests. Most common in open, dry habitats with rocky areas for roosting.	Year-round	Low. Potential foraging habitat present.
Pallid San Diego pocket mouse <i>Chaetodipus fallax pallidus</i>		None	CSC	None	Occurs in desert wash, desert scrub, desert succulent scrub, pinyon-juniper, etc. Sandy herbaceous areas, usually in association with rocks or coarse gravel.	Year-round	Unknown. Potential habitat present. Comprehensive nocturnal trapping surveys were not performed for this Project.
Western mastiff bat <i>Eumops perotis californicus</i>		None	CSC	S	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, and desert scrub. Roosts in crevices in cliff faces, high buildings, trees, and tunnels.	Year-round	Low. Potential foraging habitat present.
Long-eared myotis <i>Myotis evotis</i>		None	None	S	Prefers coniferous woodlands and forests. Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	Year-round	Low. Potential foraging habitat present.
Yuma myotis <i>Myotis yumanensis</i>		None	None	S	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	Year-round	Low. Lack of suitable habitat, but historic record at Little Rock Reservoir (~1.5 miles south of transmission line Segment 2), so foraging individuals potentially present.
Southern grasshopper mouse <i>Onychomys torridus ramona</i>		None	CSC	None	Arid desert habitats of the Mojave Desert, especially scrub habitats with friable soils for digging. Prefers low to moderate shrub cover.	Year-round	Unknown. Potential habitat present. Comprehensive nocturnal trapping surveys were not performed for this Project.
San Joaquin pocket mouse <i>Perognathus inornatus inornatus</i>		None	None	S	Typically found in grasslands, blue oak savannas, shrubby ridge tops and hillsides, and open, sandy areas with grasses and forbs. Needs friable soils for burrowing.	Year-round	Absent. Lack of suitable habitat.
Mohave ground squirrel <i>Spermophilus mohavensis</i>		None	T	None	Restricted to the Mojave Desert in San Bernardino, Los Angeles, Kern, and Inyo Counties. Optimal habitats are open desert scrub, alkali desert scrub, and Joshua tree woodland. Also feeds in annual grasslands. Prefers sandy to gravelly soils, avoids rocky areas. Uses burrows at base of shrubs for cover.	Feb-Aug	Moderate. Historic records throughout area. Suitable habitat present. Assuming presence.
American badger <i>Taxidea taxus</i>		None	CSC	None	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Need sufficient food, friable soils, and open, uncultivated ground. Prey on burrowing rodents. Dig burrows for cover.	Year-round	Low. Potential habitat present.
Habitat Communities							

5.3 Biological Resources

Resource Name	Common Scientific Name	Status ^{1/}			Habitat and Distribution	Activity/Bloom Period	Occurrence Probability
		Federal	State	CNPS/BLM			
Canyon Live Oak Ravine Forest		None	INV	None	Dominated by <i>Quercus chrysolepis</i> , a broadleaved sclerophyll. Typically forms forests with little understory up to 20m tall in canyons on north-facing slopes, and low, chaparral-like stands less than 10m tall on south-facing slopes. Trees often with multiple trunks, probably from crown-sprouting after fires.	Year-round	Absent.
Mojave Riparian Forest		None	INV	None	A relatively open, broadleaved, winter-deciduous streamside forest dominated by <i>Populus fremontii</i> , <i>Salix gooddingii</i> , and <i>S. laevigata</i> . The open canopy allows a dense shrubby understory of <i>Atriplex lentiformis</i> ssp. <i>torreyi</i> , <i>Chrysothamnus nauseosus</i> , <i>Rosa woodsii</i> , and <i>Salix exigua</i> to prosper. Along the larger desert rivers (Owens, Mojave, Colorado) where the vegetation has not been cleared for irrigated agriculture or been dewatered by upstream diversions. Generally below 4,000 feet.	Year-round	Occurs. Some small riparian patches occur along transmission line Segment 2.
Southern California Threespine Stickleback Stream		None	INV	None	See unarmored threespine stickleback habitat and distribution.	Year-round	Absent.
Southern Cottonwood Willow Riparian Forest		None	INV	None	Tall, open, broadleaved winter-deciduous riparian forests dominated by <i>Populus fremontii</i> , <i>Populus trichocarpa</i> , and several tree willows. Understories usually are shrubby willows. Found along perennially wet stream reaches of the Transverse and Peninsular ranges, from Santa Barbara County south to Baja California Norte and east to the edge of the deserts.	Year-round	Absent.
Southern Riparian Scrub		None	INV	None	A scrubby streamside thicket, varying from open to impenetrable, dominated by any of several willows. This early community may succeed to any of several riparian woodland or forest types absent severe flooding disturbance.	Year-round	Occurs. Some small riparian patches occur along transmission line Segment 2.
Southern Sycamore Alder Riparian Woodland		None	INV	None	A tall, open, broadleaved, winter-deciduous streamside woodland dominated by <i>Platanus racemosa</i> (and often also <i>Alnus rhombifolia</i>). These stands seldom form closed canopy forests, and even may appear as trees scattered in a shrubby thicket of sclerophyllous and deciduous species.	Year-round	Absent.

5.3 Biological Resources

Resource Name	Common Scientific Name	Status ^{1/}			Habitat and Distribution	Activity/Bloom Period	Occurrence Probability
		Federal	State	CNPS/BLM			
<p>1/ Status:</p> <p>FEDERAL (United States Fish and Wildlife Service)</p> <p>E = Federally listed as Endangered</p> <p>T = Federally listed as Threatened</p> <p>C = Federal Candidate for listing as threatened or endangered</p> <p>BCC = Bird of Conservation Concern</p> <p>D = Federally Delisted</p> <p>STATE (California Department of Fish and Game)</p> <p>E = California state-listed as Endangered</p> <p>T = California state-listed as Threatened</p> <p>R = California state-listed as Rare</p> <p>CSC = California Special Concern species</p> <p>INV = Communities that are either known or believed to be of high priority for inventory in CNDDDB</p> <p>CNPS (California Native Plant Society)</p> <p>1B = CNPS list of plants that are rare, threatened, or endangered in California and elsewhere</p> <p>2 = CNPS list of plants that are rare, threatened, or endangered in California, but more common elsewhere</p> <p>3 = CNPS list of plants that require more information</p> <p>4 = CNPS list of plants that have a limited distribution (Watch List)</p> <p>.1 = Seriously endangered in California</p> <p>.2 = Fairly endangered in California</p> <p>.3 = Not very endangered in California</p> <p>BLM (Bureau of Land Management)</p> <p>S = BLM Sensitive species</p> <p>OCCURRENCE PROBABILITY</p> <p>Occurs = Observed on the site by AMEC biologists, or recorded on-site by other qualified biologists.</p> <p>High = Observed in similar habitat in region by qualified biologists, or habitat on the site is a type often utilized by the species and the site is within the known range of the species.</p> <p>Moderate = Reported sightings in surrounding region, or site is within the known range of the species and habitat on the site is a type occasionally used by the species.</p> <p>Low = Site is within the known range of the species but habitat on the site is rarely occupied by the species.</p> <p>Absent = A focused study failed to detect the species, or no suitable habitat is present.</p> <p>Unknown = Distribution and habitat use has not been clearly determined.</p>							

5.3.3 Environmental Impacts

Biological resources may be either directly or indirectly impacted by a Project. Direct and indirect impacts may be either permanent or temporary in nature. These impact categories are defined below.

- **Direct:** Any alteration, disturbance, or destruction of biological resources that would result from Project-related activities is considered a direct impact. Examples include clearing vegetation, encroaching into wetlands, diverting natural surface water flows, and the loss of individual species and/or their habitats.
- **Indirect:** As a result of Project-related activities, biological resources may also be affected in a manner that is not direct. Examples include elevated noise, dust, cooling tower drift and/or other air emissions, soil compaction, increased human activity, decreased water quality, and the introduction of invasive wildlife (domestic cats and dogs) and plants (weeds or other non-native species).
- **Permanent:** All impacts that result in the long-term or irreversible removal of biological resources are considered permanent. Examples include constructing a building or permanent road on an area containing biological resources.
- **Temporary:** Any impacts considered to have reversible effects on biological resources can be viewed as temporary. Examples include the generation of fugitive dust during construction, or removing vegetation for underground pipeline trenching activities and either allowing the natural vegetation to recolonize or actively revegetating the impact area. Surface disturbance that removes vegetation and disturbs the soil is considered a long-term temporary impact because of slow natural recovery in arid ecosystems. Therefore, all such impacts in the survey area are considered permanent.

Significance criteria are defined in the general context of CEQA. Potentially significant impacts to biological resources include, but are not limited to:

- Substantial adverse effects to plant species considered by the CNPS to be rare, threatened, or endangered in California or with strict habitat requirements and narrow distributions; substantial impact to a sensitive natural community (i.e., community that is especially diverse; regionally uncommon; or of special concern to local, state, and federal agencies);
- Substantial adverse effects to wildlife species that are federally or state-listed or proposed to be listed; a substantial impact to wildlife species of special concern to CDFG, candidates for State listing, or animals fully protected in California;
- Substantial adverse effects on habitats that serve as breeding, foraging, nesting, or migrating grounds and are limited in availability or that serve as core habitats for regional plant and wildlife populations; and
- Substantial adverse effect on important riparian habitats or wetlands and any other "Waters of the U.S." or State jurisdictional waters.

5.3.3.1 Construction

Direct Impacts

Permanent Impacts

Implementation of the entire proposed Project would result in the excavation and removal of native soils and the permanent loss of native vegetation on approximately 434 acres of land known to be occupied, presumed to be occupied, and/or known to be suitable habitat for a variety of special-status species. The loss of these vegetation communities is a direct, permanent impact. There will be an additional 1.5 acres of disturbance within disturbed/developed or agricultural land that does not provide habitat for special-status species. The amount of each vegetation community that will be directly impacted within each Project area is depicted in Table 5.3-6 and discussed in detail below.

Power Plant

Earth-moving activities within the immediate footprint of the proposed power plant site would result in the excavation and removal of topography and topsoil on approximately 377 acres of land that currently supports approximately 189 acres of Joshua tree woodland, 94 acres of Mojave creosote bush scrub, and 94 acres of rabbitbrush scrub. These habitats are native vegetation communities providing suitable habitat for numerous species, potentially including the desert tortoise, MGS, burrowing owl, Le Conte's thrasher, special-status plant species, and nesting birds. However, since no desert tortoises or special-status plants were observed during focused surveys, no direct impacts are expected. Thus, direct impacts could occur to the MGS (377 acres of suitable habitat), nesting birds, and the burrowing owl.

Direct impacts to the MGS, burrowing owl, and nesting bird species would be reduced through implementation of mitigation measures and obtaining a incidental take authorization (for the MGS), offsite habitat compensation, and species-specific impact minimization measures for all species impacted.

Power Plant Construction Laydown Area

All of this 50-acre area is subject to permanent disturbance. The habitat community present in this area is native rabbitbrush scrub, which provides suitable habitat for numerous species, potentially including the burrowing owl, Le Conte's thrasher, special-status plant species, and nesting birds. However, since no special-status plants were observed during focused surveys, no direct impacts are expected. Thus, direct impacts could occur to nesting birds and the burrowing owl. Direct impacts to the burrowing owl and nesting bird species would be reduced through implementation of mitigation measures, offsite habitat compensation, and species-specific impact minimization measures for all species impacted.

Transmission Line Segment 1

Earth-moving activities within the immediate footprint of the transmission line Segment 1 would result in the excavation and removal of topography and topsoil on approximately 7.8 acres of land supporting Mojave creosote bush scrub (3.24 acres), desert saltbush scrub (2.55 acres), Joshua tree woodland (0.25 acres), rabbitbrush scrub (0.16 acres), and Mojave desert wash scrub (0.03 acres). In addition, agricultural lands (1.32 acres) and urban and disturbed/developed areas (0.25 acres) are crossed by the route.

