

APPENDIX F

Biological Resources Supporting Documentation

- F.1 Beacon Solar Energy Project Biological Technical Report**
- F.2 Correspondences with Federal and California State Agencies
Regarding Beacon Solar Energy Project**

APPENDIX F.1

Beacon Solar Energy Project Biological Technical Report

**BEACON SOLAR ENERGY PROJECT
BIOLOGICAL TECHNICAL REPORT
KERN COUNTY, CALIFORNIA**

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EXECUTIVE SUMMARY

EDAW, Inc. performed biological resources studies for Beacon Solar, LLC at the site of the proposed Beacon Solar Energy Project (also referred to as “Project”) near California City, California. Beacon Solar, LLC proposes to develop a 250 megawatt (MW) solar energy facility on 2,012 acres (hereafter referred to as the plant site) within a 2,317.2-acre area defined for the biological resources study (hereafter referred to as the survey area). This Biological Technical Report (BTR) was prepared to support an Application for Certification (AFC) submitted to the California Energy Commission (CEC), which must license all thermal power plants over 50 MW in California. This BTR will also support permits required for the Project from California and federal biological resource agencies.

The Beacon Solar Energy Project will use parabolic trough solar thermal technology to concentrate the sun’s energy on a linear receiver located at the center point of each parabolic solar subarray. Energy collected in the array is used to generate steam, driving a turbine which generates electricity. This solar array would be located east of the railroad tracks, which run parallel to and east of SR-14. Two options are under consideration for a short transmission line which will be constructed from the solar array across SR-14 to interconnect with the Los Angeles Department of Water and Power’s (LADWP) existing transmission system west of the site. Three evaporation ponds, used to manage the cooling tower blowdown stream, are planned within a highly disturbed portion of the survey area. A 17.6-mile, eight-inch natural gas line will be constructed, connecting an existing Southern California Gas pipeline in California City with the Project, to provide fuel for startup and emergency operations.

No other linear facilities are currently proposed for the Project. The Project intends to use ground water as its cooling water supply source and septic tanks for sanitary waste water disposal, which would eliminate the need for the installation of off-site water supply and sewer pipelines to the site.

Several special status plant and wildlife species were identified as having potential to occur at the survey area. Two species with potential to occur are listed under the federal Endangered Species Act (ESA) and/or California Endangered Species Act (CESA): Mojave desert tortoise (*Gopherus agassizii* [DT]), listed as threatened under the ESA and CESA; and Mohave ground squirrel (*Spermophilus mohavensis* [MGS]), listed as threatened under the CESA. Seven species with the potential to occur have been given special status by the California Department of Fish and Game (CDFG) or the California Native Plant Society (CNPS): Red Rock poppy

(*Eschscholzia minutiflora* ssp. *twisselmannii*), CNPS List 1B; alkali mariposa lily (*Calochortus striatus*), CNPS List 1B; Red Rock tarplant (*Deinandra arida*), CNPS List 1B, CDFG rare; creamy blazing star (*Mentzelia tridentata*), CNPS List 1B; Charlotte's phacelia (*Phacelia nashiana*), CNPS List 1B; western burrowing owl (*Athene cunicularia* - WBO), CDFG Species of Special Concern (SSC); and American badger (*Taxidea taxus*), CDFG SSC.

Surveys to map vegetation communities and waters of the state and determine presence or absence of special status plant and wildlife species were conducted within the large survey area encompassing the proposed plant site and within a one-mile buffer surrounding the survey area, per CEC regulations and in accordance with established survey protocols for various special status species. Protocol surveys were conducted for Mojave desert tortoise and western burrowing owl, and a general wildlife inventory was also conducted within the survey area and the one-mile buffer.

Seven vegetation communities were mapped within the survey area and one-mile buffer: Mojave Creosote Bush Scrub, Mojave Desert Wash Scrub, Mojave Mixed Woody Scrub, Tamarisk Scrub, Developed, Fallow Agriculture – Ruderal, and Fallow Agriculture - Disturbed Atriplex Scrub. The majority of the survey area is composed of both classes of Fallow Agriculture, with two dry desert washes running across sections of the survey area. Some small patches of Mojave Creosote Bush Scrub also occur in the survey area, although the majority of the Mojave Creosote Bush Scrub occurs offsite, west, south, and east of the survey area within the one-mile buffer.

No sensitive plant communities occur in the survey area, although the dry desert washes were mapped as waters of the state. While no rare plant species were detected during rare plant surveys in May, conditions (low winter rainfall) were less than satisfactory for performing these surveys. Therefore, the absence of these species cannot be confirmed at this time. Additional surveys will be performed during the spring of 2008.

Five federally listed adult DT were encountered outside of the survey area but within the one-mile buffer during tortoise surveys. Multiple burrows and fresh sign indicate that these adults are residents. Two additional live DT were detected during subsequent site visits for other purposes -- one likely transient inside the survey area and one outside the survey area but within the one-mile buffer.

One California-listed American peregrine falcon was observed on the survey area boundary; however, because the survey does not contain nesting habitat for this species, this individual is

likely a transient. At least six CDFG SSC western burrowing owls (WBO) were observed within the Project vicinity, two within the survey area and the others (one pair plus one to two individuals) in the one-mile buffer. Recent owl sign and nearby burrows indicate that these individuals are residents. Four other CDFG Species of Special Concern were observed within the survey area or in the one-mile buffer: northern harrier (*Circus cyaneus*), loggerhead shrike (*Lanius ludovicianus*), California horned lark (*Eremophila alpestris actia*), and Le Conte's thrasher (*Toxostoma lecontei*).

No USFWS designated critical habitat for any plant or wildlife species occurs in the survey area.

In addition to the CEC license, permits will also likely be required from the CDFG for impacts to waters of the state. The Project will also comply with relevant portions of the California Fish and Game Code and will consult with CDFG on potential effects to CESA-listed species. The Project has received concurrence from the U.S. Army Corps of Engineers that the waters (i.e., desert washes) within and surrounding the survey area are not under federal jurisdiction and, therefore, the Project does not require a Clean Water Act Section 404 permit. A permit will be obtained from the U.S. Fish and Wildlife Service under Section 10 of the ESA for minor impacts to Mojave desert tortoise, a federally listed species, and will involve preparation of a Low Effect Habitat Conservation Plan.

This report addresses permanent, temporary, direct, and indirect impacts to biological resources in the survey area. The Project is not expected to result in direct or indirect, permanent or temporary impacts to sensitive vegetation communities due to lack of such communities in the survey area. Project development would directly affect two dry desert washes that traverse the survey area; however, these impacts would be minimized to the greatest extent possible by re-routing the channels and restoring the native vegetation to the rerouted channel on the southern and eastern edge of the project site. Direct and/or indirect impacts to Mojave desert tortoise, Mohave ground squirrel, and western burrowing owl will be reduced to a level of insignificance by implementation of impact avoidance, minimization, and mitigation measures.

CHAPTER 1

INTRODUCTION

EDAW, Inc. (EDAW) has been retained by Beacon Solar, LLC to provide biological resources support as a subcontractor to ENSR for the proposed Beacon Solar Energy Project (also referred to as “Project”), a 250-megawatt (MW) solar thermal electrical generation facility. This Biological Technical Report (BTR) was prepared to support an Application for Certification submitted to the California Energy Commission (CEC), which must license all thermal power plants over 50 MW proposed in California. This BTR will also support permits required for the Project from California and federal biological resource agencies. The BTR describes existing biological conditions in a large survey area that encompasses the proposed plant site and analyzes how the Project potentially impacts threatened, endangered, or special status species or vegetation communities. The survey area was defined by identifying suitable property that was available under the terms of an option to purchase the parcels.

1.1 PROJECT LOCATION

The proposed Project is located along California State Route 14 (SR-14), approximately 10 miles north-northwest of California City, approximately 15 miles north of the Town of Mojave, and approximately 24 miles northeast of the City of Tehachapi, in Kern County, California (Figure 1). The site occurs at the intersection of four U.S. Geological Survey quadrangles: Mojave NE, Cinco, Cantil, and California City North. Landmarks in the area include Red Rock Canyon State Park to the north, Koehn Lake to the east-northeast, and the Desert Tortoise Natural Area to the east.

1.2 SITE AND PROJECT DESCRIPTION

1.2.1 Site Description

The primary solar energy facilities and associated construction and operations footprint are located within the 2,012-acre plant site east of the Union Pacific railroad tracks, which run parallel to and east of SR-14 (Figure 1). Two options are under consideration for the proposed transmission line from the plant site and to the existing Los Angeles Department of Water and Power (LADWP) transmission line (Figure 2). Both options involve the construction of a new, approximately 3.5 mile transmission line, 1.6 miles of which would occur within the plant site. Option 1 would extend from the solar array southwest to interconnect with the Barren Ridge

Switching Station. Option 2 would extend west from the solar array to a new, Project associated switching station at its junction with the existing LADWP transmission line, then continue approximately 1 mile south to the Barren Ridge Switching Station.

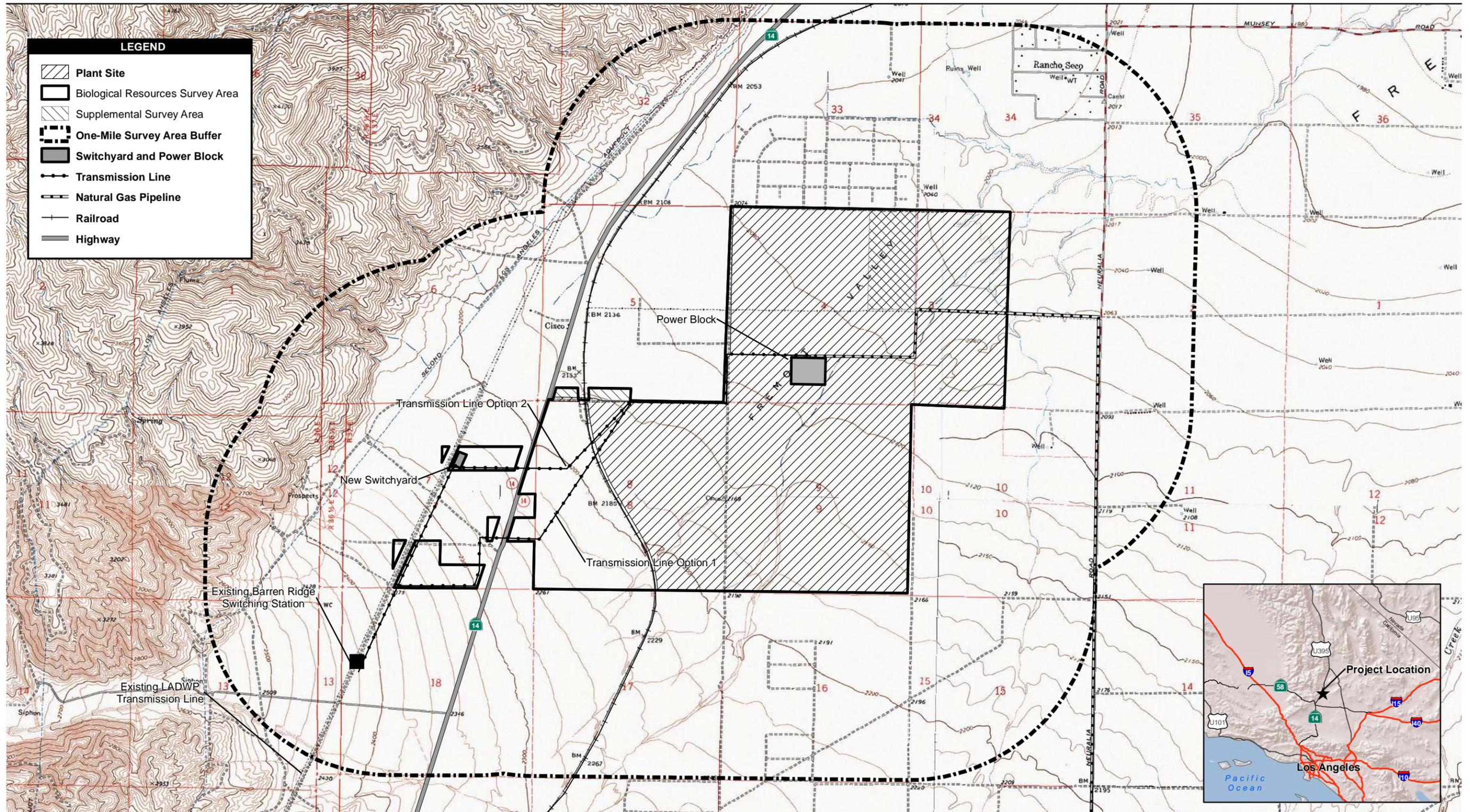
Topography in the survey area is generally flat with elevations ranging from approximately 2,020 feet to approximately 2,340 feet. Soils within the survey area consist primarily of Arizo Gravelly Loamy Sand (2 to 9 percent slopes), Cajon Loamy Sand (0 to 5 percent slopes), Rosamond Clay Loam-Saline-Alkali, and Cajon Gravelly Loamy Sand (0 to 9 percent slopes). These soils are generally found in alluvial fans and floodplains and are well drained to excessively drained. The Rosamond Clay Loam, which occurs in the northern section of the survey area, is slightly to moderately saline. The survey area has been heavily disturbed by past agricultural activities, and parts of the area are in the process of re-colonization with desert saltbush vegetation. Abandoned buildings, along with one occupied residence, occur at the northwestern portion of the site that abuts the east side of SR-14, immediately south of the proposed access road to the plant site.