Table 5.3-6 Direct Permanent Surface Disturbance Acreage* per Affected Habitat Community

Vegetation Community	Power Plant	Construction Laydown Area	Transmission Line (Segment 1)	Transmission Line (Segment 2)	Reclaimed Water Pipeline	Natural Gas Supply Pipeline	Sanitary Wastewater Pipeline	TOTAL
Mojave Creosote Bush Scrub	94	0	3.24	0.23	0	0	0	97.47 acres
Joshua Tree Woodland	189	0	0.25	0.03	0	0	0	189.28 acres
Desert Saltbush Scrub	0	0	2.55	0	0	0	0	2.55 acres
Rabbitbrush Scrub	94	50	0.16	0	0	0	0	144.16 acres
Mojavean Juniper Scrub	0	0	0	0.51	0	0	0	0.51 acres
Mojave Riparian Forest	0	0	0	0	0	0	0	0 acres
Mojave Desert Wash Scrub	0	0	0.03	0.01	0	0	0	0.04 acre
Agricultural Land	0	0	1.32	0	0	0	0	1.32 acres
Urban & Disturbed/ Developed Land	0	0	0.25	0	0	0	0	0.25 acres
TOTAL	377 acres	50 acres	7.8 acres	0.78 acres	0 acres	0 acres	0 acres	435.58 acres

* Estimated disturbance acreage calculations:

- Power Plant site: 100% disturbance.
- Construction Laydown Area: 100% disturbance.
- Transmission Line Segment 1 (100% of disturbance will be in undisturbed habitat): 7 poles/mile (200 ft²/pole); 7 access roads/mile (14'x50'); 4 laydown areas (200'x200'); miscellaneous facilities (10% of total)
- Transmission Line Segment 2 (25% of disturbance will be in undisturbed habitat): 7 poles/mile (200 ft²/pole); no new access roads; 2 laydown areas (200'x200'); miscellaneous facilities (10% of total)
- Reclaimed Water Pipeline: No disturbance since using existing City Street ROW.
- Natural Gas Supply Pipeline: No disturbance since using existing City Street ROW.
- Sanitary Wastewater Pipeline: No disturbance since using existing City Street ROW.

The 7.8 acres of native vegetation communities provide suitable habitat for numerous species, potentially including the desert tortoise, MGS, burrowing owl, Le Conte's thrasher, special-status plant species, and nesting birds. However, since no desert tortoises or special-status plants were observed during focused surveys, no direct impacts are expected. Thus, direct impacts could occur to MGS (6.2 acres of suitable habitat), nesting birds, and the burrowing owl.

Direct impacts to MGS, burrowing owl, and nesting bird species would be reduced through implementation of mitigation measures and obtaining incidental take authorization (for the MGS), offsite habitat compensation, and species-specific impact minimization measures for all species impacted.

Transmission Line Segment 2

Earth-moving activities within the immediate footprint of the transmission line Segment 1 would result in the excavation and removal of topography and topsoil on approximately 0.78 acres of land supporting Mojave creosote bush scrub (0.23 acres), Joshua tree woodland (0.03 acres), Mojavean juniper scrub (0.51 acres), and Mojave desert wash scrub (0.01 acres).

The 0.78 acres of native vegetation communities provide suitable habitat for numerous species, potentially including the desert tortoise, MGS, burrowing owl, Le Conte's thrasher, special-status plant species, and nesting birds. However, since no desert tortoises or special-status plants were observed during focused surveys, no direct impacts are expected. Thus, direct impacts could occur to MGS (0.26 acres of suitable habitat), nesting birds, and the burrowing owl.

Direct impacts to MGS, burrowing owl, and nesting bird species would be reduced through implementation of mitigation measures and obtaining incidental take authorization (for MGS), offsite habitat compensation, and species-specific impact minimization measures for all species impacted.

Reclaimed Water Pipeline

No direct impacts are expected since the reclaimed water pipeline will be using existing City street ROWs.

Natural Gas Supply Pipeline

No direct impacts are expected since the natural gas supply pipeline will be using existing City street ROWs.

Sanitary Wastewater Pipeline

No direct impacts are expected since the sanitary wastewater pipeline will be using existing City street ROWs.

Temporary Impacts

Because desert habitats take a very long time to regenerate, all impacts associated with the Project are considered to be permanent.

Jurisdictional Waters

The Project as designed will avoid all state and federal jurisdictional waters. Should the Project require deposition of fill material into any of the federal jurisdictional waterways identified in the Preliminary Determination (Appendix H, Attachment 3), the Project Applicant would request confirmation from the

USACE of this preliminary assessment of jurisdictional waters by requesting an Approved Jurisdictional Determination from the Los Angeles District of the USACE.

If it is determined that the Project cannot avoid impacts to jurisdictional WSC, a Streambed Alteration Agreement would be required. This would entail the submission of an application to the CDFG for proposed impacts to WSC. The CDFG will determine if an Agreement is required based on proposed impacts and supply that agreement outlining minimization and mitigation measures to be followed by the Applicant during construction.

Habitat Communities

Mojave Creosote Bush Scrub

Project development would result in the direct loss of approximately 97.47 acres of Mojave creosote bush scrub. Approximately 94 acres would be permanently impacted as a result of surface-disturbing activities proposed within the power plant site, and approximately 3.47 acres would be permanently impacted as a result of surface-disturbing activities proposed within the transmission line.

Joshua Tree Woodland

Project development would result in the direct loss of approximately 189.28 acres of Joshua tree woodland. Approximately 189 acres would be permanently impacted as a result of surface-disturbing activities proposed within the power plant site, and approximately 0.28 acres would be permanently impacted as a result of surface-disturbing activities proposed within the transmission line.

Desert Saltbush Scrub

Project development would result in the direct loss of approximately 2.55 acres of desert saltbush scrub as a result of surface-disturbing activities proposed within the transmission line.

Rabbitbrush Scrub

Project development would result in the direct loss of approximately 144.16 acres of rabbitbrush scrub. Approximately 94 acres would be permanently impacted as a result of surface-disturbing activities proposed within the power plant site, approximately 50 acres would be permanently impacted as a result of surface-disturbing activities proposed within the construction laydown area, and approximately 0.16 acres would be permanently impacted as a result of surface-disturbing activities proposed within the transmission line.

Mojavean Juniper Woodland and Scrub

Project development would result in the direct loss of approximately 0.51 acres of Mojavean juniper woodland and scrub as a result of surface-disturbing activities proposed along the transmission line route.

Mojave Riparian Forest

Project development would not result in the direct loss of Mojave riparian forest since Project activities in areas containing this habitat will avoid the habitat.

Mojave Desert Wash Scrub

Project development would result in the direct loss of 0.04 acres of Mojave desert wash scrub as a result of surface-disturbing activities proposed within the transmission line. Impacts shall be minimized by spanning these areas and keeping the disturbance footprint as small as possible.

Agricultural Land and Deciduous Orchards

Project development would result in the direct loss of approximately 1.32 acres of agricultural land as a result of surface-disturbing activities along the transmission line route.

Urban or Built-Up Land and Disturbed/Developed Land

Project development would result in the direct loss of approximately 0.25 acres of urban or built-up and disturbed/developed land as a result of surface-disturbing activities proposed along the transmission line route.

General Wildlife

On-site vegetation communities provide habitat for wildlife common to each community. Habitat within impact areas of the Project site would be permanently or temporarily lost as a result of temporary surface disturbance.

Animal movement corridors present within the affected habitats would be disrupted as a result of permanent and temporary surface disturbance and human work activity presence associated with the Project. The most likely areas that such corridors are expected include on-site drainages, ridgelines, small valleys, and along man-made features (e.g., fences, structures, dirt roads) that direct animals in a certain direction. Wildlife most likely to utilize such corridors include (but are not limited to), the larger predatory species, such as the coyote and kit fox.

Adjacent non-impacted lands provide viable alternative animal movement habitat for the affected species. Wildlife using the on-site areas would largely be displaced to adjacent lands as a result of habitat loss resulting from the proposed Project. The Project has been designed to avoid all impacts to on-site washes and drainages, which serve as likely wildlife movement corridors. For this reason and because of the availability of adjacent lands for alternative wildlife movement and in addition to mitigation measures required for other impacts (i.e., offsite habitat compensation, habitat restoration), direct impacts to general wildlife and animal movement corridors are considered to be less than significant.

Migratory and Nesting Birds

Birds nesting within the Project site during construction activities would be permanently impacted by Project activities. The special-status bird species most likely to nest throughout the footprint of the Project site include burrowing owl, loggerhead shrike, and Le Conte's thrasher. This impact would be considered significant if not avoided or mitigated. Mitigation measures, including nesting bird clearance surveys during the nesting season and biological monitoring, would be implemented to minimize impacts to nesting birds. Additionally, certain features of the Project, once implemented, may provide nesting opportunities for certain birds-of-prey. Project structures may also provide nesting and foraging habitat for scavenging migratory birds, such as the common raven.

Elevated Project structures (e.g., transmission poles) could potentially result in occasional bird collisions. Most recorded bird collisions with ground structures involve species migrating at night during severe weather and/or during conditions with low visibility, colliding with tall guyed television or radio towers/antennas. Although considered to be possible, bird mortality as a result of collision with Project structures is considered to be less than significant, as the Project will not use any tall guyed antennas.

Electrocution of large birds-of-prey by transmission lines has also been well documented in the past. Historically, this was a problem resulting from a large bird simultaneously coming in contact with two conductors, or a conductor and a ground. All electrical transmission lines for the Project would be constructed with sufficient clearance between conductors and grounds to protect raptors and other large birds from electrocution. Installation of transmission lines and towers according to the guidelines recommended in the Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006 (APLIC, 2006) would reduce potential impacts.

Special-Status Biological Resources

Plant Species

No federally or state listed annual plant species are known to occur in proximity to the Project site. However, 17 annual plant species recognized by the CNPS as List 1B or 2 species or designated BLM sensitive are known from the vicinity. None of these species was detected during focused surveys conducted on the Project site. Although germination of these species might be greater in a year of higher rainfall, yielding different information on the presence of these species, it is currently assumed that impacts (if any) to these species are not expected to be significant.

Additionally, Joshua trees, California junipers, and two species of native cacti (golden cholla and beavertail cactus) were observed throughout various areas of the Project site. These species are not designated as sensitive by either the USFWS or CDFG; however, they are regulated and managed as species requiring special protection measures and/or permits for impacts by the California NPPA and the City of Palmdale Native Desert Vegetation Ordinance (Ord. 952 §2 (part), 1992). These species would be lost as a result of Project activities throughout various areas of the site, particularly on the power plant site, the adjacent construction laydown area, and possibly along the linear facilities, as they are present throughout all areas of the Project site. Direct impacts to these species from the proposed Project would be considered significant if not avoided or mitigated. Mitigation measures (salvaging impacted species, relocating them to local adoption programs or transplanting them into facility landscape design plans, and/or implementing site restoration) would reduce these impacts. Please note that the Project's Conceptual Landscape Plan (see Section 5.17, Visual Resources), has as its primary element transplanting Joshua trees from the interior to locations on the plant perimeter and at site locations such as the site access road and near the administration building.

Wildlife Species

Implementation of the Project would impact a variety of sensitive wildlife species to varying degrees. Special-status species potentially affected by the Project include desert tortoise, coast (San Diego) horned lizard, coast (California) horned lizard, Cooper's hawk, burrowing owl, ferruginous hawk, Swainson's hawk, Vaux's swift, mountain plover, prairie falcon, loggerhead shrike, Le Conte's thrasher, bats, pallid San Diego pocket mouse, southern grasshopper mouse, MGS, and American badger. These anticipated impacts to special-status wildlife are summarized separately below.

Desert tortoise

The highly fragmented relict habitat in the region of the Project site and the lack of connectivity to known populations make it highly unlikely that desert tortoises are present or could wander onto the power plant site or the routes of the reclaimed water pipeline, natural gas supply pipeline, and sanitary wastewater pipeline. Based on discussions with Dr. Alice Karl, a well-known desert tortoise expert, there is a low chance desert tortoises are present along the north-south portion of transmission line Segment 1 and the southeast portion of transmission line Segment 2 due to the connection to relatively broad expanses of historically occupied desert tortoise habitat (Karl 2008). Therefore, mitigation measures would be implemented along the north-south portion of transmission line Segment 1 and the southeast portion of transmission line Segment 2.

Coast (San Diego and California) horned lizards

Development of the linear facilities has the potential to directly impact the coast (San Diego and California) horned lizards. Direct impacts to this species would be considered significant if not avoided or mitigated. However, mitigation measures, including avoiding impacts to on-site washes and biological monitoring, would be implemented to reduce potential impacts.

Cooper's hawk, Ferruginous hawk, Swainson's hawk, Prairie falcon, Vaux's swift, Mountain plover

Development of the Project has the potential to directly impact these migratory/foraging bird species. Vegetation removal and human activity associated with implementation of the proposed Project would directly impact these species by removing foraging habitat and displacing foraging birds to neighboring lands. Direct impacts to this species would be considered significant if not avoided or mitigated. However, mitigation measures, including biological monitoring, would be implemented to reduce potential impacts.

Burrowing owl

One live burrowing owl was observed outside of the 500' buffer zone during the biological field studies. Additionally, indications of past burrowing owl use (i.e., burrows exhibiting whitewash, pellets, discussions with landowners, etc.) were observed within various areas of the Project footprint. Thus, direct impacts to this species as a result of Project activities are possible. Therefore, direct impacts to this species are considered significant. Mitigation measures would be implemented to reduce the impacts. These mitigation measures would include a focused nesting season burrowing owl survey conducted within one year prior to construction and a 30-day pre-construction survey conducted throughout all suitable areas of the site. Additionally, specific California Protected Raptor impact minimization permitting, habitat loss compensation and CDFG-recommended mitigation measures would be implemented for all burrowing owls detected at any time prior to facility installation.

Loggerhead shrike, Le Conte's thrasher

Vegetation removal and human activity associated with implementation of the proposed Project would directly impact these species by displacing foraging birds to neighboring lands. Additionally, Project activities conducted during the nesting seasons for these species could cause bird injury/mortality or nest abandonment, to nesting individuals within the planned work areas. These impacts are considered significant if not avoided or mitigated. However, mitigation measures including pre-construction clearance surveys during the breeding season, establishing buffer areas of around nest sites, and postponing Project activities until nestlings have fledged, would be implemented to reduce these impacts.

Bats

Development of the Project has the potential to directly impact migratory/foraging bat species. Vegetation removal and human activity associated with implementation of the proposed Project would directly impact these species by displacing foraging bats to neighboring lands. Direct impacts to this species would be considered significant if not avoided or mitigated. However, mitigation measures, including biological monitoring, would be implemented to reduce potential impacts.

Pallid San Diego pocket mouse, Southern grasshopper mouse

Development of the Project has the potential to directly impact these species. Vegetation removal and human activity associated with implementation of the proposed Project would directly impact these species by displacing individuals to neighboring lands. Direct impacts to this species would be considered significant if not avoided or mitigated. However, mitigation measures, including biological monitoring, would be implemented to help reduce potential impacts.

Mohave ground squirrel

The Applicant has elected to assume presence of MGS within all potentially suitable habitat affected by the Project and to consult with the CDFG regarding Project-related impacts. Direct impacts as a result of Project activities therefore are assumed for approximately 383.5 acres of MGS potential habitat. Direct impacts to this species are considered significant if not avoided or mitigated. Mitigation measures, outlined in Section 5.4.3 and Appendix H, Attachment 2 would be implemented to reduce the impacts. Additionally, incidental take authorization would be obtained to satisfy CESA requirements.

American badger

Development of the Project has the potential to directly impact the American badger. Vegetation removal and human activity associated with implementation of the proposed Project would directly impact this species by displacing individuals to neighboring lands. Direct impacts to this species would be considered significant if not avoided or mitigated. However, mitigation measures, including biological monitoring, would be implemented to reduce potential impacts.

Significant Ecological Areas

The transmission line will span Little Rock Wash twice. Also, the tie-in to the Vincent Substation will enter Kentucky Springs. Activities within the SEA boundaries will be limited, but human activity associated with implementation of the proposed Project would directly impact species utilizing the SEA by displacing individuals to neighboring lands. Direct impacts to these species would be considered significant if not avoided or mitigated. However, mitigation measures, including biological monitoring, would be implemented to reduce potential impacts.

Indirect Impacts

Variable levels of indirect impact are anticipated to occur as the result of implementing the proposed Project. Indirect impacts are those effects to natural resources supporting biological systems caused by a Project action which occur later in time than initial construction/operation actions or those that are removed in distance from the immediate Project site. Indirect impacts may include activities that alter adjacent offsite natural resources, including habitat used by listed or special-status species. Indirect impacts include "edge effects." Examples of edge effects include, but are not limited to, the following:

5.3 Biological Resources

- Human activity in areas not generally having this presence;
- Attraction and/or facilitation of human-subsidized scavenger use;
- Temporary and/or permanent increases in ambient night lighting as a result of the use of street, parking lot, and/or building lights;
- Runoff of hazardous materials into adjacent areas;
- Changes in surface drainage patterns following precipitation events;
- Temporary and/or permanent noise increases;
- Increases in fugitive dust that may accumulate on offsite plants; and
- The introduction of exotic or invasive plants or animals.

Permanent Impacts

Permanent indirect impacts associated with routine operations of the Project are anticipated as a result of the Project. These would include those impacts resulting from increased permanent noise, light, and human presence activities, which could result in an increased presence of common ravens and other predators attracted to the Project site.

Temporary Impacts

Construction activities have the potential to result in temporary indirect impacts in a variety of ways. In general, initial Project construction activities would result in temporary reduction of wildlife use on adjacent lands as a result of human presence, construction dust, lighting, and noise. Wildlife use would be expected to return to pre-construction rates following the completion of construction activities.

Jurisdictional Waters

The Project as proposed will avoid all impacts to Federal and State jurisdictional waters. Potential adverse impacts to adjacent jurisdictional areas will be avoided by appropriate design of onsite precipitation drainage, storm water, and miscellaneous fluid discharge to reduce this potential indirect impact.

Vegetation

Fugitive dust accumulation can result in a decreased reproductive viability of affected plants, sometimes resulting in the reduction of available food and cover sources for wildlife. Dust generated by construction activities has the potential to drift off the Project site and settle on adjacent habitats and vegetation. This can result in both adverse plant and insect use effects. The introduction of exotic and/or invasive species can likewise degrade offsite habitats, alter wildlife behavior patterns, and/or result in animal displacement, injury, or mortality in affected areas. Surface drainage changes can alter the extent and health of native plant communities. Appropriate mitigation measures would reduce these potential indirect impacts.

General Wildlife

Human activity can alter wildlife behavior patterns. Some of this activity can result in the displacement or attraction of some wildlife. Temporary and permanent changes in ambient night lighting can result in higher predation rates upon wildlife by nocturnal predators, due to increased visibility during nighttime hours. Increases in noise can disrupt the normal behavior patterns of wildlife, sometimes resulting in displacement

of these animals. Runoff of hazardous materials can adversely affect special-status plants and animals, as well as more commonly occurring species. The water table in general, which supports offsite plants and animals, can similarly be affected. Appropriate mitigation measures would reduce these potential indirect impacts.

Migratory and Nesting Birds

Indirect impacts to nesting bird species may occur as a result of Project related activities located in close proximity to nesting birds. For this reason, to avoid the potential to impact nesting birds, impact avoidance measures have been developed. These include establishing buffers around active nests and/or conducting construction activities outside the breeding season (breeding season is typically Feb. 1 – Aug. 31). Additionally, biological monitoring during construction in these areas would further ensure that impacts do not result.

Special-Status Biological Resources

Adjacent areas are potentially occupied by the desert tortoise, burrowing owl, MGS, as well as other special-status species such as Le Conte's thrasher and loggerhead shrike. Indirect impacts to these species may result from a variety of Project-related factors. Construction of the various Project features may serve as barriers, or function to inhibit/reduce movement. This would effectively fragment a functioning population.

Fugitive dust generated by Project construction has the potential to decrease offsite germination of annual plant species, which play vital roles in their life histories (e.g., diets, nesting, etc.). Additional nesting, perching, and shade opportunities would be created for the common raven and other scavenging species. Human presence associated with Project construction, in addition to any trash/garbage generated by Project-related activities, would likely attract scavengers to the area as well.

Additional roads and increased traffic created by the Project would result in an increased potential for injury and/or mortality associated with vehicle travel, illegal collection, as well as possibly improve the ability of some predators to secure prey. Other human actions possibly detrimental, such as garbage dumping and an increased chance of wildfire creation, could be created with the addition of roads in its habitat.

All of these indirect impacts are considered significant if not avoided or mitigated. Mitigation measures for all species impacted will be implemented, including obtaining CESA authorization for the MGS, offsite habitat compensation, and species-specific impact minimization measures.

5.3.3.2 Operation

Following initial construction activities, Project operation would also generate varying levels of dust, lighting and noise disturbance adjacent to the proposed power plant and on limited occasion, in proximity to utility features. These levels of impacts, often associated with maintenance actions, would be of smaller magnitude than those associated with construction and would be of short duration. A small, less than significant increase in these impacts would also be anticipated for day-to-day general Project operations at the proposed power plant.

Jurisdictional Waters

Operation of the Project would not result in direct or indirect impacts to State or Federal jurisdictional waters because those areas will be avoided.

Vegetation Communities

Direct Impacts

Operation of the Project would not result in significant direct impacts to sensitive vegetation communities because no sensitive vegetation communities occur in the survey area.

Indirect Impacts

Operation of the Project would not result in significant indirect impacts to sensitive vegetation communities because there are no sensitive vegetation communities in the immediate vicinity of the survey area. The operations phase SWPPP and the DESCOP will identify the Project design features and BMPs that will be used to effectively manage drainage-related issues (e.g., erosion and sedimentation) for long-term operations.

Furthermore, as shown in Section 5.2, Air Quality, the air emissions of dust, cooling tower drift and other pollutants will be quite small during operation of this Project, as a solar power plant only requires a small number of ancillary equipment items. For instance, the impacts of PM10 emissions from the boilers, engine and cooling tower drift have been modeled to be at most $0.4 \mu\text{g}/\text{m}^3$ on a daily basis and $0.04 \mu\text{g}/\text{m}^3$ on an annual average basis along the Project's fenceline. Cooling tower drift can be of concern due to salt deposition onto vegetation, which could adversely affect growth. However, salts from the cooling tower would only be a portion of these already negligible impacts, and hence the PPHP cooling tower would not result in an indirect impact to sensitive vegetation communities (even if they were present). Impacts from other air emissions were likewise shown in Section 5.2 to be well below applicable ambient air quality health and secondary¹ standards during Project operations.

Plant Species

Direct Impacts

Operation of the Project would not result in significant direct impacts to special-status plant species because these effects would be reduced to insignificance by impact avoidance, minimization, and mitigation measures.