1.2.2 Project Description

Beacon Solar, LLC proposes to develop 2,012 acres for a 250 MW solar energy facility called The Beacon Solar Energy Project. The Project will use parabolic trough solar thermal technology, based on the technology that has been successfully used for nearly 20 years at the nine existing Solar Energy Generating System (SEGS) facilities located at Harper Lake, Kramer Junction, and Daggett in the Mojave Desert. This technology involves a modular solar array field composed of many parallel rows of solar collectors normally aligned in a north-south horizontal axis. Each solar collector has a linear parabolic-shaped reflector that focuses the sun's radiation on a receiver located at the focal point of the parabola.

The solar collectors track the sun from east to west during the day to ensure that the sun is continuously focused on the linear receiver. The linear receiver contains a heat transfer fluid (HTF), a synthetic oil that heats up to approximately 740 degrees Fahrenheit (°F) as it circulates through the receiver and returns to a series of heat exchangers where the HTF is used to generate steam that drives a turbine, which generates electrical power.

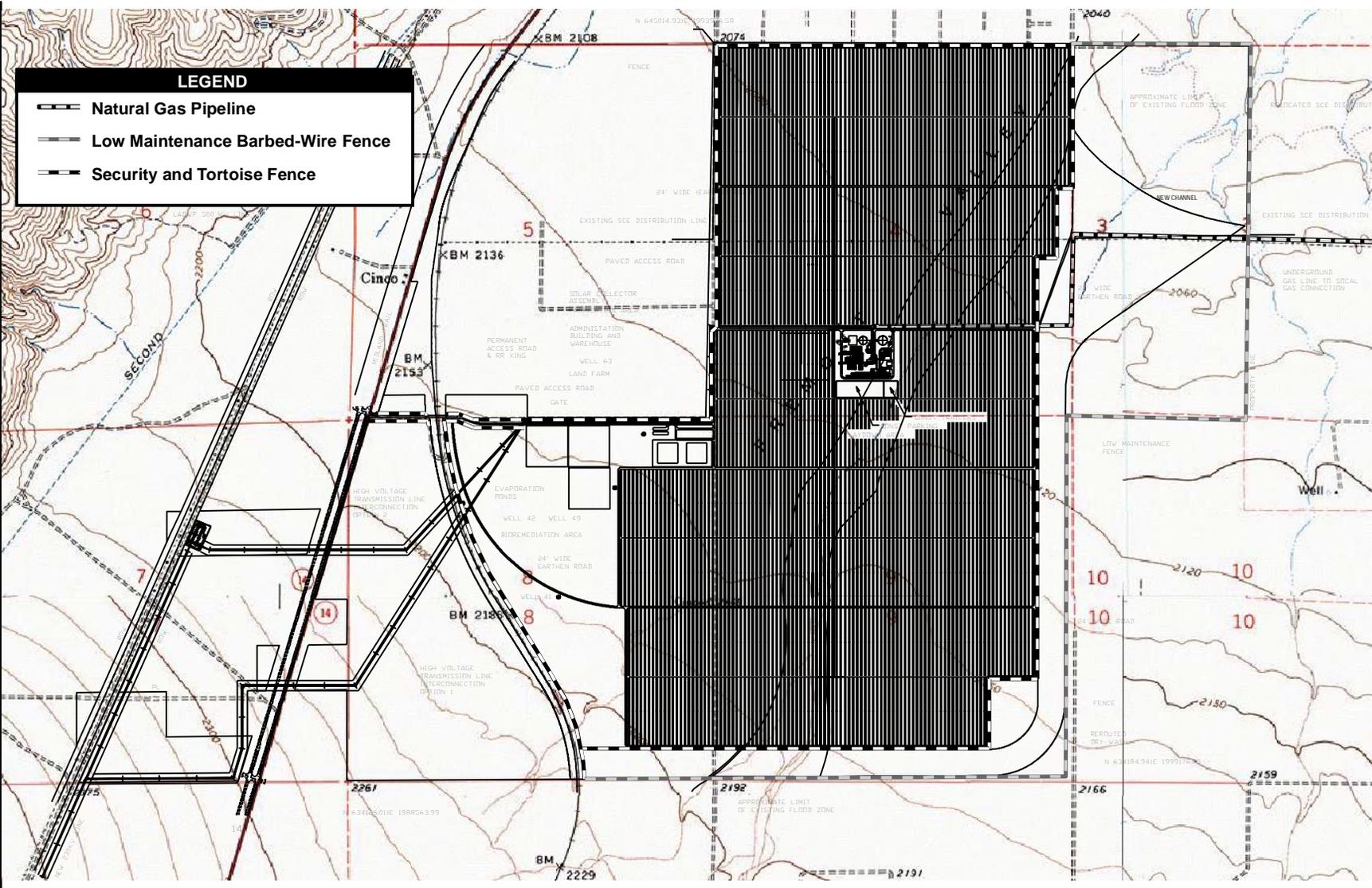
Figure 2 shows a conceptual layout of the proposed Project. This preliminary plant layout, prepared by engineering contractor Worley Parsons, shows two options for a new 230 kV transmission line crossing the small area west of SR-14, connecting the Project to the regional



Source: TetraTech 2007; Kern County 2007; USGS 2007; WorleyParsons 2007



Figure 1
Project Site Boundary and
Survey Area



Source: USGS 2007; WorleyParsons 2007



Figure 2
Facilities Layout

electrical grid. Option 1 would extend from the power block within the plant site east of the railroad tracks, southwest across SR-14, and continue west and southwest for approximately 0.7 mile to the existing Barren Ridge Switching Station. Option 2 would extend from the power block within the plant site east of the railroad tracks, across the highway and continue west for approximately one-half mile to meet the existing LADWP transmission line at a new Project-associated electrical switching yard, then run southwest parallel to the LADWP transmission line for approximately 1 mile to the existing Barren Ridge Switching Station. The Project's short (approximately 3.5 miles under both options) transmission line is expected to be constructed using the existing LADWP transmission line access roads where possible to reduce land disturbance, with potential construction of new stub access roads from the existing access roads to each of the new transmission tower locations.

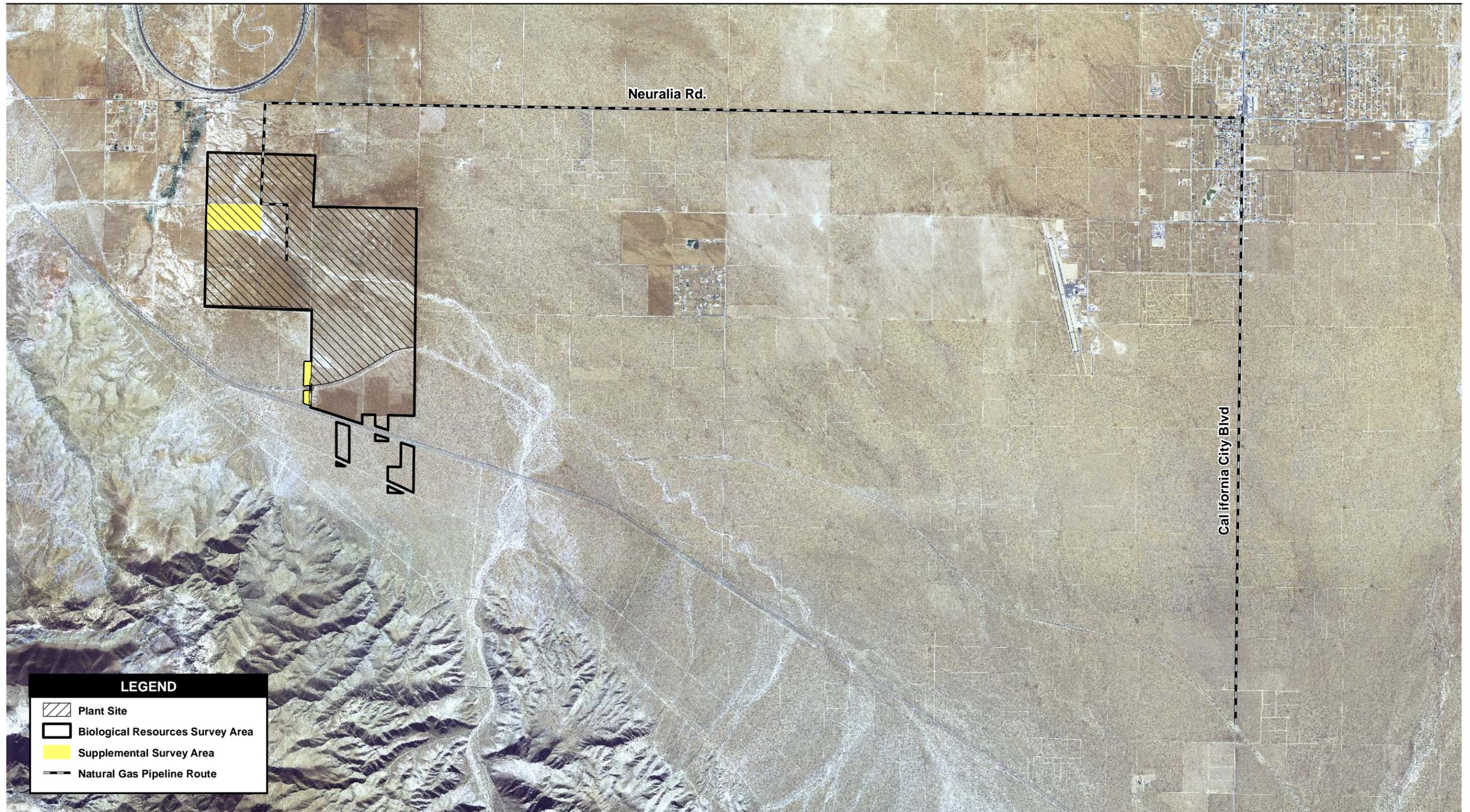
The Project proposes to use a wet cooling tower for power plant cooling. Water for cooling tower makeup, process water makeup, other industrial uses such as mirror washing, and domestic and potable uses will be supplied from onsite groundwater wells. Sanitary wastewater will be disposed by a sanitary septic system and leach field.

Project cooling water blowdown will be piped to three lined, onsite evaporation ponds in the highly disturbed western portion of the survey area. The evaporation ponds will use the sun's energy to remove water from the cooling system waste. The three evaporation ponds will have a nominal surface area of 8.3 acres each for a total of 25 acres. Each pond will have enough surface area so that the evaporation rate exceeds the cooling tower blowdown rate at maximum operating conditions and at annual average conditions. Pond depth will be selected so that the ponds will not need to have residual solids removed during the life of the plant. However, the pond water will be tested periodically (e.g., for selenium) throughout the life of the solar plant.

The ponds will have multiple layers. If one of the ponds is taken out of service, dewatered residues from the pond will be sent to an appropriate offsite landfill as non-hazardous waste. No offsite backup cooling water supply is planned at this time; the use of multiple onsite water supply wells and redundancy in the well equipment provides an inherent backup in the event of outages affecting one of the onsite supply wells.

The Project will utilize a natural gas-fired boiler for startup and emergency operations. Natural gas would also be used to fuel the HTF heaters which are used for freeze protection during nighttime hours because of the relatively high freezing point (54 degrees F) of the HTF. A new, approximately 17.6-mile, eight-inch natural gas pipeline will be constructed to serve the Project (Figure 3). A map of the natural gas pipeline route, at a more detailed scale of 1:12,000 is

included as Attachment A. This pipeline will connect with an existing Southern California Gas pipeline that terminates in California City. The pipeline will be constructed by digging the trench, laying the pipe, and backfilling the trench immediately to ensure that open trenches will always be attended during daylight hours or covered with steel plate at night. The Project would have a diesel-fueled firewater pump for fire protection.



LEGEND

- Plant Site
- Biological Resources Survey Area
- Supplemental Survey Area
- Natural Gas Pipeline Route

Source: NAIP 2005; Worley Parsons 2007

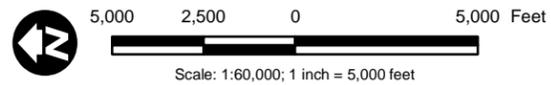


Figure 3
Natural Gas Pipeline Route

CHAPTER 2

METHODOLOGY

2.1 DATABASE RESEARCH

2.1.1 Special Status Biological Resources

Prior to beginning field surveys, EDAW biologists consulted the California Department of Fish and Game (CDFG) California Natural Diversity Database (CNDDDB) (RareFind Version 3.1.0; CDFG 2007), California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2007), and the Natural Resources Conservation Service Web Soil Survey (USDA 2007). These resources were consulted to determine historic occurrence of special status plant and wildlife species and other natural resources within the proposed Beacon Solar Energy Project survey area and a surrounding one-mile buffer, as required by the CEC (Figure 4). Additionally, the U.S. Fish and Wildlife Service (USFWS) provided a letter listing special status species that they require to be considered. Species were considered to have special status if they are covered under the federal or California Endangered Species Act (ESA and CESA, respectively), a CDFG species of special concern (SSC), CDFG fully protected species, species that are covered under the Bald and Golden Eagle Protection Act (BGEPA) (USFWS 2007), or species listed by the CNPS as List 1A (presumed extinct in California), 1B (rare, threatened, and endangered in California and elsewhere), or 2 (rare, threatened, or endangered in California, but more common elsewhere). CNPS List 1A, 1B, and 2 species are considered special status plant species if they meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Sections 2050 through 2098 (CESA).

Habitat conditions for special status species were evaluated with respect to conditions in the survey area, and surveys were initiated to determine presence/absence of species with the potential to occur on or near the survey area. The following special status species were identified as having the potential to occur on or near the survey area. These species are discussed in detail in the Existing Conditions section of this BTR.

Federal or State Listed (ESA or CESA)

- Mojave tarplant (*Deinandra mojavensis*) – CNPS List 1B, CESA endangered
- Mojave desert tortoise (*Gopherus agassizii*) – ESA and CESA threatened
- American peregrine falcon (*Falco peregrinus anatum*) – CESA endangered
- Mohave ground squirrel (*Spermophilus mohavensis*) – CESA threatened

CDFG Species of Special Concern or CNPS List 1A, 1B, or 2

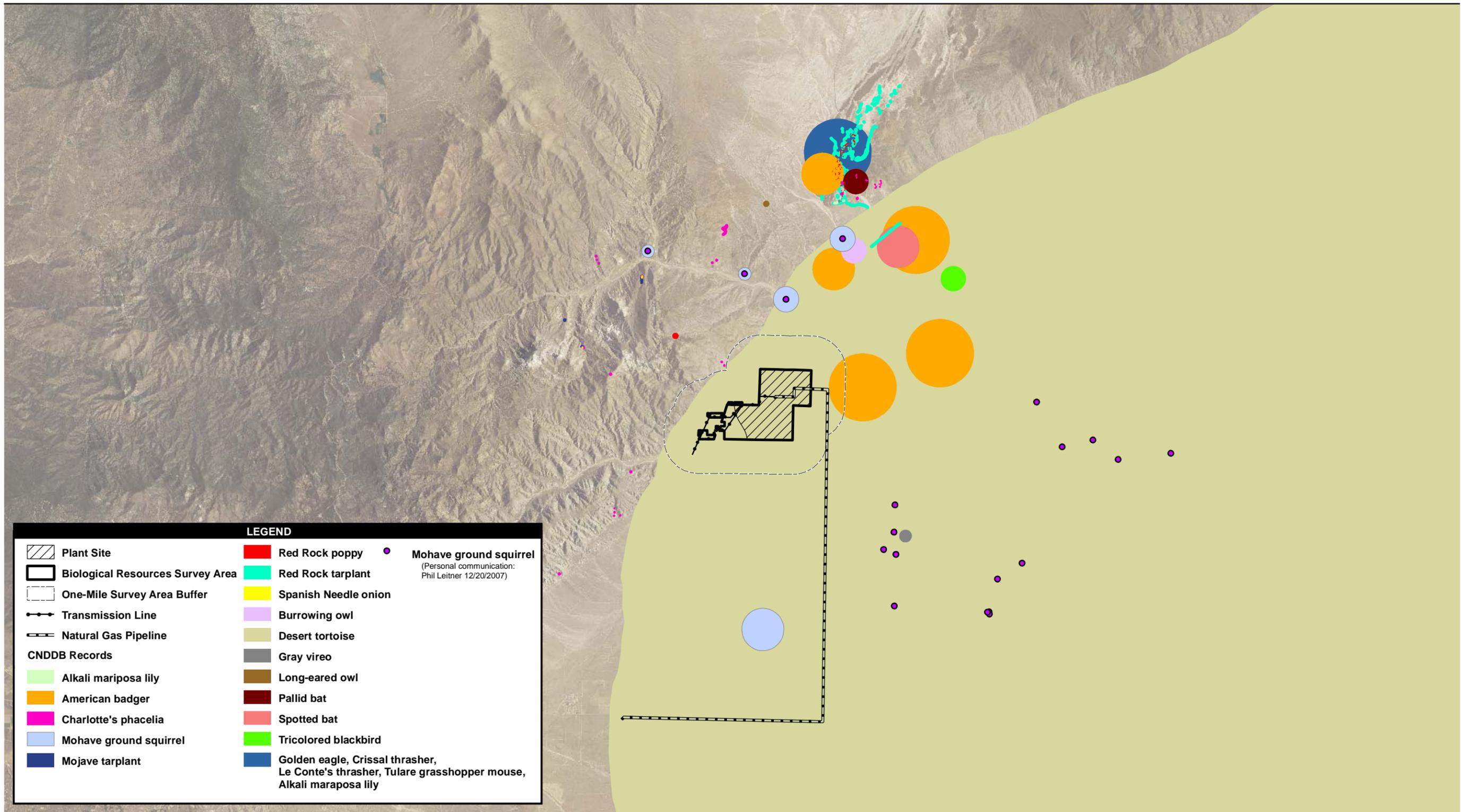
- Red Rock tarplant (*Deinandra arida*) – CNPS List 1B, CDFG rare
- Alkali mariposa lily (*Calochortus striatus*) – CNPS List 1B
- Red Rock poppy (*Eschscholzia minutiflora* ssp. *twisselmannii*) – CNPS List 1B
- Creamy blazing star (*Mentzelia tridentata*) – CNPS List 1B
- Charlotte’s phacelia (*Phacelia nashiana*) – CNPS List 1B
- Northern harrier (*Circus cyaneus*) – CDFG SSC
- Western burrowing owl (*Athene cunicularia*) – CDFG SSC
- Loggerhead shrike (*Lanius ludovicianus*) – CDFG SSC
- California horned lark (*Eremophila alpestris actia*) – CDFG SSC
- Le Conte’s thrasher (*Toxostoma lecontei*) – CDFG SSC
- American badger (*Taxidea taxus*) – CDFG SSC

Two special status wildlife species listed under the federal ESA were erroneously documented in the CNDDDB as occurring on or near the survey area. Locations of western snowy plover (*Charadrius alexandrinus nivosus*) and San Joaquin kit fox (*Vulpes macrotis mutica*) near the site are misrepresented and/or misidentified within the CNDDDB and likely were individuals from nonsensitive populations of these species (inland snowy plover and desert kit fox [*Vulpes macrotis arsipus*]) (pers. comm., Annette Tenneboe, CDFG). Therefore, protocol surveys for these two species were not considered necessary.

The West Mojave Plan (U.S. Bureau of Land Management [BLM] 2005) was consulted for maps of lands designated for the Mohave Ground Squirrel Conservation Area, documentation of sensitive vegetation communities, and to generate a base vegetation layer to be refined in the field. No working Natural Communities Conservation Plan is currently available for private lands in this area.

2.2 SURVEY PROTOCOLS

Comprehensive biological resource surveys designed to meet all applicable CEC, CDFG and USFWS requirements were conducted in the spring of 2007 and are summarized, below. Because the plant site was still being refined at the time that biological resources surveys were initiated in the spring of 2007, Beacon Solar, LLC chose to survey a large area including all property currently available for purchase that was intended to incorporate all potential facilities designs. This 2,317.2-acre survey area is generally depicted in Figure 1 as the Biological Resources Survey Area. However, after completion of those surveys, a number of areas were added to the Project and, therefore, were not subject to 100 percent survey coverage during the



Source: Tetra Tech 2007; Kern County 2007; CNDDDB 2007; NAIP 2005



Figure 4
Historic Biological Resources

2007 surveys, but are included within the Biological Survey Area boundary and noted as Supplemental Survey Areas. These are:

- An approximately 80-acre parcel in the north-central portion of the plant site and a narrow, approximately 30-ft wide strip of land along the northeast boundary of the plant site; and
- Approximately 0.5 mile of the gas pipeline route, between the eastern edge of the plant site, extending west to Neuralia Road

The 80-acre parcel and the narrow strip of land, both within the plant site boundary, are being subject to all of the same required biological resource-related surveys in the spring of 2008 that were conducted in the spring of 2007. Like the rest of the plant site, these areas are highly disturbed from past agricultural activities and the surveys are not expected to reveal any new information that would materially affect environmental impact analyses. While neither area was subject to the same 100 percent survey coverage as the rest of the plant site in 2007, several of the required 2007 zone of influence (ZOI) transects crossed the areas and generated sufficient information to suggest that the 2008 spring surveys will yield results similar to the 2007 surveys for the rest of the plant site.

The gas pipeline will be constructed entirely within the disturbed shoulders of existing roads (or within the road bed), except for the last 1.8 miles (1.3 miles within the plant site, and 0.5 between the plant site and Neuralia Road) where the pipeline is proposed to be installed within an already-disturbed SCE distribution line right of way. Spring 2008 surveys will include that segment of the gas pipeline.

Beacon Solar believes that the areas within which the two transmission line options occur were adequately during the 2007 spring surveys since much of the land was either included in the 100 percent coverage survey area or was crossed multiple times by ZOI transects. Nevertheless, because the centerlines/footprints of those options have been more accurately defined since the 2007 spring surveys were conducted, both transmission line option routes will also be surveyed in spring 2008.

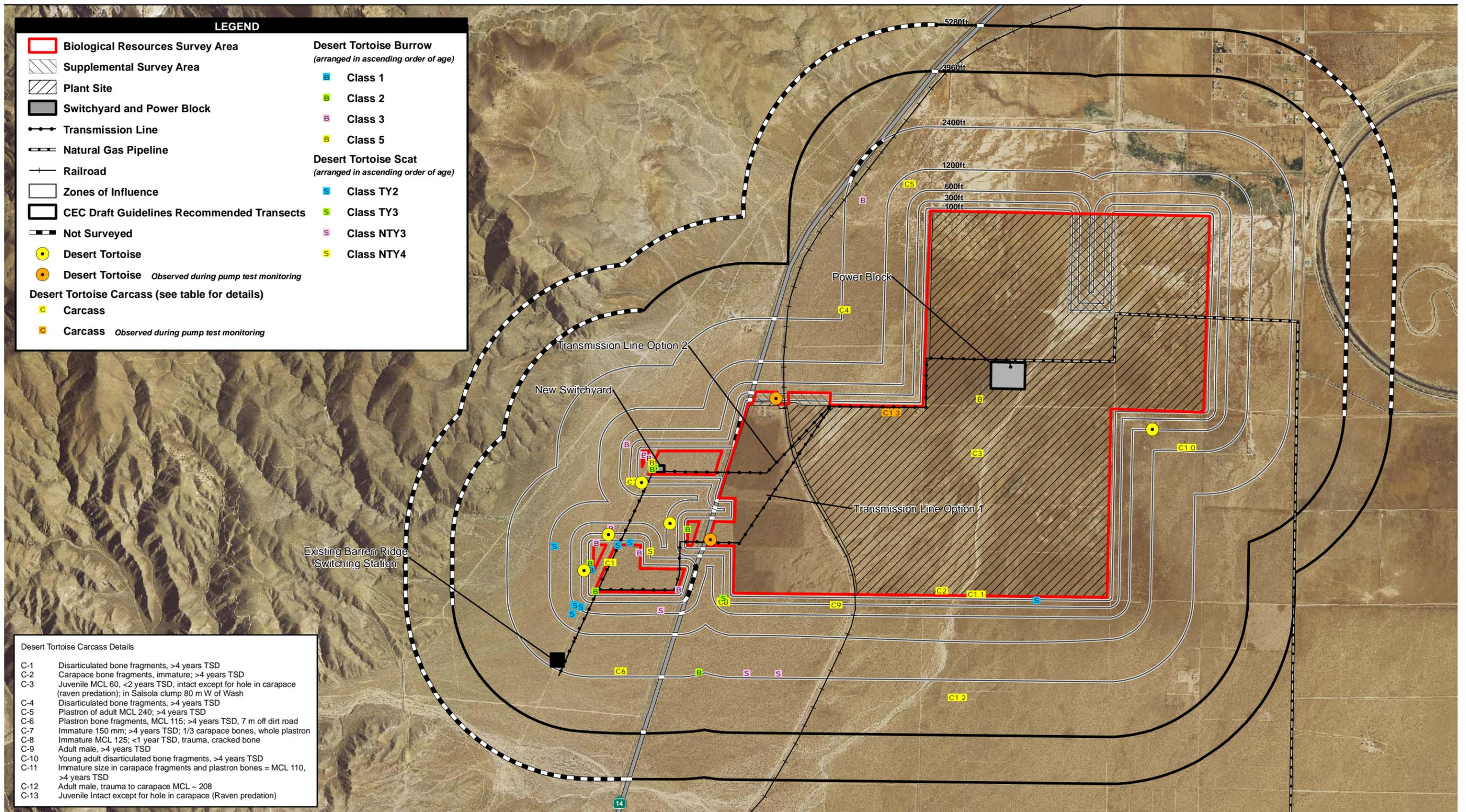
2.2.1 California Energy Commission Survey Guidelines

On May 8, 2007 at a pre-application meeting, the CEC provided Beacon Solar, LLC with Draft Recommended Biological Resources Field Survey Guidelines for Large Solar Projects, dated

May 8, 2007, (hereafter referred to as CEC Draft Guidelines). The CEC Draft Guidelines recommend that biological surveys be conducted according to established protocols within and around the proposed plant site, and additional surveys be conducted as necessary in order to ultimately cover a one-mile buffer around the plant site to evaluate suitable habitat and record occurrence and sign of special status species in this area. The CEC Draft Guidelines were also intended to evaluate potential wildlife habitat and corridors in the Project vicinity that may be disrupted as a result of Project implementation.

Because the plant site was still being refined at the time that biological resource surveys were initiated in the spring of 2007, Beacon Solar, LLC chose to survey a large area including all property currently available for purchase that was intended to incorporate all potential facilities designs. This 2,317.2-acre survey area is depicted in Figure 2 and most of the other figures in this report. Because this survey area would be subject to USFWS protocol desert tortoise surveys, including surrounding zone of influence (ZOI) transects out to 2,400 feet, the CEC agreed in the pre-application meeting that two additional transects – one at $\frac{3}{4}$ mile and one at one mile – would be appropriate for meeting the CEC Draft Guideline one-mile buffer requirement. These two additional CEC-recommended transects are depicted in Figure 5. After surveys for this report were completed, two small, (84.2 acre and 14.3 acre) parcels were added to the plant site. Although initial surveys did not entirely encompass these new parcels, they were originally included in the one-mile buffer and surveyed accordingly.