Indirect Impacts

Operation of the Project may result in indirect impacts to special-status plant species through unauthorized access by workers. Unauthorized access by workers and their vehicles can trample and destroy individuals outside of, but immediately adjacent to, the proposed Project area. These impacts will be avoided, however, through implementation of Project avoidance and minimization measures.

¹ National secondary standards have been set to protect "public welfare" which includes impacts to soils and vegetation. The National secondary standard for 24-hour PM10 is $150 \mu\text{g}/\text{m}^3$ in comparison to the $0.4 \mu\text{g}/\text{m}^3$ maximum daily concentration due to the Project. Similarly, the National secondary standard for NO₂ is $100 \mu\text{g}/\text{m}^3$ in comparison to the $0.01 \mu\text{g}/\text{m}^3$ maximum annual modeled concentration from PPHP.

Wildlife Species

Direct Impacts

Direct impacts could result from mortality of wildlife by crushing or vehicle collisions during operation and maintenance activities. Implementation of the impact avoidance, minimization, and mitigation measures will reduce the Project's impacts on listed and special-status wildlife species to a level of insignificance.

Indirect Impacts

Operation of the Project may result in impacts to special-status wildlife species by destruction of habitat due to wildfires caused by new transmission wires, accumulation of waste material in evaporation ponds, and attraction of avian predators, such as common ravens that are known to prey on juvenile desert tortoises, by evaporation ponds and other Project components. Depending on constituent concentrations in evaporation ponds, accumulated waste material potentially could adversely affect shorebirds that stop over and use the pond during migration.

The waste constituent discharge concentrations have been determined for the evaporation ponds. During ongoing coordination with the USFWS and CDFG, a request was made to address the potential adverse effects of selenium levels in the evaporation pond discharge water, on wildlife species (in particular, on migratory waterfowl). Measuring the levels at which adverse effects are observable in birds is highly variable, and depends on several factors, such as species, body weight, and length of exposure, type of exposure (e.g., ingestion vs. dermal contact), the bioavailability of the compound (i.e., the ability of an organism to take up and store the compound), as well as the exposure concentration.

The U.S. Environmental Protection Agency (EPA) has published Ecological Soil Screening Levels (Eco-SSL) for selenium (2007). Although the screening levels are based on soil concentrations, the units of measure used are mg/kg, or parts per million (ppm), whereas the PHPP waste constituent concentrations are in units of mg/L (also equivalent to ppm). The Eco-SSL provides toxicology test results for bird species at a "no observable adverse effect level," (NOAEL) and at a "lowest observable adverse effect level" (LOAEL). Based on the use of surrogate species (i.e., selecting migratory birds such as the mallard and black-crowned night heron from the Eco-SSL list of target test species), the NOAEL ranged from 0.055 ppm to 4.16 ppm (for mallard in both test cases), while the LOAEL ranged from 0.11 ppm to 8.46 ppm (for mallard in both test cases). The waste constituent concentrations that have been calculated as being discharged into the evaporation pond are 0.0028 ppm for selenium, which would be approximately 20 times lower than the most sensitive NOAEL receptor response published by the EPA (2007). Therefore, it is not anticipated that the selenium concentrations in the evaporation pond would pose an adverse condition to migratory birds. Ongoing monitoring of the evaporation ponds, as described in Section 5.3.4, would track the waste constituent concentrations of any compound of concern.

Overall, implementation of the impact avoidance, minimization, and mitigation measures will reduce the Project's indirect impacts on special-status species to less than significant.

Wildlife Corridors

Construction of the Project would not result in significant direct or indirect impacts to wildlife movement corridors because of the already highly fragmented habitat.

5.3.3.3 Cumulative Impacts

Impacts associated with the Project, when considered individually, may not be considered significant. However, when considered collectively with other past, present, and future projects in the region, these Project impacts may contribute incrementally to the loss of habitat or individual special-status species. These incremental impacts, or cumulative impacts, may result from individually minor, but collectively significant actions taking place over a period of time. A Project's action is considered less than cumulatively significant if:

- The Project is required to implement an appropriate share of a mitigation measure intended to alleviate the cumulative impact; or if:
- The Project's contribution to a significant cumulative impact is essentially "de minimis," or so miniscule that the regional conditions would remain unchanged whether or not the project was implemented.

The Project will contribute to the ongoing conversion of land areas from undeveloped to developed and thus reduce the amount of available habitat for plant and wildlife species. The 377-acre power plant site will be developed, resulting in the loss of habitat. However, this parcel of land is highly fragmented, with E Ave M (four lanes) to the north, Air Force Plant 42 chain-link fencing to the south and east, and railroad tracks and Sierra Highway (four lanes) to the west. The linear facilities will utilize existing ROWs (e.g., city streets, SCE transmission corridors).

Because of the high levels of human activity in the area, habitat loss, degradation and fragmentation are considered significant issues in the western Mojave Desert (BLM, 2006). However, given the current disturbed and degraded nature of the Project site, development of this area is not likely to further reduce the amount of available habitat for special-status species such as MGS and burrowing owl. The loss of habitat for special-status species will be mitigated by the requirement for the Project to acquire and permanently protect suitable habitat for these species offsite. Providing compensation in the form of permanently protected off-site mitigation acreage, combined with other general mitigation measures described in Section 5.4 to minimize the effects of Project activities on biological resources, will reduce the Project's potential cumulative biological impacts to a level that is less than significant.

The CEC identifies a possible future concern over sufficient, suitable, and contiguous mitigation land for current and future projects in this area. Providing compensation in the form of permanently protected offsite mitigation acreage, combined with other mitigation measures described below to minimize the effects of Project activities on biological resources, will reduce the Project's potential cumulative biological impacts to a level that is less than significant.

5.3.4 Mitigation Measures

The following is a list of general impact avoidance and minimization measures that would apply to all Project activities. These measures are standard practices designed to prevent environmental degradation, and the Project applicant will ensure implementation of these measures to avoid and minimize impacts to the greatest extent feasible. Those measures will include:

BIO-1: The construction contractor(s)/crew(s) will be informed about the biological constraints of the Project. All construction personnel who work in the survey area will attend a contractor education

program, developed and presented by a Project biologist prior to the commencement of construction activity. This Worker Environmental Awareness Program (WEAP) will be included in the Biological Resources Mitigation Implementation Monitoring Plan (BRMIMP) that will be developed for the PHPP. The construction crews and contractor(s) will be responsible for unauthorized impacts from construction activities to sensitive biological resources that are outside the areas defined as subject to impacts by the CEC and other agencies who must issue approvals for the Project.

- BIO-2:** The project will comply with the requirements of the City of Palmdale Native Desert Vegetation Ordinance. This will include an inventory and evaluation of the Joshua trees on the PHPP plant site, a landscaping plan showing the proposed locations of Joshua trees that will remain onsite (transplanted Joshua trees are a key element of the site landscaping approach, as shown in the Conceptual Landscaping Plan provided in AFC Section 5.17, Visual Resources), and a long-term maintenance program for the native desert vegetation that is preserved on the site.
- BIO-3:** Construction crews and contractors will be responsible for working around all shrubs and trees within the construction zone to the extent feasible. Shrubs and trees will be flagged to indicate priority for avoidance.
- BIO-4:** The anticipated impact zones, including staging areas, equipment access, and disposal or temporary placement of spoils, will be delineated with stakes and flagging prior to construction to avoid natural resources where possible. Construction-related activities outside of the impact zone will be avoided.
- BIO-5:** New and existing roads that are planned for either construction or widening will not extend beyond the planned impact area. All vehicles passing or turning around will do so within the planned impact area or in previously disturbed areas. Where new access is required outside of existing roads or the construction zone, the route will be clearly marked (i.e., flagged and/or staked) prior to the onset of construction.
- BIO-6:** Spoils should be stockpiled in disturbed areas presently lacking native vegetation. Stockpile areas should be marked to define the limits where stockpiling can occur.
- BIO-7:** BMPs will be employed to prevent loss of habitat due to erosion caused by Project-related impacts (i.e., grading or clearing for new roads). All detected erosion will be remedied within two days of discovery.
- BIO-8:** Fueling of equipment will take place within existing paved roads and not within or adjacent to drainages or native desert habitats. Contractor equipment will be checked for leaks prior to operation and repaired as necessary.
- BIO-9:** Construction activity will be monitored by a qualified biologist to ensure compliance with avoidance and minimization measures.
- BIO-10:** The Project owner is supportive of funding a monitoring program to document potential nesting ravens. The details of the funding mechanism and monitoring will be coordinated with the USFWS, CDFG and CEC prior to initiation of the Project.

BIO-11: A BRMIMP will be created to comprehensively describe avoidance, minimization, and mitigation measures; document their implementation; and monitor their effectiveness.

BIO-12: The introduction of exotic plant species will be controlled by implementation of measures described in the BRMIMP.

5.3.4.1 Construction

Resource-specific Avoidance, Minimization, and Mitigation Compensation Measures

Resource-specific impact avoidance, minimization, and mitigation measures for Project effects that were determined to be potentially significant are discussed below. Incorporation of these measures would reduce potentially significant measures to below a level of significance.

Vegetation Communities

No mitigation is required to compensate for non-sensitive vegetation that would be directly impacted by the Project.

Sensitive Vegetation Communities

No sensitive vegetation communities would be permanently or temporarily impacted by Project-related activities; therefore, no mitigation is required.

Jurisdictional Waters

As designed, the Project will not affect State or Federal jurisdictional waters; therefore, no mitigation is required.

Special-status Plants

Based on the results of spring 2008 surveys, mitigation for special-status plants will not be required other than compliance with the City of Palmdale's Native Desert Vegetation Ordinance (see **BIO-2** above)

Special-status Wildlife

Mitigation will be required for the Project's permanent impacts to habitats occupied, or presumed occupied, by special-status wildlife species (MGS and burrowing owl). Mitigation for permanent impacts to these species is generally provided by acquiring and conserving in-kind habitat acreage of equal or greater value than the habitat impacted. The PHPP will consult with the CDFG with respect to impacts on these special-status species and associated mitigation acreage requirements.

Avoidance and minimization measures for temporary indirect impacts to habitat of special-status wildlife species will be achieved through onsite monitoring of construction activities in areas with the potential to support these species.

Desert Tortoise. Since no desert tortoise or sign were observed on the Project site, and because of the highly fragmented nature of the Project site, it is highly unlikely desert tortoise are present. However, the following minimization measures should be implemented to ensure any potential impacts to the desert tortoise are avoided, specifically along the north-south portion of transmission line Segment 1 and the southeast portion of transmission line Segment 2.