As shown in Figure 5 with dashed lines, certain sections of the $\frac{3}{4}$ -mile and one-mile CEC-recommended transects were not surveyed either because the area was completely disturbed (e.g., roadways or privately-developed land), terrain was difficult to traverse, or because access to private lands was not available. In these areas, the biological resources are expected to be similar to those already documented along the completed sections of the CEC transects in the same vegetation communities. Surveys were not performed in the mountainous areas because permission to access was not granted by the owner. It was determined that any biological resources information obtained from surveying these areas is not likely to contribute materially to impact analysis. Furthermore, much of the unsurveyed area is to the west of SR-14, which is across the highway from the area where the bulk of Project facilities and activities will occur. Qualifications of field biologists involved in the Project are presented in Attachment B.



Source: TetraTech 2007; Kern County 2007; USGS 2007; CNDDDB 2007; Peggy Wood 2007; EDAW 2007; NAIP 2005; WorleyParsons 2007



Figure 5
Desert Tortoise and Sign

2.2.2 Vegetation Communities and Flora

EDAW biologists Bruce Hanson, Scott McMillan, Linnea Spears-Lebrun, Josh Corona-Bennett, Jesper Pietsch, Jeannette Duffels, and Katie Hall conducted field assessments and surveys on five days (21 person-days) from May 4 through June 1, 2007 (EDAW 2007a; see Attachment C for photographic documentation). Surveys were conducted by walking or driving dirt access roads throughout the entire survey area focusing on plant species inventory, community characterization, and vegetation community mapping. Areas of native habitat, including Mojave Creosote Bush Scrub, Mojave Desert Wash Scrub, and areas of Fallow Agriculture-Disturbed Atriplex Scrub, were surveyed by pedestrian transects, with biologists walking 5 meters apart searching for rare plant occurrences. Areas of agricultural and ruderal vegetation were surveyed by walking some areas and driving the dirt access roads with emphasis on vegetation community mapping and plant species inventory. Vegetation communities are used to describe species assemblages and patterns of plants across the landscape. Vegetation communities were classified based on Holland (1986), and Sawyer and Keeler-Wolf (1995). Additionally, when necessary, vegetation community names were assigned based on characteristics observed in the field that did not readily fit into the existing nomenclature. Where appropriate, percent shrub/canopy cover was estimated for each vegetation community.

While surveying, the area was also assessed for sensitive vegetation and rare plant potential. Vegetation communities were mapped on a 1" = 200' scale aerial photo. Although very large, most of the site is dominated by just a few vegetation/cover types, so no minimum mapping unit was used in the vegetation community analysis. All botanical surveys follow the rare plant and vegetation survey guidelines provided by CNPS (CNPS 2001). Vegetation mapping was conducted out to the one-mile buffer boundary from strategic vantage points whenever direct access was not feasible.

A preliminary evaluation of the proposed 17.6-mile natural gas pipeline was performed by car on November 13, 2007 by EDAW biologist Lyndon Quon. During this survey, the width of the right-of-way (road shoulder) and surrounding vegetation was noted.

2.2.3 State Waters Streambed Delineation

On October 16, 2007 and February 27, 2008 EDAW ecologist Joshua Zinn and EDAW biologist Lance Woolley visited the site to formally delineate the boundaries of jurisdictional "waters of the state" (jurisdictional waters) within the survey area. Delineation at the site involved recording the boundaries of jurisdictional waters with a sub-foot accuracy Global Positioning

System (GPS) unit. Field data were processed using ESRI, Inc., Geographic Information Systems (GIS) software to define the location and extent of jurisdictional waters within the survey area. Features used to determine the extent of riverine jurisdictional waters include the presence of shelving and/or scour resulting in an established bank, bed, and channel of the ephemeral wash and its associated vegetation (Cowardin et al., 1979). At sites within the ephemeral wash where no diagnostic surface features occurred, subsurface characteristics were investigated to identify hydric features.

2.2.4 General Wildlife Surveys

General wildlife surveys were conducted concurrently with protocol wildlife surveys and vegetation mapping during May and June 2007 (see Attachment C for photos). All wildlife sign and sightings were recorded and special status species were mapped using Global Positioning System (GPS) units.

2.2.5 Special Status Wildlife Surveys

Surveys conducted for the Mojave desert tortoise (DT), the western burrowing owl (WBO), and the Mohave ground squirrel (MGS) are described below. Surveys for all other special status species (American peregrine falcon, northern harrier, loggerhead shrike, California horned lark, Le Conte's thrasher, and American badger) were incorporated into these protocol surveys.

Mojave Desert Tortoise

USFWS-approved biologists Andrea CurryLow, Peggy Wood, and Lindsey Spenceley conducted presence/absence surveys for DT between May 1 and May 21, 2007 (EDAW 2007b). EDAW biologist Katie Hall assisted with DT surveys for training purposes. The survey followed the guidelines published in the USFWS *Field Survey Protocol for any Non-Federal Action That May Occur within the Range of the Desert Tortoise* (protocol) (USFWS 1992), which includes five ZOI transects outside of and parallel to the site boundary at 100, 300, 600, 1,200, and 2,400 feet (Figure 5). In addition, to comply with the recommendations of the CEC Draft Guidelines, additional transects were surveyed at 3,960-foot (3/4-mile) and 5,280-foot (one-mile) intervals from and parallel to the edge of the survey area boundary. While these additional transects are more broadly focused than the DT protocol transects and are not a formal part of the tortoise survey, they provide information on DT presence as well as on other biological resources in the area around the survey area.

The entire survey area (100 percent coverage) was surveyed according to protocol by spacing transects 10 meters apart. The survey was conducted by slowly and systematically walking linear transects while surveyors visually searched for tortoise and sign. Particular emphasis was placed on searching around the bases of shrubs and along the banks of shallow washes. The USFWS ZOI transects were surveyed in suitable and accessible off-site desert scrub habitat and therefore were not surveyed on SR-14 or at the Honda Test Track east of Neuralia Road to the east of the site. All sign was recorded. Tortoises observed were measured at middle carapace length and evaluated for health. Carcasses were aged, measured (if possible), and classed using Dr. Alice Karl's *Key to Sign Classes* classification system (Attachment D; EDAW 2007b). The height and width of burrow openings were measured and burrow depth was recorded. Sign of recent use of burrows was recorded and the burrows were classed using Dr. Karl's classification system. Scat was measured and classed using Dr. Karl's classification system. All sign locations were recorded using GPS.

On August 10, 2007, Dr. Alice Karl also evaluated the survey area to characterize the habitat for its suitability for DT. Dr. Karl focused on the survey area east of SR-14 because the western side of the property is known DT habitat (i.e., DT were observed there during Project protocol surveys and the vegetation community is relatively undisturbed). During the site visit, Dr. Karl photographed and mapped habitat types within and around the survey area (Attachment E).

Mohave Ground Squirrel

A habitat field assessment was considered appropriate to determine the potential for MGS to occur in the survey area. Dr. Philip Leitner, a well known MGS expert, conducted a field assessment of habitat conditions for MGS on August 10, 2007 and October 15, 2007 (Attachment E). The entire survey area was surveyed by driving dirt access roads and walking through selected areas, focusing on the species composition and physical structure of the vegetation, soil conditions, and evidence of rodent activity. Habitat conditions immediately adjoining the survey area were also observed.

Western Burrowing Owl

Burrowing owl surveys were performed according to the protocol established by the California Burrowing Owl Consortium (CBOC) (1993) and accepted by the CDFG. In addition to the 500-foot buffer surrounding the survey area required by CBOC protocol, as noted earlier, the CEC requires a habitat evaluation within a one-mile buffer surrounding the survey area.

On May 8, 2007, EDAW biologist Lyndon Quon assessed the survey area for WBO habitat (Phase I of the CBOC protocol). A burrow survey (Phase II of the CBOC protocol) was conducted in conjunction with DT protocol surveys, during which the entire survey area was surveyed by line transects with 10-meter spacing between transects. Additionally, five transects circumnavigating the survey area, plus two additional CEC-recommended transects within the one-mile buffer, were surveyed for burrows. All burrows with potential WBO sign (white-wash, pellets, feathers, bones) were mapped using GPS units.

EDAW biologists Suellen Lynn, Barbra Calantas, Andrea CurryLow, Kyle Harper, and Katie Hall conducted four WBO burrow and presence/absence surveys between May 9 and August 3, 2007 (Phase III of the CBOC protocol; EDAW 2007c). EDAW geographic information systems (GIS) specialist Jessie Lee also assisted with data collection during surveys for post-field GIS data processing.

To locate WBOs, surveyors drove established paved and dirt roads, stopping at observation points that provided a wide view and scanned for owls and burrows with 8 to 10 power binoculars and a 20 to 40 power, 60 mm spotting scope. Vehicles were used as blinds, when possible, to minimize disturbance to owls. If burrows with sign were not visible from established roads, surveyors approached the burrows on foot, carefully verifying presence or absence of WBOs at the burrows. All WBO locations were mapped using GPS units.

CHAPTER 3 EXISTING CONDITIONS

These existing conditions represent findings within the survey area and one-mile buffer. The actual permanent impacts will be limited to the solar array/power block in the eastern section of the survey area (and east of the railroad tracks) and the transmission line corridor.

3.1 VEGETATION COMMUNITIES

A total of seven vegetation communities were mapped within the survey area and the one-mile buffer (Figure 6; see Attachment C for representative photos). The acreage of each vegetation community within the survey area and surrounding buffer area is provided in Table 1. Vegetation types are described in detail below, incorporating observations from Dr. Karl's DT habitat evaluation (Figure 7). Dr. Karl's habitat evaluation map is presented at a more detailed scale of 1:12,000 as part of Attachment E.

**Table 1
Vegetation Communities and Cover Types**

Vegetation Communities and Other Cover	Survey Area Acres	One-Mile Buffer Acres
Mojave Creosote Bush Scrub	111.5	5,302.1
Mojave Desert Wash Scrub	57.8	164.4
Mojave Mixed Woody Scrub	0.0	604.6
Tamarisk Scrub	0.0	1.8
Developed	70.3 ¹	253.5
Fallow Agricultural-Ruderal	1,785.0	3,233.1
Fallow Agricultural-Disturbed Atriplex Scrub	352.6	1,355.9
Total acres	2,377.2	10,915.4
¹ Includes 60 acres of natural gas pipeline right-of-way.		

3.1.1 Mojave Creosote Bush Scrub

Mojave Creosote Bush Scrub is an open shrub community dominated by the creosote bush (*Larrea tridentata*). While dominated by shrubs (approximately 18 percent shrub cover), this vegetation community also has a perennial and herbaceous layer apparent in years with sufficient rainfall. Other important shrubs in this community include white bursage (*Ambrosia dumosa*), box thorn (*Lycium andersonii*), silver cholla (*Opuntia echinocarpa*), and occasional Joshua trees (*Yucca brevifolia*). This community typically occurs on well-drained soils in alluvial fans,

bajadas, and upland slopes. It is one of the most widely distributed desert plant communities in the Mojave Desert from the desert floor up to about 3,500 feet, extending into northwestern Arizona and southern Utah. It is the primary habitat type in the undisturbed areas in the one-mile buffer. A total of 122.1 acres of Mojave Creosote Bush Scrub was mapped within the survey area and 5,291.5 acres in the one-mile buffer (Table 1; Figure 6).

3.1.2 Mojave Desert Wash Scrub

Mojave Desert Wash Scrub is an open shrubby community with scattered microphyllous trees and shrubs on well-drained sandy soils. This vegetation community is found in washes, arroyos, and canyons of intermittent streams throughout the Mojave Desert. The dominant plant in this community is the scale broom (*Lepidospartum squamatum*). Other shrubs occurring in this community are box thorn, bladderpod (*Isomeris arborea*), rubber rabbitbush (*Chrysothamnus nauseosus*), bladder sage (*Salazaria mexicana*), and Mormon tea (*Ephedra nevadensis* and *E. californica*).

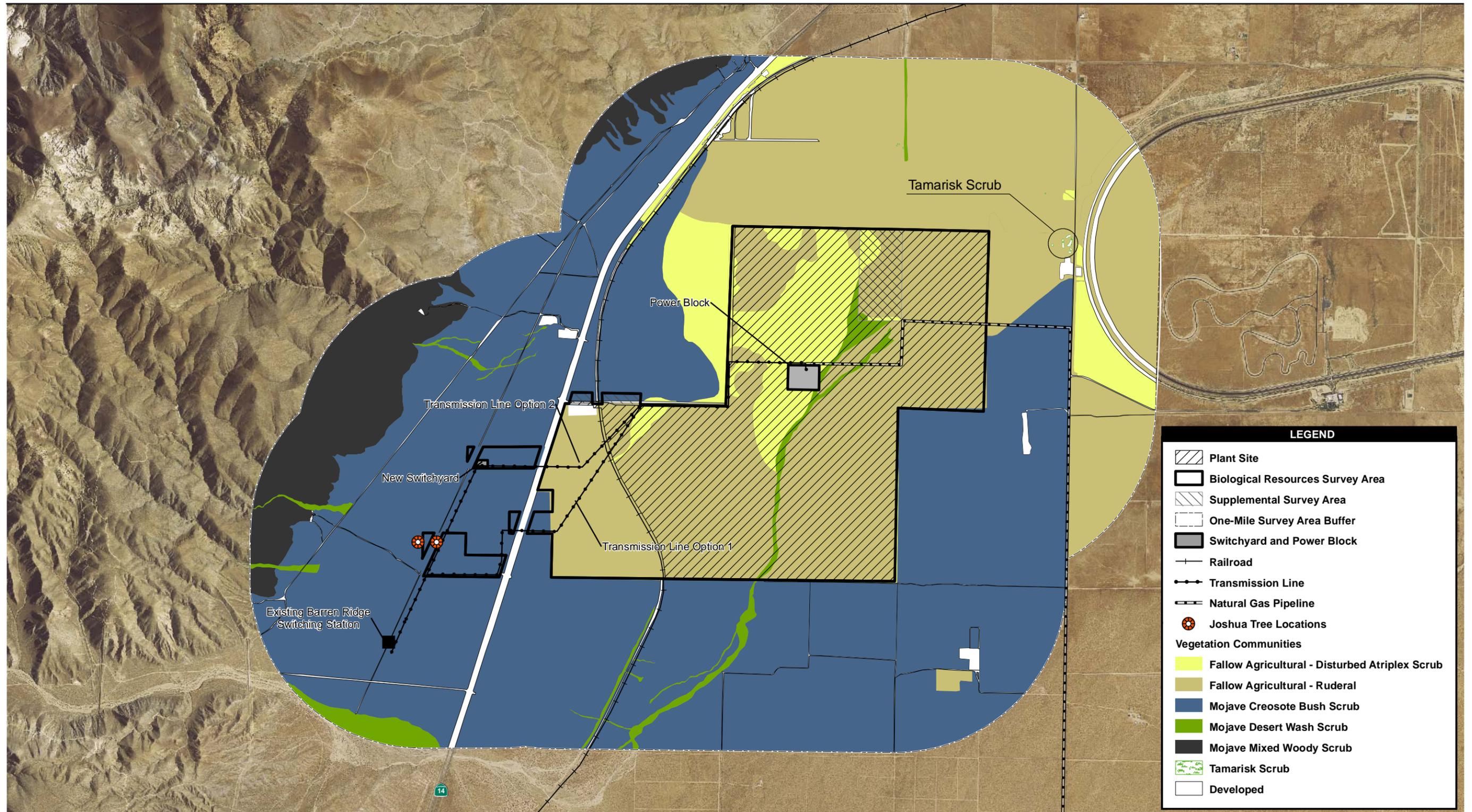
There is one main wash that trends southwest to northeast on the eastern two sections of the survey area that supports gradually reestablishing Mojave Desert Wash Scrub community. A total of 57.8 acres of Mojave Desert Wash Scrub was mapped within the survey area and 164.4 acres in the one-mile buffer (Table 1; Figure 6).

3.1.3 Mojave Mixed Woody Scrub

The Mojave mixed woody scrub occurs in areas characterized by steep, overly drained soils with extremely low water-holding capacity. The most common species of this plant community are spiny hopsage (*Grayia spinosa*), goldenhead (*Acamptopappus sphaerocephalus*), cheesebush (*Ambrosia [Hymenoclea] salsola*), winter fat (*Kraschennikovia lanata*), Mormon tea, and white bursage. This community is found on the western edge of the buffer where the area begins to rise in elevation. No Mojave Mixed Woody Scrub was mapped within the survey area and 604.6 acres was mapped in the one-mile buffer (Table 1; Figure 6).

3.1.4 Tamarisk Scrub

This community is dominated by tamarisk (*Tamarix ramosissima*), a nonnative shrub to small tree from Central Asia. The plant was originally introduced for erosion control and windbreak



Source: NAIP 2005; EDAW 2007; TetraTech 2007; WorleyParsons 2007; Kern County 2007

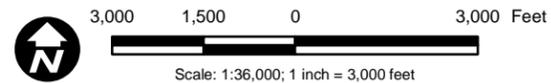
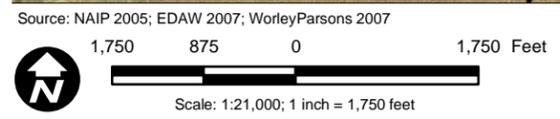
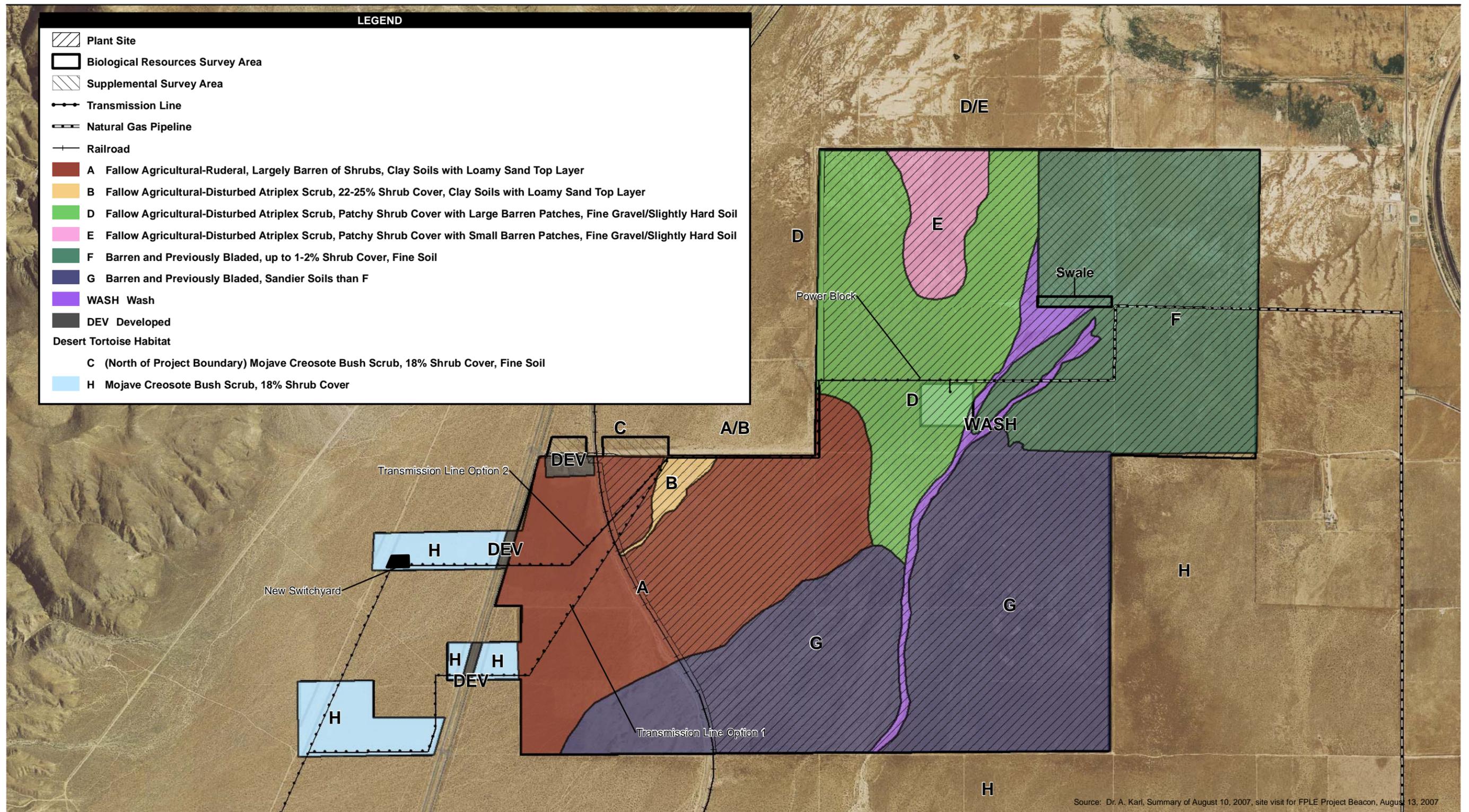


Figure 6
Vegetation Communities



Source: Dr. A. Karl, Summary of August 10, 2007, site visit for FPLE Project Beacon, August 13, 2007

Figure 7
Habitat Types in the Survey Area

purposes. It has become highly invasive of native habitats and can cause many detrimental effects especially in riparian communities. No Tamarisk Scrub was mapped within the survey area and 1.8 acres was mapped in the one-mile buffer (Table 1; Figure 6).

3.1.5 Developed

The areas mapped as developed include unpaved and paved roads, a rail line, canals, and other areas cleared for residential uses (Table 1). A total of 13.2 acres of Developed land was mapped within the survey area and 310.6 acres was mapped in the one-mile buffer. Additionally, 60.0 acres of Developed land was mapped in the proposed natural gas pipeline right-of-way.

3.1.6 Fallow Agricultural-Ruderal

The Fallow Agricultural-Ruderal vegetation community covers the majority of the survey area. The land was formerly used for agricultural purposes and is dominated by ruderal nonnative plants. This plant community occurs in areas that are now unable to effectively retard soil loss through wind and water erosion. Vegetation cover within this community ranges from 0 to 2 percent. The dominant plant species are Russian thistle (*Salsola tragus*), Sahara mustard (*Brassica tournefortii*), and Mediterranean schismus (*Schismus arabicus*). A total of 1,785.8 acres of Fallow Agricultural-Ruderal was mapped within the survey area and 3,232.3 acres in the one-mile buffer (Table 1; Figure 6).

3.1.7 Fallow Agricultural-Disturbed Atriplex Scrub

The Disturbed Atriplex Scrub community occurs on areas previously used for agricultural purposes but that have now become occupied with several atriplex shrub species. The dominant species is the allscale (*Atriplex polycarpa*), which is particularly effective at reoccupying abandoned agricultural lands. Other plants occurring together are shadscale (*Atriplex confertifolia*), Russian thistle, and salt heliotrope (*Heliotropium curassavicum*). Shrub cover in this vegetation community is approximately 22 to 25 percent. A total of 352.6 acres of Fallow Agricultural-Disturbed Atriplex Scrub was mapped within the survey area and 1,355.9 acres in the one-mile buffer (Table 1; Figure 6).

3.1.8 Sensitive Vegetation Communities

Sensitive vegetation communities are those that are considered rare in the region, support special status plant or animal species, or receive regulatory protection (e.g., waters, which includes

wetlands as defined by the U.S. Army Corps of Engineers [USACE] and CDFG). In addition, vegetation communities listed on the CNDDDB as having the highest inventory priorities are considered sensitive (CDFG 2003). There are no sensitive vegetation communities in the survey area or in the one-mile buffer.

Although there were a few scattered Joshua tree individuals within and immediately adjacent to the survey area, these individuals were not numerous or dense enough to be considered as Joshua tree woodland.

3.2 WATERS OF THE STATE

Two dry desert washes within the survey area were delineated as waters of the state (Figure 8). The western wash flows approximately 6,200 feet across the survey area, south to north, parallel to and west of the railroad tracks, passing under the railroad tracks to enter the plant site and flow southwest to northeast approximately 1,800 feet to the plant site boundary. This wash is mostly unvegetated. The eastern wash flows approximately 8,150 linear feet across the survey area, from southwest to northeast, and then continues in a more dispersed pattern to Koehn Lake (Figure 8). The total area of waters of the state encompasses approximately 18.4 acres within the survey area, 13.7 acres of which occur within the plant site.

3.3 FLORA

Thirty-three plant species were documented within the survey area, eight of which are nonnative introduced species (Attachment F). No special status plant species were detected within the survey area, although three CNPS List 1a plant species (alkali mariposa lily, creamy blazing star, and Charlotte's phacelia) have a moderate potential to occur, and two other plant species (Red Rock tarplant, CDFG rare and CNPS List 1B; Red Rock poppy, CNPS List 1B) have a low potential to occur.