- DT-1:** A Worker's Environmental Awareness Program (WEAP) will be implemented to educate the construction crew of potential special-status species present on the Project site.
- DT-2:** Construction and maintenance personnel will be required to inspect for desert tortoises under vehicles prior to moving the vehicle. If a desert tortoise is found beneath a vehicle, it will not be moved until the desert tortoise leaves of its own accord. All desert tortoise observations will be reported to the Authorized Biologist, and subsequently, to the FCR.
- DT-3:** Where applicable, clearance surveys will be conducted for desert tortoise immediately prior to surface disturbance.
- DT-4:** The Authorized Biologist will be on-site during the periods when desert tortoises are expected to be active, to ensure construction activities are in compliance and to ensure that any desert tortoises wandering onto the construction site would not be inadvertently harmed. Mitigation measures outlined below that include handling desert tortoises will be implemented only if the USFWS and CDFG determine that an incidental take permit is needed for the desert tortoise. Without an incidental take permit, no tortoises will be handled; instead they will be allowed to move off the construction site without assistance.
- DT-5:** The Authorized Biologist will be responsible for: (a) enforcing a litter-control program; (b) ensuring that desert tortoise exclusion fences are maintained where applicable; (c) ensuring that desert tortoise habitat disturbance is restricted to authorized areas; (d) ensuring that all equipment and materials were stored within the boundaries of previously disturbed areas; (e) ensuring that all vehicles associated with construction activities remain within the proposed construction zones; and (f) ensuring compliance with the terms and conditions of the issued biological opinion.
- DT-6:** If desert tortoise handling is required, it will be performed in accordance with USFWS-approved protocol (Desert Tortoise Council 1999).
- DT-7:** All burrows found during clearance surveys conducted prior to construction activities, whether occupied or vacant, will be excavated by the Authorized Biologist and collapsed or blocked to prevent desert tortoise re-entry.
- DT-8:** Project activities that might endanger a desert tortoise will cease if a desert tortoise is found on an active work area. Project activities will resume after the Authorized Biologist removed the desert tortoise from danger of after the animal had moved to a safe area on its own volition.
- DT-9:** If a desert tortoise is in imminent danger with immediate death or injury likely (such as from an approaching vehicle or equipment), and the desert tortoise has been given the opportunity to move but has withdrawn in its shell and is not moving, an approved authorized biologist or environmental monitor may capture the desert tortoise and move it out of harm's way.
- DT-10:** Upon locating or receiving a report of a dead/injured tortoise in the Project site, the FCR or appointed agent will be required to immediately notify the local CDFG and USFWS representatives.
- DT-11:** Any common raven nesting incidence encountered during construction, operation, or maintenance of the Project will be documented in a periodic report to the appropriate authorities. The integrity of this resource will be maintained pending subsequent investigation and direction by these

5.3 Biological Resources

authorities. Common raven nest removal from proposed facilities, when determined necessary in consultation with the USFWS, will occur during the inactive nesting season.

With respect to possible compensatory mitigation acreage, no direct and indirect impacts to desert tortoise habitat are anticipated. As such, there will be no compensation for loss of desert tortoise habitat.

Mohave Ground Squirrel. As noted above, impacts to potential MGS habitat would require mitigation. Mitigation acreage requirements will be worked out in discussions between the Project owner and CDFG.

To help avoid and minimize impacts to the species, a biological monitor should be onsite during all construction activities in potential MGS habitat. Addressing potential MGS-related concerns will be part of the biological portion of the WEAP mentioned above, which will be implemented as part of the CEC-required BRMIMP. Trash and food items should be removed from the Project site daily and disposed of properly to avoid attracting ravens, a common predator of the MGS. Monthly and final compliance reports should be provided to CDFG and other applicable resource agencies documenting the effectiveness of mitigation measures and the level of take associated with the PHPP.

Burrowing Owl. Avoidance and minimization of impacts to burrowing owl will consist of the following:

- BO-1:** A preconstruction survey of the permanent and temporary impact areas will be conducted within 30 days of the commencement of construction activities to locate active burrowing owl burrows. The survey will consist of walking parallel transects and noting any fresh sign or presence of individuals.
- BO-2:** No disturbance will occur within 160 feet of occupied burrows during the non-breeding season (September 1 – January 31) or within 250 feet of occupied burrows during the breeding season (February 1 – August 31), unless a qualified biologist approved by CDFG verifies through noninvasive methods either that the birds have not begun egg-laying and incubation or that juveniles from the occupied burrow are foraging independently and are capable of independent survival. A minimum of 6.5 acres of foraging habitat will be preserved, contiguous with occupied burrow sites to the extent possible, for each pair of breeding owls or single, unpaired resident owl.
- BO-3:** Burrowing owls within the temporary or permanent impact areas and a 160-foot buffer will be excluded from active burrows during the non-breeding season (September 1 – January 31) and encouraged to passively relocate to suitable, unoccupied habitat at least 160 feet outside of the exclusion area. Offsite burrows will be supplemented at a 2:1 replacement ratio of enhanced natural, unoccupied burrows or artificial burrows, as per guidelines from the CBOC (1993) and CDFG Memorandum (1995). A minimum of 6.5 acres of foraging habitat will be preserved for each pair impacted. After burrows are confirmed to no longer be in use (one week), the burrow will be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe or burlap bag will be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow. If activity is detected at a burrow during the breeding season (February 1 – August 31), a 250-foot buffer will be flagged surrounding the occupied burrow and all Project-related activity will remain outside of the flagged area. Burrowing owls will not be moved or excluded from burrows during the breeding season.
- BO-4:** A biological monitor will be on site during all construction activities in potential burrowing owl habitat.
- BO-5:** The burrowing owl will be covered as part of the WEAP element of the CEC-required BRMIMP.

- BO-6:** Trash and food items will be removed from the Project site daily and disposed of properly to avoid attracting ravens, a potential predator of the burrowing owl.
- BO-7:** During construction activities, monthly and final compliance reports will be provided to CDFG and other applicable resource agencies documenting the effectiveness of mitigation measures and the level of take associated with the Project. Biological issues also will be covered in the ongoing compliance reporting required by the CEC.

The CBOC's mitigation guidelines used by CDFG recommend that mitigation for impacts to burrowing owls should be based on the number of pairs directly impacted. Mitigation ratios are based on whether suitable acquired habitat is occupied by the species or is contiguous to the impact area. The CBOC and CDFG mitigation guidelines recommend a ratio of 6.5 to 19.5 acres per pair of burrowing owls (or single individual) impacted, depending on whether the replacement habitat is occupied and/or contiguous with the occupied area to be impacted, and also Project-specific negotiations with CDFG. Funding for the long-term management of the land preserved would also be provided (on a per-acre-of-impact basis).

Other Special-status Wildlife Species. If construction is scheduled to occur during nesting season, a nesting bird survey will be conducted within permanent and temporary impact areas. If nesting birds, including but not limited to special-status species, are detected in these areas, the nest will be flagged and no construction activity will take place near the nest until nesting is complete (nestlings have fledged or nest has failed) or the CDFG, USFWS, and the CEC agree that construction can proceed with the incorporation of agreed-to monitoring measures.

If American badger dens are discovered during preconstruction surveys, a one-way trap door will be installed to passively exclude the badger from the den. American badgers are known to use several dens in a wide area, frequently moving between dens. Therefore, all potential badger dens will be fitted with the one-way trap doors to encourage badgers to move offsite. After 48 hours post-installation, the den will be excavated and collapsed, following the same protocol as with burrowing owl burrows. Alternatively, a qualified biologist will trap and remove badgers from occupied dens and translocate them off-site into appropriate habitat.

5.3.4.2 Project Operations

General impact avoidance and minimization measures that would apply to Project operations are presented below.

- All vehicles passing or turning around will do so within the planned impact area or in previously disturbed areas.
- Fueling of equipment will take place within existing paved roads, and not within or adjacent to drainages or native desert habitats. Maintenance equipment will be checked for leaks prior to operation and repaired as necessary.

5.3.5 References

Avian Power Line Interaction Committee (APLIC). 2006. Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C. and Sacramento, CA.

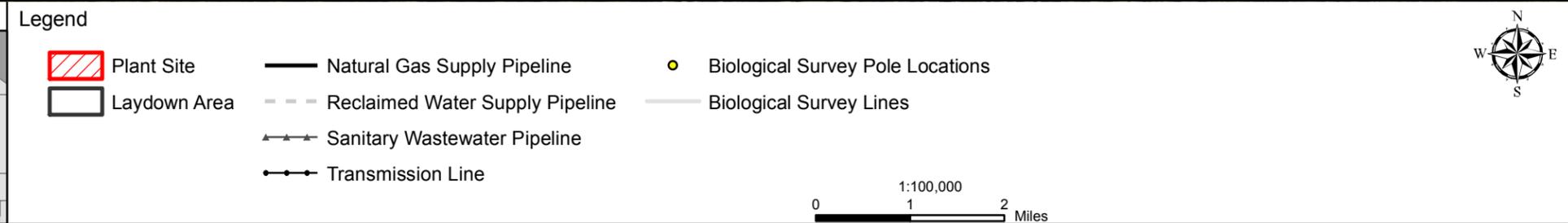
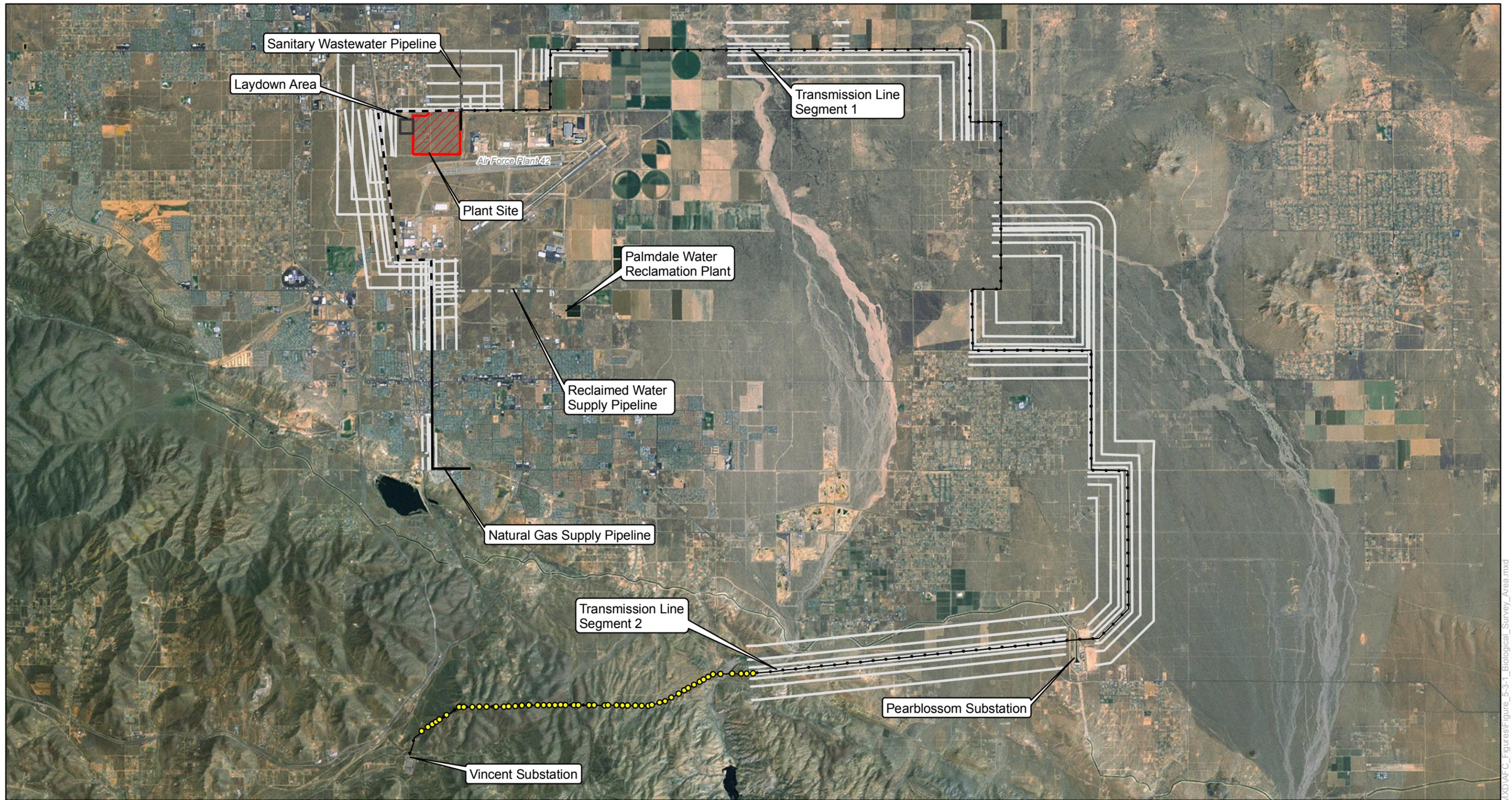
5.3 Biological Resources