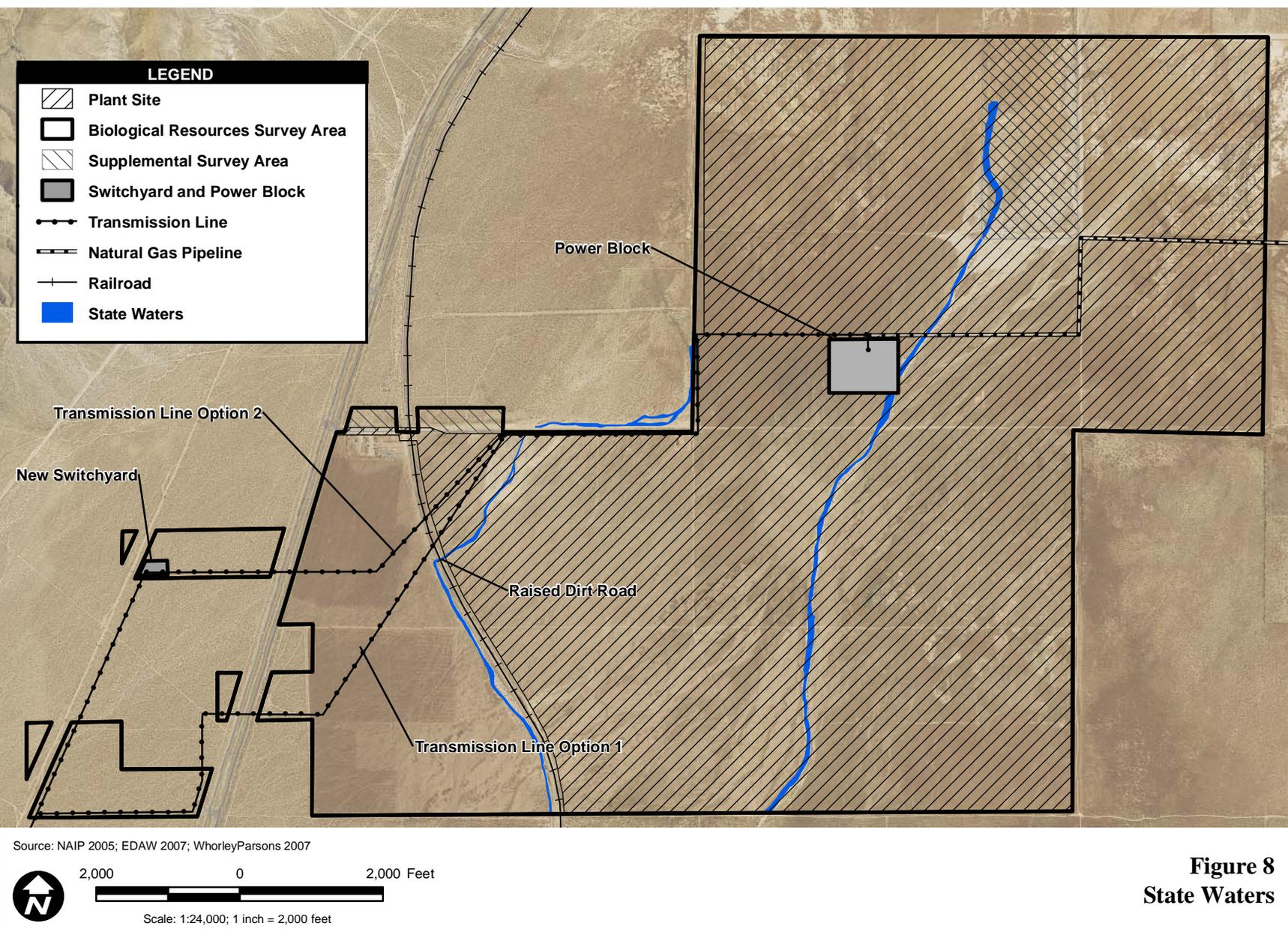


Figure 8
State Waters

3.3.1 State Rare Plant Species

Prior to the 2007 surveys, no rare plant species had been documented as occurring within the survey area or in the surrounding vicinity. Based on site-specific habitat evaluations, one state rare plant species, Red Rock tarplant, was considered to have a low potential to occur within the survey area and surrounding one-mile buffer, and one state-listed plant species, Mojave tarplant, is not expected to occur due to elevational restrictions (Table 2). Red Rock tarplant is discussed below.

Red Rock Tarplant

Red Rock tarplant was listed by CDFG as rare in 1972. The plant species has no federal listings but is recognized as List 1B by the CNPS (2007). Red Rock tarplant, an annual plant species growing to approximately 7 to 40 inches tall, is a severely restricted endemic species known only from 10 small populations within the boundaries of Red Rock Canyon State Park (Faull 2004). This species occupies seeps, springs, and seasonally moist alluvium within the Creosote Bush Scrub community.

Red Rock tarplant was not detected on-site, although low rainfall in 2007 produced conditions that were less than satisfactory for detecting this species. Red Rock tarplant is considered to have a very low potential to occur within the survey area because of its restricted endemism to the geologic substrates in combination with the mesic conditions present in Red Rock Canyon State Park. The survey area is located approximately 5.5 miles south of Red Rock Canyon; however, the topography of the survey area does not support the characteristic substrate and mesic conditions where Red Rock tarplant is found. Furthermore, the survey area lacks the preferred clay soil washes that the plant inhabits.

3.3.2 Other State Special Status Plant Species

Three species included on the CNPS List 1B (alkali mariposa lily, creamy blazing star, and Charlotte's phacelia) have a moderate potential to occur in the survey area, although they were not detected during 2007 spring surveys (Table 2). These species are most likely to be found in Mojave Creosote Bush Scrub, Mojave Desert Wash Scrub, and Fallow Agricultural-Disturbed Atriplex Scrub (Figure 6), across the central section of the survey area and surrounding the survey area to the west, south, and east. One additional species included on the CNPS List 1B, Red Rock poppy, has a low potential to occur within the survey area. Due to low annual rainfall

Table 2
Potentially Occurring Special Status Plant Species Relevant to The Beacon Solar Energy Project

Common Name Scientific Name	Sensitivity Status ¹	General Habitat Description (CNPS 2007)	Flowering Period	Probability of Occurrence ²
Alkali mariposa lily <i>Calochortus striatus</i>	CNPS: List 1B	Chaparral, Chenopod scrub, Mojavean desert scrub, meadows and seeps, in mesic soils. Grows at elevations of 230-5,235 feet.	Geophyte that flowers April-June	Moderate potential of occurrence on-site. A small population occurs in Red Rock Canyon State Park nearby. Survey area has Chenopod scrub and Mojavean desert scrub, which are suitable habitat.
Red Rock tarplant <i>Deinandra arida</i>	CDFG: Rare CNPS: List 1B	Mojavean desert scrub in clay, volcanic tuff. Grows at elevations of 984-3,117 feet.	Annual that blooms April-November	Low potential to occur on-site due to unsuitable soils and lack of mesic conditions. Less than 10 occurrences are known from the Red Rock Canyon State Park and Last Chance Canyon in Kern County, approximately 5.5 miles north of the survey area (CDFG 2007).
Mojave tarplant <i>Deinandra mohavensis</i>	CDFG: Endangered CNPS: List 1B	Chaparral (mesic), riparian scrub. Grows at elevations of 2,790-5,250 feet.	Annual that blooms July-October	Not expected to occur on-site due to unsuitable habitat and low elevation. Four known populations occur in natural springs northeast of the survey area, characterized by mesic conditions and suitable elevations (CDFG 2007).
Red Rock poppy <i>Eschscholzia minutiflora</i> ssp. <i>twisselmannii</i>	CNPS: List 1B	Mojavean desert scrub in volcanic tuff. Grows at elevations of 2,230-4,035 feet.	Annual that flowers March-May	Low potential of occurrence on-site due to lack of suitable soils in the survey area. Possibly could occur in drainages that drain slopes from the west. Known populations are located from the Rand and El Paso mountains in Kern County.
Creamy blazing star <i>Mentzelia tridentata</i>	CNPS: List 1B	Mojavean desert scrub. Grows at elevations of from 2,297-3,806 feet.	Annual that flowers March-May	Moderate potential of occurrence on-site due to suitable habitat and range in elevation on-site. One occurrence in nearby Red Rock State Park and six occurrences in San Bernardino County (CDFG 2007).
Charlotte's phacelia <i>Phacelia nashiana</i>	CNPS: List 1B	Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland. Grows at elevations of 1,969-7,218 feet.	Annual that blooms March-June	Moderate to high potential of occurrence on-site in suitable habitat. Known populations occur approximately 1 mile northwest and 2.25 miles southwest of the survey area in suitable habitat (CDFG 2007).

¹ **Sensitivity Status Key**

State California Department of Fish and Game (CDFG)

Other California Native Plant Society (CNPS)

1B: Considered rare, threatened, or endangered in California and elsewhere.

² No populations of rare plants were observed on-site during the focused survey periods, although low annual rainfall in 2007 produced less than satisfactory conditions to detect these plants if present.

in 2007, conditions to adequately assess the site for these species were less than satisfactory. Therefore, the presence or absence of these species may be determined by a future survey when suitable conditions allow for average seed germination. If drought conditions persist such that rare plant survey results would not be considered valid, the potential for these species to occur in the survey area will be estimated by evaluating known habitat associations in the survey area

3.4 FAUNA

Forty-three wildlife species were detected during general reconnaissance and protocol wildlife surveys (Attachment G). Ten of these species were reptiles, 26 were bird species, and 7 were mammal species.

Several wildlife species, including Le Conte's thrasher and flat-tailed horned lizard, were observed using the dry desert wash, which runs northeast to southwest across a large portion of the survey area. However, this wash disperses at the northern boundary of the site where the Mojave Desert Wash Scrub community gives way to Fallow Agricultural-Ruderal vegetation, thereby terminating the continuity of usable wildlife habitat that would constitute a wildlife corridor connecting to areas north of the survey area (Figure 6).

Several species of migratory birds were observed using the Disturbed Atriplex Scrub in May. Although the mountains to the west are a known flyway for migratory raptors and passerines, the survey area is located at a lower elevation and does not support the vegetation and topography that typically characterize areas that are attractive to these species during migration. The survey area occurs along a known inland shorebird migration route, connecting California's Central Valley with the Gulf of California. Although the Project's evaporation ponds have the potential to attract migratory birds, monitoring and, if necessary, mitigation measures will ensure impacts are less than significant.

Two federally and/or state listed wildlife species were detected on-site (DT and American peregrine falcon), and another has the potential to occur (MGS). All three of these species are discussed below. Six other special status wildlife species with potential to occur on-site (northern harrier, WBO, California horned lark, Le Conte's thrasher, loggerhead shrike, and American badger) are described in Table 3.

Table 3
Potentially Occurring Special Status Wildlife Species Relevant to The Beacon Solar Energy Project

Common Name Scientific Name	Sensitivity Status ¹	Habitat Requirements	Probability of Occurring On-site
Reptiles			
Desert tortoise <i>Gopherus agassizii</i>	ESA: Threatened CESA: Threatened	Various desert scrubs and desert washes up to about 5,000 feet, but not including playas.	Detected in native habitat, in the ZOI west and east of the survey area and in the vicinity of the proposed transmission line route in May 2007. One potential burrow, one shell fragment, and one juvenile carcass were observed within the eastern section of the survey area. Two live, probable transient adult tortoises were observed during groundwater pump tests at well #47 and #48 (Figure 9).
Birds			
Northern harrier <i>Circus cyaneus</i>	CDFG: Species of Special Concern	Occurs in grasslands and agricultural fields during migration and in winter.	Detected. Two individuals were observed in the one-mile buffer northeast of the survey area during May 2007 surveys.
American peregrine falcon <i>Falco peregrinus anatum</i>	CESA: Endangered CDFG: Fully Protected	Open habitats from tundra, moorlands, steppe, and seacoasts to mountains, and open forested regions, especially where there are suitable nesting cliffs.	Detected. One individual was observed perched on a utility pole at the eastern border of the survey area during May 2007 surveys.
Western burrowing owl <i>Athene cunicularia</i>	CDFG: Species of Special Concern	Found mainly in grassland and open scrub from the seashore to foothills. Strongly associated with ground squirrel burrows.	Detected. Two individuals were observed in the survey area, one in the northeastern section and one in the western section in native habitat, and at least three other individuals were observed in the one-mile buffer during May, July, and August 2007 surveys. One additional individual was observed during a groundwater pump test at well #63 (Figure 9). Active burrows were observed near all individual observations.
California horned lark <i>Eremophila alpestris actia</i>	CDFG: Species of Special Concern	Often occurs in fields, grasslands, shores, and tundra habitats.	Detected. Multiple individuals of this species were observed frequently throughout the survey area and within the one-mile buffer within barren areas during May 2007 surveys, and were therefore not mapped.
Le Conte's thrasher <i>Toxostoma lecontei</i>	CDFG: Species of Special Concern	Inhabits areas with sparse desert scrub and uses cholla cactus for nesting.	Detected. Two individuals were observed in the eastern section of the survey area and one individual was observed in the one-mile buffer southwest of the survey area during May 2007 surveys.

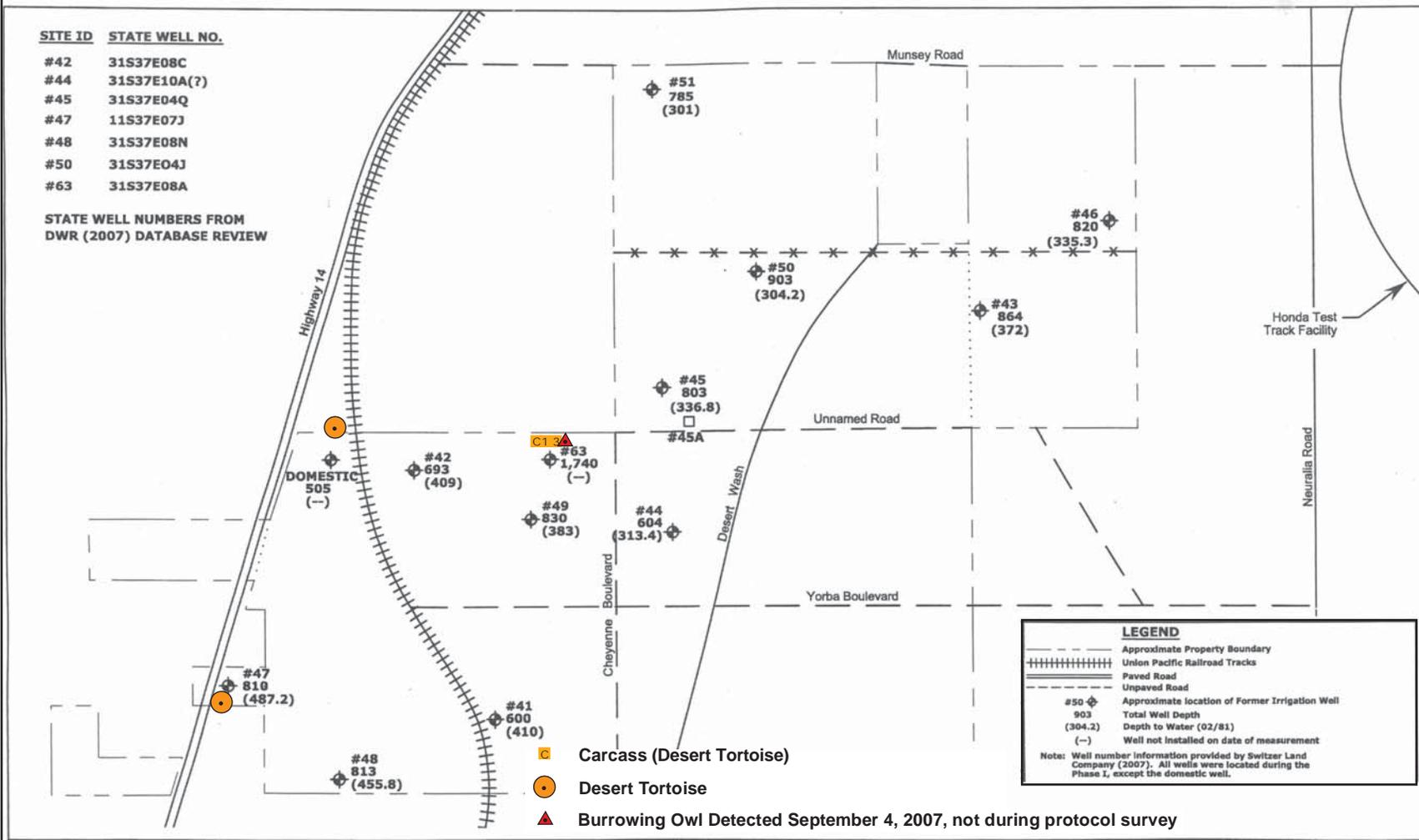
Common Name Scientific Name	Sensitivity Status¹	Habitat Requirements	Probability of Occurring On-site
Loggerhead shrike <i>Lanius ludovicianus</i>	CDFG: Species of Special Concern	Occurs in semiopen country with utility posts, wires, and trees to perch on.	Detected. Several individuals were observed throughout the eastern section of the survey area and the one-mile buffer during May 2007 surveys.
Mammals			
Mohave ground squirrel <i>Spermophilus mohavensis</i>	CESA: Threatened	Mojave desert scrub, alkali scrub, and Joshua tree woodland between 1,800 and 5,000 feet. Sandy to gravelly soils.	Moderate. Mojave Creosote Bush Scrub in the western portion of the survey area is suitable for this species. The remainder of the site does not provide suitable habitat. Mohave ground squirrels were detected approximately 2 miles north of the survey area in 1985. The species is assumed to be present in the survey area.
American badger <i>Taxidea taxus</i>	CDFG: Species of Special Concern	Coastal sage scrub, mixed chaparral, grassland, oak woodland, chamise chaparral, mixed conifer, pinyon-juniper, desert scrub, desert wash, montane meadow, open areas, and sandy soils.	Moderate. Although this species has been detected within one mile of the eastern edge of the survey area, no sign of the species was detected during surveys in May 2007. This species is considered relatively common in native habitats of the area (A. Karl, pers. comm.)