- Bechard, M.J. and J.K. Schmutz. 1995. Ferruginous Hawk (*Buteo regalis*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/172>
- Boarman, W. 2003. Desert tortoise species account. In Final Environmental Impact Report and Statement for the West Mojave Plan (BLM, 2005). California Desert Conservation Area District Office, Riverside, California.
- Bull, E.L. and C.T. Collins. 2007. Vaux's Swift (*Chaetura vauxi*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/077>
- California Burrowing Owl Consortium. 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines.
- California Department of Fish and Game. 1995. Staff report on Burrowing Owl mitigation. CDFG, Sacramento, CA.
- California Department of Fish and Game. 2003. Mohave Ground Squirrel survey guidelines. Unpublished document distributed to biologists authorized for trapping surveys under a Memorandum of Understanding with CDFG.
- California Department of Fish and Game. 2005. California Interagency Wildlife Task Group. California Wildlife Habitat Relationship Version 8.1 personal computer program. Sacramento, CA
- California Department of Fish and Game. 2008. California Natural Diversity Data Base (CNDDB), RareFind, Version 3.1.0.
- California Energy Commission. 2007. Rules of Practice and Procedure & Power Plant Site Certification Regulations. CEC-140-2007-003.
- California Energy Commission. 2008. California Code of Regulations. Title 20. Public Utilities and Energy. Division 2. State Energy Resources Conservation and Development Commission. CEC-140-2008-001.
- California Native Plant Society (CNPS). 2008. Inventory of Rare and Endangered Plants (online edition, v7-08c). California Native Plant Society. Sacramento, CA.
- California State University, Stanislaus, Endangered Species Recovery Program. 2006. Final Report of Mohave Ground Squirrel Surveys Conducted for the Palmdale Power Project. Prepared for ENSR Corporation.
- City of Palmdale. 1993. City of Palmdale General Plan. Adopted by City Council January 25, 1993.
- Curtis, O.E., R.N. Rosenfield, and J. Bielefeldt. 2006. Cooper's Hawk (*Accipiter cooperii*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/075>

- England, A.S., M.J. Bechard and C.S. Houston. 1997. Swainson's Hawk (*Buteo swainsoni*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/265>
- Eremico Biological Services. 2006. Mohave Ground Squirrel Survey in a Portion of the Proposed Palmdale Power Project Site, Palmdale, Los Angeles County, CA. Prepared for ENSR Corporation.
- GlobeXplorer. 2007. Aerial photograph download for interpretation. Obtained from: <http://www.globexplorer.com/>
- Haug, E.A., B.A. Millsap, and M.S. Martell. 1993. Burrowing Owl (*Athene cunicularia*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/061>
- Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California. Calif. Fish Game, Sacramento.
- Ingles, L.G. 1965. Mammals of the Pacific States. Stanford University Press, Stanford.
- Jennings, M.R. and M.P. Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. California Department of Fish and Game, Sacramento.
- Karl, A. 2008. Personal Communication.
- Knopf, F.L. and M.B. Wunder. 2006. Mountain Plover (*Charadrius montanus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/211>
- Larkin, K. 2008. Personal Communication. Colorado River Basin Regional Water Quality Control Board. Discussion regarding application of Porter Cologne Act without Clean Water Act jurisdiction.
- Laudenslayer, W.F., Jr., W.E. Grenfell, and D.C. Zeiner. 1991. A check-list of the amphibians, reptiles, birds, and mammals of California. Calif. Fish and Game 77:109-141.
- Leitner, P. 2008. Mohave Ground Squirrel Habitat Assessment, Palmdale Hybrid Power Plant.
- Los Angeles County Department of Regional Planning. 2007. Los Angeles County Draft Preliminary General Plan.
- Mackay, P. 2003. Mojave Desert Wildflowers. The Globe Pequot Press, Guilford, Connecticut.
- Munz, P.A. 1974. A Flora of Southern California. Univ. Calif. Press, Berkeley.
- National Geographic Society. 2006. Field Guide to the Birds of North America (Fifth Edition). J.L. Dunn and J. Alderfer (eds.). National Geographic Society, Washington D.C.
- Sheppard, J.M. 1996. Le Conte's Thrasher (*Toxostoma lecontei*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/230>

5.3 Biological Resources

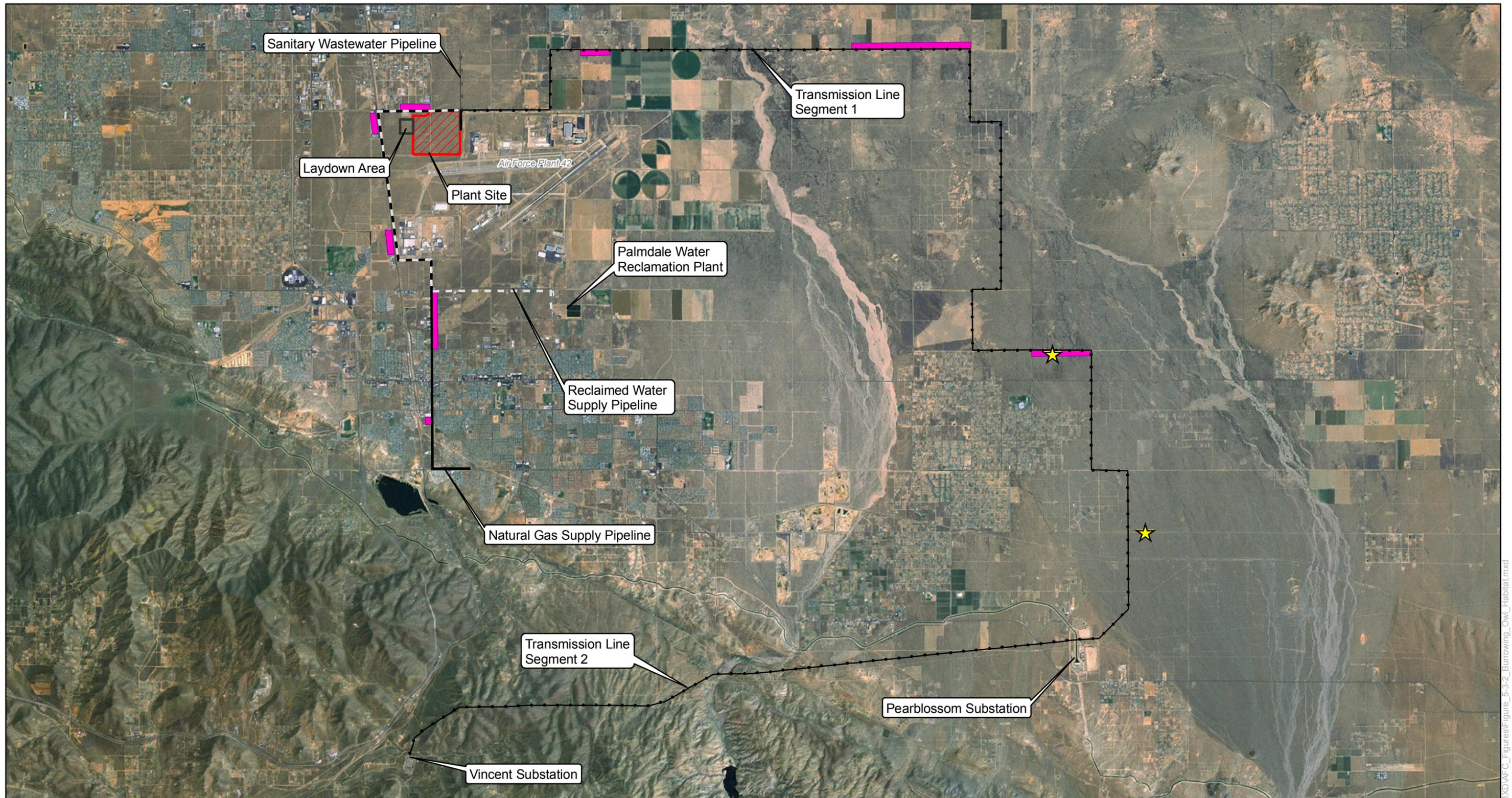
- Sherbrooke, W.C. 1981. Horned Lizards: Unique reptiles of western North America. Southwest Parks and Monuments Assoc. Globe, Arizona. Stebbins, R.C. 1951. Amphibians and Reptiles of Western North America. McGraw-Hill, New York.
- Stebbins, R.C. 2003. A Field Guide to Western Reptiles and Amphibians (Third Edition). Houghton Mifflin Company, Boston, Mass.
- Steenhof, K. 1998. Prairie Falcon (*Falco mexicanus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/346>
- Trinh, P. 2008. Personal Communication. USACE - Los Angeles District. Discussion regarding jurisdictional status of dry lakes in western Mojave Desert near Edwards Air Force Base. July 23.
- U.S. Army Corps of Engineers. 2007. Jurisdictional Determination Form Instructional Guidebook. Joint EPA and Corps guidance document for completion of Approved Jurisdictional Determination Form.
- U.S. Bureau of Land Management. 2006. West Mojave Plan. Land management plan prepared by BLM, California Desert District.
- U.S.D.A. Soil Conservation Service, 1986. Soil Survey of Los Angeles County, California, Antelope Valley Area, California.
- U.S. Environmental Protection Agency (EPA). 2007. Ecological Soil Screening Levels for Selenium. Interim Final. OSWER Directive 9285.7-72. Office of Solid Waste and Emergency Response. July.
- U.S. Fish and Wildlife Service. 1973. Endangered Species Act of 1973, As Amended Through the 100th Congress. U.S. Department of the Interior, Washington D.C. 20240, 1988.
- U.S. Fish and Wildlife Service. 1992. Field survey protocol for any federal action (or non-federal action) that may occur within the range of the Desert Tortoise. Regions, 1, 2, and 6 of the Fish and Wildlife Service. October 1992. 18 pp. plus appendices.
- U.S. Fish and Wildlife Service. 1994. Desert Tortoise (Mojave Population) Recovery Plan. USFWS, Portland, Oregon. 73pp. + appendices.
- U.S. Fish and Wildlife Service. 2002. Birds of conservation concern 2002. Division of Migratory Bird Management, Arlington, Virginia. 99 pp.
- Whitaker, J.O., Jr. 1996. National Audubon Society Field Guide to North American Mammals (Revised Edition). Alfred A. Knopf, New York.
- Yosef, R. 1996. Loggerhead Shrike (*Lanius ludovicianus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/231>