¹ **Sensitivity Status Key**

Federal Endangered Species Act (ESA)

State California Department of Fish and Game (CDFG)

California Endangered Species Act (CESA)



Source: ENSR 2007

NO SCALE

Figure 9
Incidental Special Status Species Observations During Onsite Pumping Tests

3.4.1 Federally Listed Wildlife Species

Desert Tortoise

The DT is federally listed as threatened under the ESA, with critical habitat designated by the USFWS (USFWS 1994a). The listing was initially made on August 4, 1989, by emergency rule (USFWS 1989) and by final rule on April 2, 1990 (USFWS 1990). This listing status applies to the entire population of DT, except in Arizona south and east of the Colorado River, and in Mexico. An approved recovery plan has been published by the USFWS (1994b). The DT was listed as threatened under CESA on June 22, 1989 (CFGC 1989).

The DT is widely distributed in the deserts of California, southern Nevada, extreme southwestern Utah, western and southern Arizona, and throughout most of Sonora, Mexico. Habitat consists of firm but not hard ground, usually soft sandy loams and loamy sands to allow for burrow construction. The flattened forelimbs of the DT and other gopher tortoises are capable tools for burrow construction. The species has also been found on rocky slopes. Optimal habitat consists of Creosote Bush Scrub vegetation, supporting a variety of moisture-rich ephemeral vegetation on which the species feeds. Annual precipitation within DT habitat averages between 2 and 8 inches per year. The DT is not found in areas of very cobbly soil, soil too soft for burrow construction, or in dry lakes. The species generally occurs below 4,000 feet elevation although it can be found up to 5,000 feet (Stebbins 1985). DT are usually most active early March through early June and again between September and early November. The species is herbivorous and is most active when plants are available for forage or when pooled water is available for drinking.

The DT reaches an average length of 6 to 14.6 inches, with males growing larger than females. A DT matures at approximately 15 to 18 years of age and can live 50 to 100 years. DTs normally construct nests and lay eggs from May through June. The clutch size varies from 2 to 14 eggs with an average of 3 to 5, although some eggs may not be fertile (Lawler 2000).

DTs typically have home ranges from 27 to 130 acres and these figures probably underestimate the actual area familiar to the tortoise. A home range is the area in which a DT travels, feeds, sleeps, courts, and has its burrows. Individuals commonly traverse 1,500 to 2,600 feet per day within their home range and males have been recorded to travel 0.75 square mile within their home range. The range of individual DT depends on factors such as density of food plants, size, age, and sex of the tortoise, and may extend no more than two miles from where it hatched (Lawler 2000). DTs are also known to disperse extended distances such as 2.0 miles in 16 days and 4.5 miles in 15 months (Stebbins 1985).

A single DT and several tortoise burrows, scat, and eggshells were observed at the outlet of Pine Tree Canyon, southwest of the survey area but within the assessment area for the proposed transmission line, during 2003 biological surveys in support of Barren Ridge Switching Station for the Pine Tree Wind Development project (EDAW 2004). This live tortoise was translocated. No other live DT were discovered in this area during 2003 protocol DT surveys for that project.

Five live DT were encountered during The Beacon Solar Energy Project ZOI transect surveys, all within 630 feet of the survey area where native habitat remains (Figure 5). Four of the five live tortoises found were encountered west of SR-14, in the southwest corner of the survey area. The fifth tortoise was encountered approximately 600 feet outside the eastern edge of the survey area. All were adult tortoises with middle carapace length ranging from approximately 200 to 235 millimeters. Most of the observed tortoise sign (burrows, carcasses, and scat) were also found in the southwest section of the survey area, west of SR-14. Only two recent tortoise sign were found in the eastern section of the survey area: an intact juvenile carcass that had been depredated by a raven (C3 in Figure 5) and a deteriorated adult burrow. Two other sets of old (greater than four years since death) bone and carapace fragments were found near the southern edge of the survey area (C2 and C11 in Figure 5). There was no evidence that DT currently inhabit the survey area.

Subsequent to protocol DT surveys in 2007, a DT carcass and two live DT were detected in or adjacent to the survey area. A juvenile DT carcass, preyed upon by a raven, was documented within the survey on September 4, 2007 by a biologist monitoring a groundwater pump test. Two additional live adult tortoises were detected within survey area during subsequent groundwater pump tests. One was detected on the northwest edge of the survey area along the main access road, and is likely a transient from adjacent habitat. The second live tortoise was detected at the western edge of the survey area, approximately 350 feet east of SR-14 (Figure 5).

Dr. Alice Karl's assessment of DT habitat within the survey area concluded that the survey area east of SR-14 has no value for DT conservation. This analysis was based on: habitat quality within the survey area (vegetation [species, cover, patchiness], soil characteristics, and hydrology); habitat quality in adjacent areas; geographic extent and type of existing disturbance; and temporal (long-term) extent of disturbance in the survey area.

Figure 7 presents a graphic representation of Dr. Karl's DT habitat assessment. The majority of the plant site has no potential to host tortoises because it is either devoid of vegetation or shrub cover is less than 2 percent. In areas where shrubs are regrowing, the Disturbed Atriplex Scrub is unlike the native community adjacent to the plant site. Portions of the surrounding area are

native Creosote Bush Scrub, whereas the regrowth area is a nearly monotypic allscale stand. This area is patchy with broad barren areas, has poor soil friability (i.e., fine, slightly hard soils), and shows evidence of periodic inundation by water, which is hazardous to DT. While there is potential that a DT would be observed in these shrub patches or in the wash that cross the survey area, the use of these areas would be attributable to the proximity of the adjoining native habitat outside of the plant site, and is likely to be temporary due to the poor habitat quality within the plant site. Additionally, even the Creosote Bush Scrub north of the plant site is poor-to-fair quality DT habitat, and consequently, DT density is expected to be low in these areas.

The wash that crosses the eastern-central section of the plant site is characterized by poor shrub diversity and low shrub cover, and is mostly bordered by barren land. The northern terminus (swale; Figure 7) is dominated by stands of exotic Russian thistle. Poor quality DT habitat in the wash also limits the wash's utility as a movement corridor. Furthermore, while good DT habitat occurs south of the plant site, little habitat occurs within the plant site to define a corridor that would connect with this. Areas north, east, and west of the wash are entirely devoid of vegetation as a consequence of long-term agricultural use of the area, and are therefore not considered DT habitat. The only shrub cover within the plant site occurs northwest of the wash and is discussed above.

In addition to currently containing large contiguous areas that lack DT habitat, the entire area within the plant site has been inappropriate DT habitat for decades as a consequence of agriculture-related disturbance. Therefore, the area has had no value for DT population persistence or recovery for many years. DT's have also been excluded from the allscale-dominated regrowth community within the northern portion of the plant site by a chicken-wire perimeter fence that was originally erected to exclude rabbits from the agricultural fields. Long segments of this chicken-wire fence are intact and effectively block much of the DT movement into the plant site.

In support of this analysis, no fresh sign and only one Class 5 (deteriorated) adult tortoise burrow were seen within the plant site, east of SR-14, during DT surveys. All carcasses, three of which were within the plant site and three of which were juvenile or small immature DT, could have been transported to the site (A. Karl, pers. comm.).

To ensure that no DT would be harmed by the Project in case a DT has temporarily moved into the plant site, a full clearance survey will be conducted following installation of perimeter fencing, prior to construction (see Conservation Measures; Section 6.2.5).

3.4.2 State Listed Wildlife Species

The federally listed DT is also listed as threatened under CESA. The Mohave ground squirrel (MGS), also listed as threatened under CESA, has the potential to occur in the survey area.

Mohave Ground Squirrel

The MGS was listed as threatened under CESA in 1983. It inhabits desert areas, including alluvial fans, basins, and plains with deep sandy or gravelly friable soils with an abundance of native herbaceous vegetation. This species is typically associated with a variety of habitats, e.g., Mojave Creosote Bush Scrub, shadscale desert scrub, alkali scrub, and Joshua Tree Woodland. The species feeds on green vegetation and seeds but may also eat carrion. The MGS remains underground from August through February or March and is active during the spring and summer.

The CNDDDB includes nine records of MGS occurrence within 10 miles of the survey area (Figure 4). Three locations are in Jawbone Canyon, from just west of SR-14 to Blue Point. A fourth occurrence is near the southern edge of Red Rock Canyon State Park on the west side of SR-14. Two records are from Cache Creek near the western boundary of the Desert Tortoise Natural Area. Three records document occurrences of MGS further east, within the Desert Tortoise Natural Area. Ten additional records, not yet included in the CNDDDB, occur within 12.4 miles of the survey area within the Desert Tortoise Natural Area. All lands to the west of SR-14 in the vicinity of the survey area are included in the Mohave Ground Squirrel Conservation Area proposed in the West Mojave Plan (BLM 2005). However, the protections associated with the Mohave Ground Squirrel Conservation Area apply only to public lands managed by the BLM.

There is an extensive area of Mojave Creosote Bush Scrub to the east and south of the survey area. It appears to provide suitable habitat for the MGS, although there are no occurrence records and no evidence of any trapping attempts. To the north and northeast of the survey area is a wide strip of fallow agricultural land that does not provide MGS habitat. North of the survey area and east of SR-14 is a small patch of Mojave Creosote Bush Scrub. Vegetative cover here is sparse and there is very little plant diversity. At best, this area is marginal habitat for the MGS.

To the west of SR-14, overlapping with a small portion of the survey area, a wide strip of Mojave Creosote Bush Scrub occurs on the alluvial fans reaching down from the mountains. This area is characterized by vegetation and soil conditions that are suitable for MGS (Figure 6).

The dominant shrub species are creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*). Because of disturbance from periodic surface water flows, desert senna (*Senna armata*) and cheesebush (*Hymenoclea salsola*) are also abundant. No winterfat (*Krascheninnikovia lanata*) or spiny hopsage (*Grayia spinosa*), two shrubs that provide important food resources for MGS (Leitner and Leitner 1998), were observed. This relatively undisturbed habitat has moderately diverse vegetation that could provide adequate forage and cover for MGS. The habitat on this portion of the survey area (approximately 116 acres) appears suitable for the species, but is not of high quality.

The remainder of the survey area is unsuitable as habitat for MGS. The survey area was used for irrigated agriculture some years ago and has since been abandoned. Much of the property (1,785 acres) is barren (Fallow Agricultural-Ruderal) and does not support any native vegetative cover. Other portions of the survey area contain patches of native allscale shrubs (Fallow Agricultural-Disturbed Atriplex Scrub) that have become established since agricultural operations ceased. In these patches, allscale makes up almost 100 percent of the low density existing shrub cover. The herbaceous layer is sparse and consists almost entirely of a few non-native species, including filaree (*Erodium cicutarium*). MGS occasionally consume *Atriplex* foliage and filaree seeds, but these plants do not provide the full range of food resources necessary for the species (Leitner and Leitner 1998). The narrow strip of Mojave Desert Wash Scrub that runs through the center of the survey area does not provide suitable MGS habitat. The vegetation here is very open and sparse, plant diversity is low, and there is little shrub cover, and forage plants utilized by MGS are almost entirely absent. In general, the wash vegetation community appears disturbed with shrubs widely separated and damaged and extensive bare ground.