Palmdale Hybrid Power Project

**Figure 5.3-1
Biological Survey Area**

Project: 10855-002
Date: July 2008



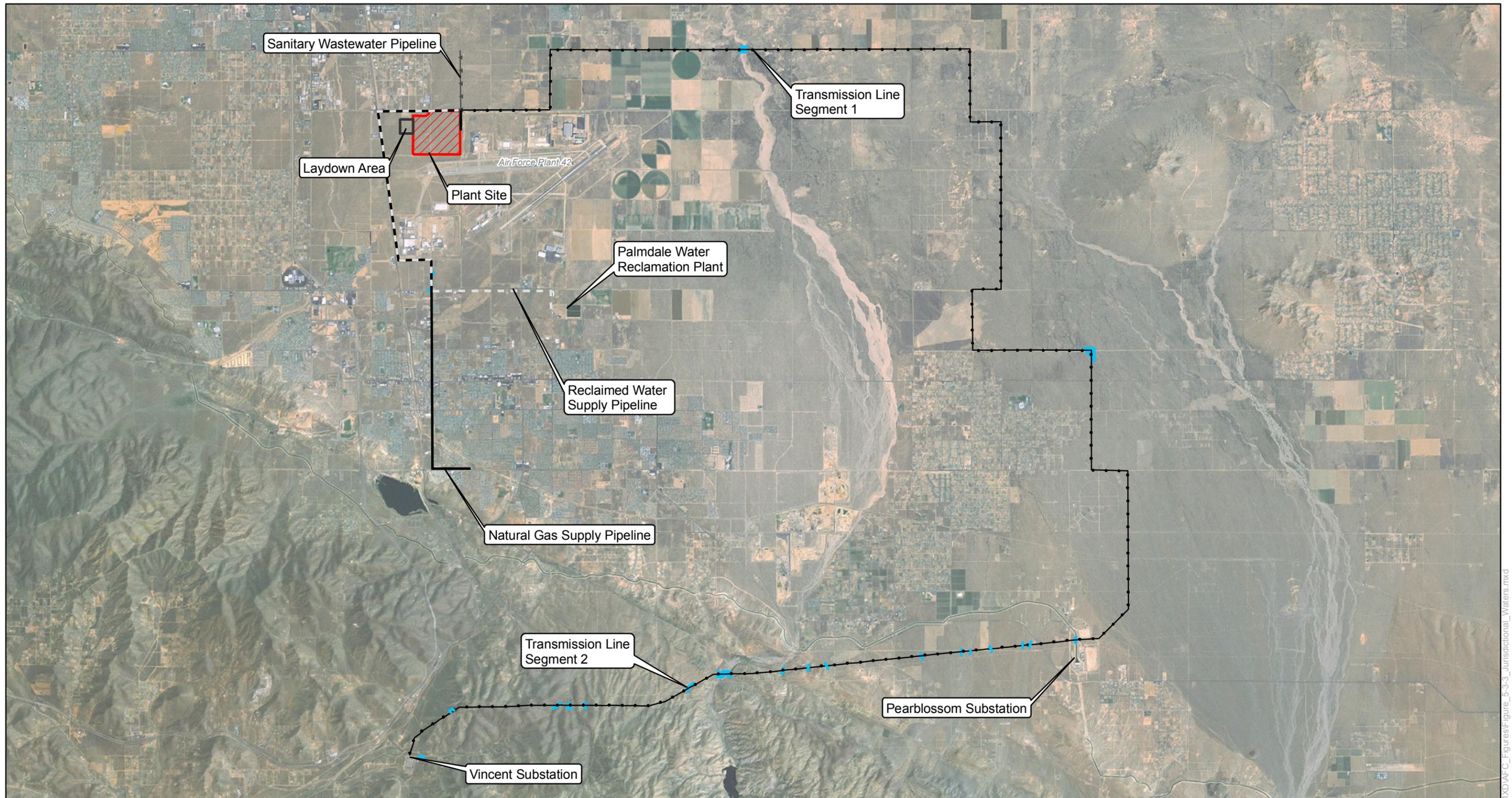
Legend

Plant Site	Natural Gas Supply Pipeline	Burrowing Owl Burrow
Laydown Area	Reclaimed Water Supply Pipeline	Burrowing Owl Habitat
Sanitary Wastewater Pipeline	Transmission Line	

Palmdale Hybrid Power Project

Figure 5.3-2 Project Site and Burrowing Owl Habitat

Project: 10855-002
Date: July 2008



Legend

- Plant Site
- Laydown Area
- Natural Gas Supply Pipeline
- Reclaimed Water Supply Pipeline
- ▲ Sanitary Wastewater Pipeline
- Transmission Line
- Potential Jurisdictional Waters

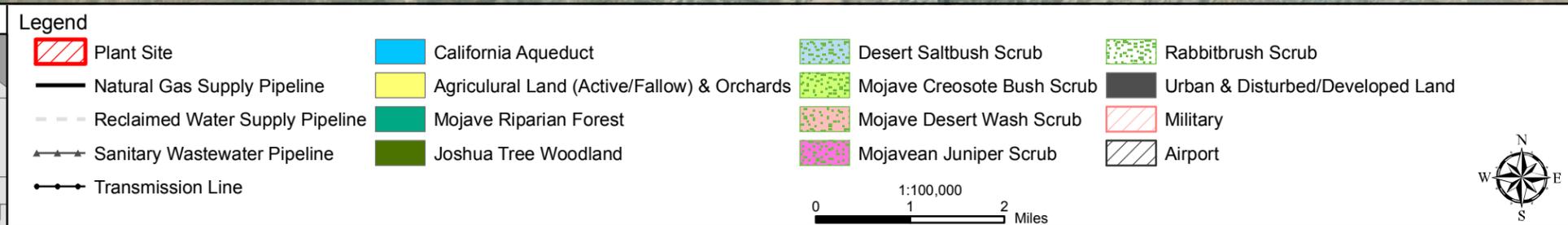
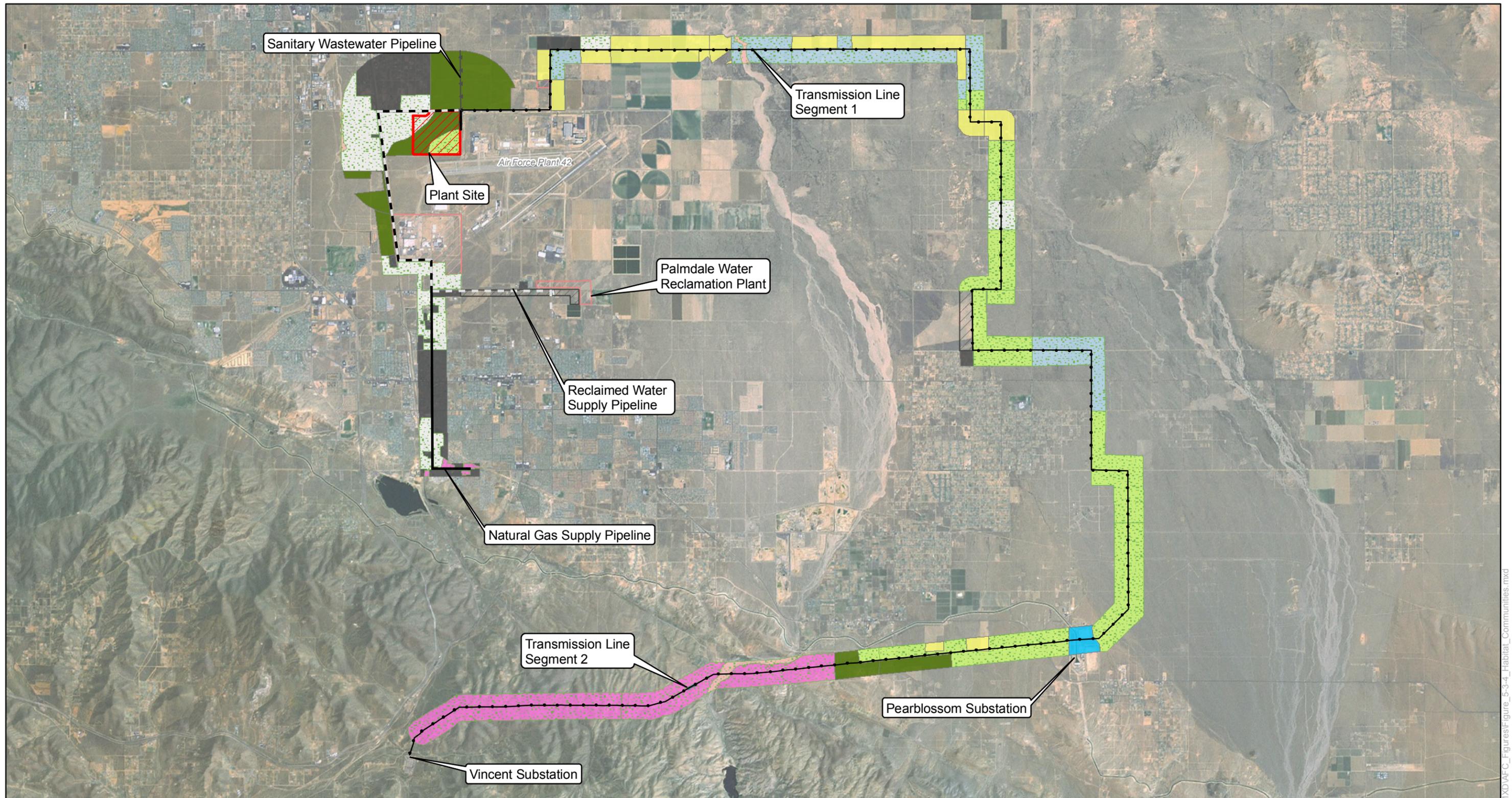
Source: AMEC Inc 2008

1:100,000
0 1 2 Miles

Palmdale Hybrid Power Project

**Figure 5.3-3
Project Site and Potential Jurisdictional Waters**

Project: 10855-002
Date: July 2008



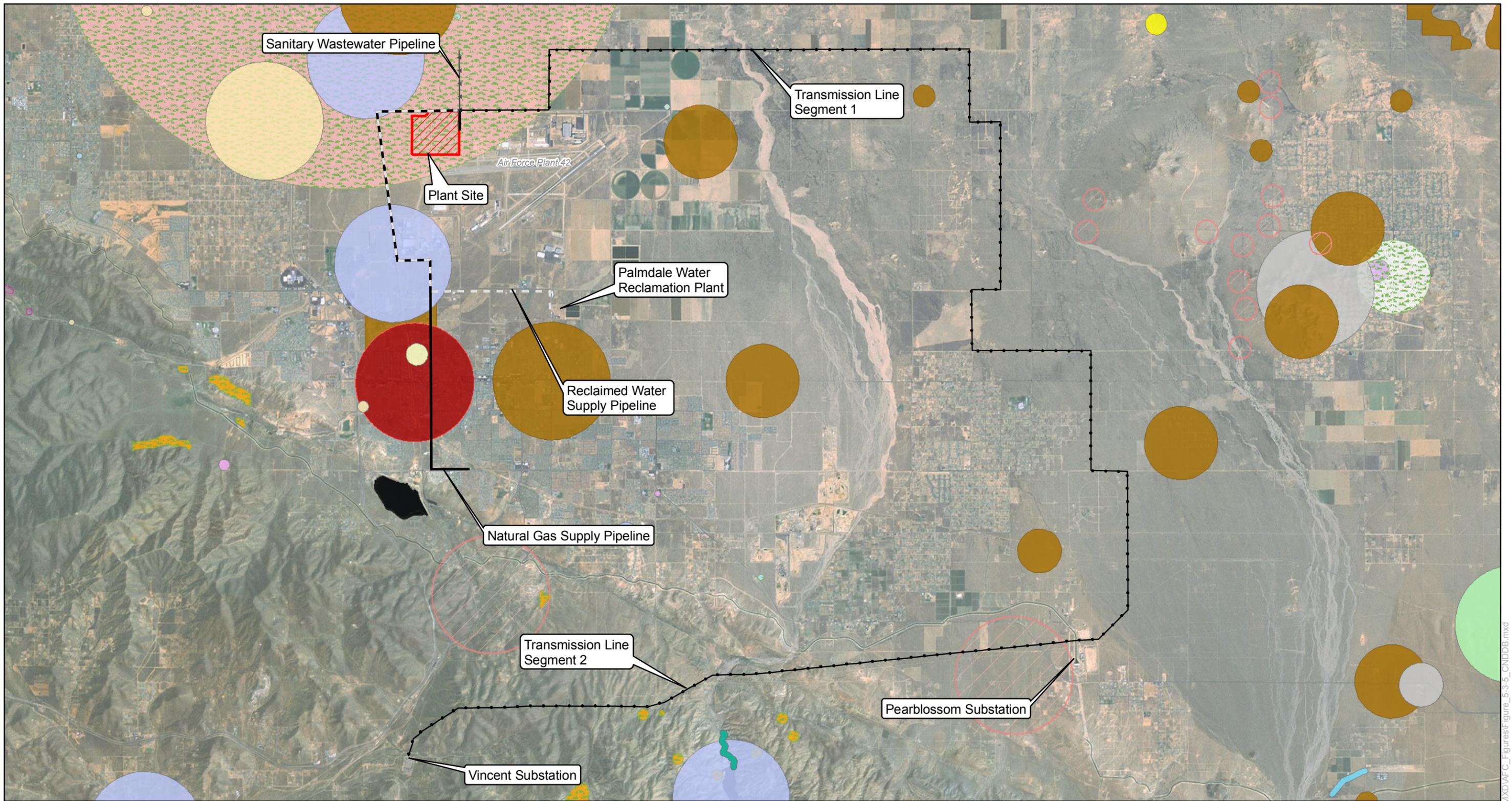
Palmdale Hybrid Power Project

Figure 5.3-4 Project Site and Habitat Communities

PALMDALE
 a place to call home
 Inland Energy, Inc.
 ENSR | AECOM

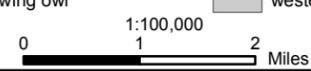
Project: 10855-002
Date: July 2008

I:\Projects\InlandEnergy\Palmdale\XD\AFC_Figures\Figure_5-3-4_Habitat_Communities.mxd



Legend

<ul style="list-style-type: none"> Project Site Natural Gas Supply Pipeline Reclaimed Water Supply Pipeline Sanitary Wastewater Pipeline Transmission Line CNDDB Terrestrial Community Mojave Riparian Forest 	<p>CNDDB Animal</p> <ul style="list-style-type: none"> American badger Coast (California) horned lizard Coast (San Diego) horned lizard Cooper's hawk Greta's aster 	<ul style="list-style-type: none"> Le Conte's thrasher Mohave ground squirrel San Joaquin pocket mouse Swainson's hawk arroyo toad burrowing owl mountain plover silvery legless lizard southern grasshopper mouse tricolored blackbird two-striped garter snake western mastiff bat 	<p>CNDDB Plant</p> <ul style="list-style-type: none"> Parish's popcorn-flower Parry's spineflower alkali mariposa lily sagebrush loeflingia short-joint beavertail
---	--	--	---

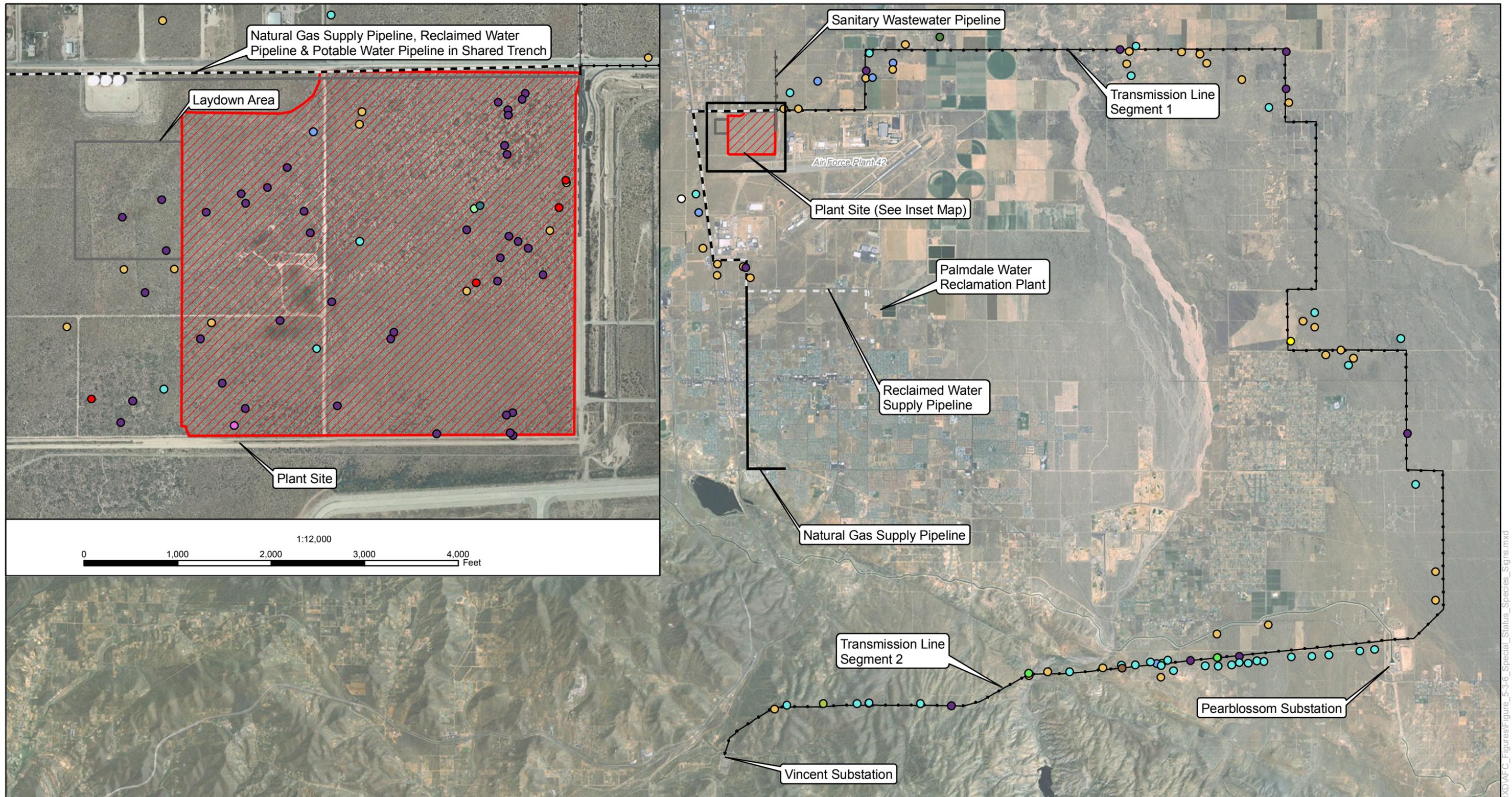


Palmdale Hybrid Power Project

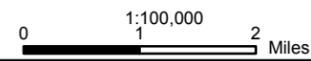
Figure 5.3-5 Project Site and California Natural Diversity Database Areas

Project: 10855-002
Date: July 2008

I:\Projects\InlandEnergy\Palmdale\XD\AFC_Figures\Figure_5-3-5_CNDDDB.mxd



Legend	
	Plant Site
	Laydown Area
	Potable Water Line
	Natural Gas Supply Pipeline
	Reclaimed Water Supply Pipeline
	Sanitary Wastewater Pipeline
	Transmission Line
	Cactus Wren nest
	Common Raven nest
	Corvid/Raptor nest
	Desert Tortoise Class 2 burrow
	Desert Tortoise Class 5 burrow
	Ferruginous Hawk
	Horned Lark nest
	Hummingbird nest
	Le Conte's Thrasher
	Loggerhead Shrike
	Mourning Dove nest
	Passerine Nest
	Passerine nest
	Red-tailed Hawk nest
	Vaux's Swift

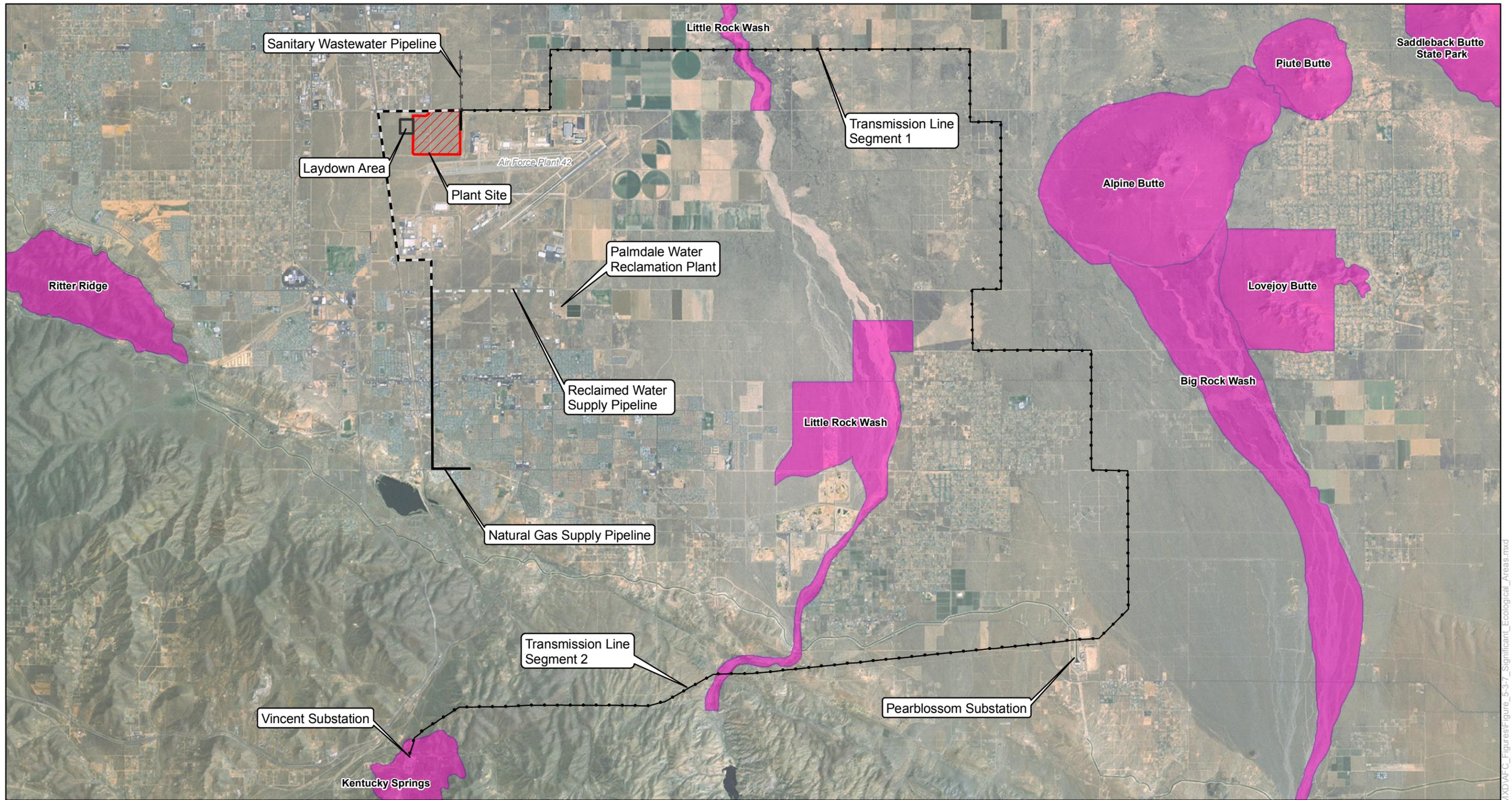


Note: See Figure 5.3-2 for Burrowing Owl Data

Palmdale Hybrid Power Project

Figure 5.3-6 Project Site and Special-Status Species / Sign Observed

Project: 10855-002
Date: July 2008



Legend

- Plant Site
- Laydown Area
- Natural Gas Supply Pipeline
- Reclaimed Water Supply Pipeline
- ←→ Sanitary Wastewater Pipeline
- Transmission Line
- Significant Ecological Areas (SEA) Designated by Los Angeles County

1:100,000
0 1 2 Miles



Palmdale Hybrid Power Project

**Figure 5.3-7
Project Site and Los Angeles County Designated Significant Ecological Areas**

Project: 10855-002
Date: July 2008

I:\Projects\InlandEnergy\Palmdale\XDF\AF_C_Figures\Figure_5-3-7_Significant_Ecological_Areas.mxd