With the exception of the Mojave Creosote Bush Scrub areas on the western edge of the survey area (west of SR-14), the area has no value as a movement corridor for the MGS. Although dispersing juveniles might attempt to enter from adjoining creosote bush habitat, the wide bands of barren fallow agricultural land would serve as a dispersal barrier. Studies in the Coso area of Inyo County have shown that a small playa acted as a barrier to the dispersal movements of radiocollared juveniles (Harris and Leitner 2005). This species is assumed to be present in suitable habitat west of SR-14 where Project transmission facilities will be constructed.

American Peregrine Falcon

The American peregrine falcon (*Falco peregrinus anatum*) was listed as endangered under CESA in 1971 and is a California state Fully Protected species (Table 3). In the past, the species primarily nested on cliffs, although recent nesting has been documented in old common raven

(*Corvus corax*) nests, electric utility poles, and buildings (White et al. 2002), among other unconventional sites. Peregrine falcons are frequently found along shorelines and large bodies of water, and they forage in open landscapes, often foraging up to five miles from the nest site and ranging widely during migration (White et al. 2002). Home range for this species can be up to 582 square miles. The peregrine falcon is not known to breed in the vicinity of the Beacon Solar Energy Project survey area. One American peregrine falcon was detected on the survey area boundary, perched on a utility pole, on May 11, 2007, during WBO surveys (Figure 10). Because no large bodies of water or suitable breeding structures occur near the survey area and no other sightings of this species have been recorded in this area, this individual was likely a transient or at most may use the area in the vicinity of the survey area as a peripheral and occasional part of its home range.

3.4.3 Nonlisted, Special Status Wildlife Species

In addition to the federally and state listed species discussed above, six CDFG SSC have the potential to occur within the survey area and surrounding one-mile buffer. Those species are northern harrier, WBO, California horned lark, Le Conte's thrasher, loggerhead shrike, and American badger. Results of focused surveys for WBO and American badger are presented below.

Western Burrowing Owl

The WBO is considered a SSC by the CDFG due to intensive development pressure on the species' habitat. WBO habitat consists of annual and perennial grasslands, deserts, and scrublands, characterized by low-growing vegetation (Zarn 1974; CBOC 1993). Suitable WBO habitat may also include trees and shrubs if the canopy covers less than 30 percent of the ground surface. Burrows are the essential component of WBO habitat and both natural and artificial burrows provide protection, shelter, and nests for WBO. WBOs typically use burrows made by mammals, such as ground squirrels or badgers, but also may use man-made structures, such as cement culverts; cement, asphalt or wood debris piles; or openings beneath cement or asphalt pavement.

WBOs in California are generally nonmigratory and occur mostly in the Central and Imperial Valleys, primarily in agricultural areas. Small, scattered populations occur in the Mojave desert. The West Mojave Plan documents 53 records of burrowing owls in the east Mojave desert (Campbell 2004), only 5 of which are confirmed breeding pairs. Population density seems to be correlated with prey availability, particularly small mammals (Klute et al. 2003).

The entire survey area and one-mile buffer were considered suitable WBO habitat, as assessed per Phase I of the CBOC protocol. During Phase II of the CBOC protocol surveys, a total of 27 burrows with WBO sign were identified within the survey area one-mile buffer. Fourteen burrows were detected within the survey area, including five burrows with recent WBO sign. Thirteen burrows with sign were detected within the one-mile buffer, including five burrows with recent WBO sign.

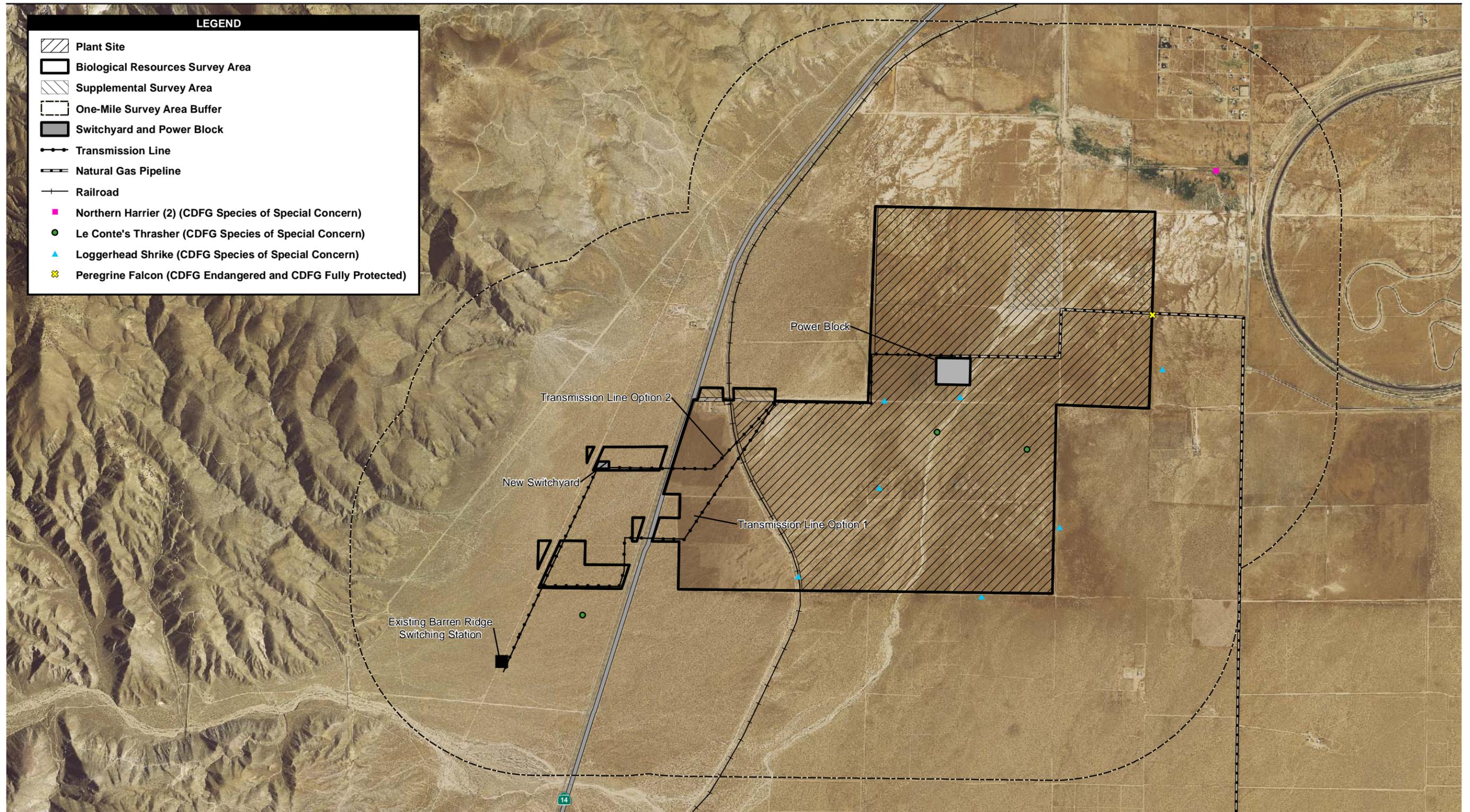
At least six WBOs were detected during focused surveys, two of which were within the survey area (Figure 11). All WBOs detected were seen within 10 meters of a burrow with recent sign. Evidence of predation was observed at two of the locations where WBOs had been detected on earlier surveys, one within the survey area. In addition to the data collected during the protocol survey, a WBO was observed on September 4, 2007, during a groundwater pump test on-site.

Northern Harrier

Northern harriers breed in open wetlands, including marshy meadows, wet lightly grazed pastures, old fields, freshwater and brackish marshes, and dry uplands including upland prairies, mesic grasslands, drained marshlands, croplands, cold desert shrub-steppe, and riparian woodland. The densest populations of northern harriers are typically associated with large tracts of undisturbed habitat dominated by thick vegetation growth (Macwhirter and Bildstein 1996). Harrier prey includes small and medium-sized mammals (primarily rodents), birds, reptiles, and frogs. Suitable habitat for this species occurs throughout the survey area. A pair of harriers was detected in the one-mile buffer northeast of the survey area during DT surveys (Figure 10).

Loggerhead Shrike

Loggerhead Shrikes inhabit edges between habitat types, grasslands, and other open habitats (Yosef 1996). Prey includes invertebrates and small vertebrates, including small mammals, birds, and reptiles. In the southern part of its range, including the survey area, loggerhead shrikes are resident and remain on permanent territories throughout the year. Outside of the breeding season, males and females defend neighboring territories which coalesce at the beginning of the nesting period. Suitable habitat for loggerhead shrike occurs throughout the survey area. Loggerhead shrikes were observed frequently during biological surveys of the survey area (Figure 10).



Source: TetraTech 2007; Kern County 2007; USGS 2007; CNDDDB 2007; Peggy Wood 2007; EDAW 2007; WorleyParsons 2007; NAIP 2005

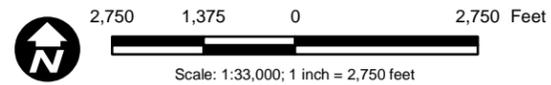
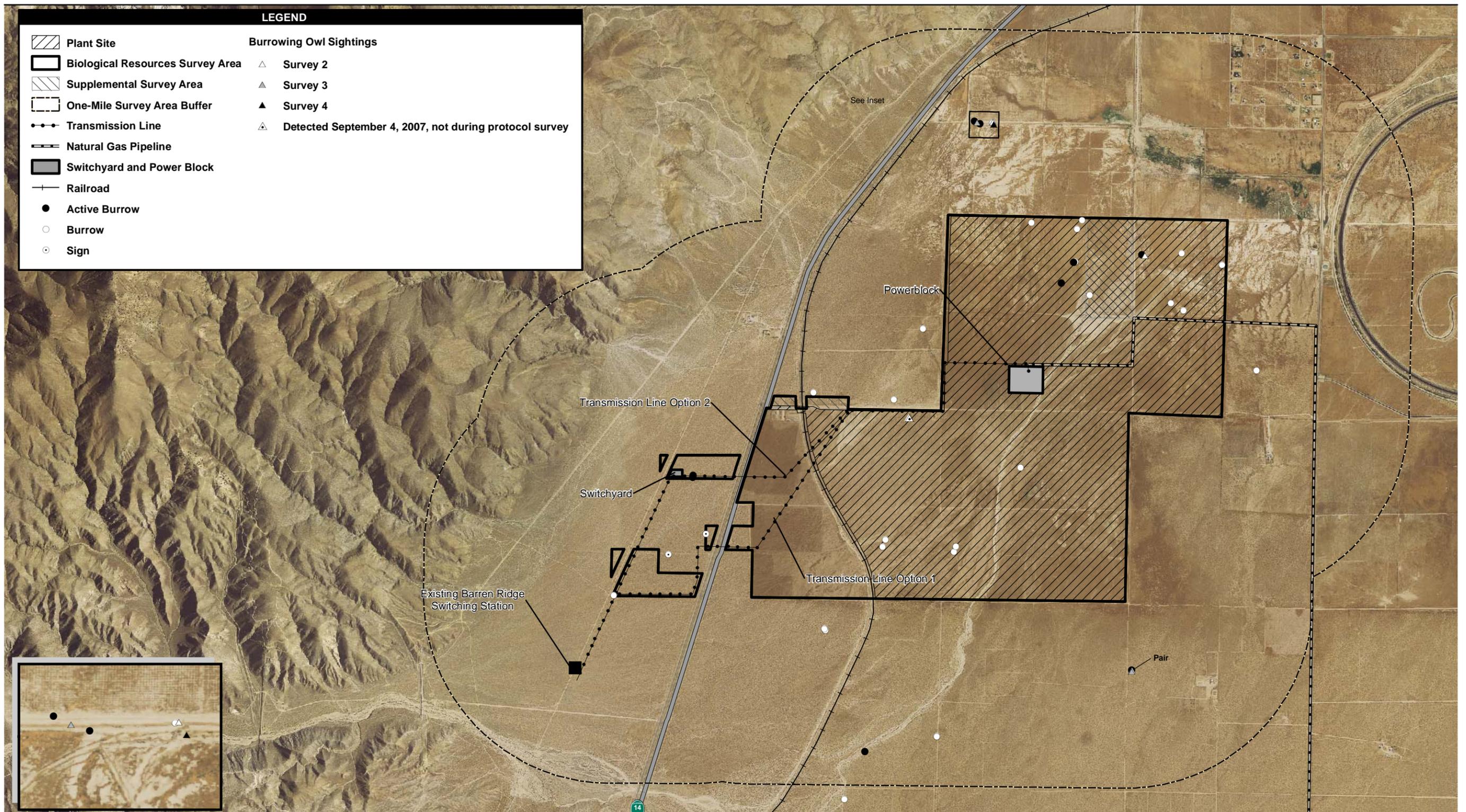


Figure 10
Other Special Status
Biological Resources Observed



Source: TetraTech 2007; Kern County 2007; USGS 2007; CNDDDB 2007; Peggy Wood 2007; EDAW 2007; WorleyParsons 2007; NAIP 2005

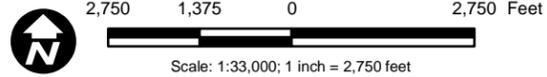


Figure 11
Burrowing Owls and Sign

California Horned Lark

The horned lark is a widespread bird of the open country, preferring short, sparsely vegetated prairies, deserts, and agricultural lands (Beason 1995). Adults eat primarily weed and grass seeds but they feed insects to their young. During the non-breeding season, horned larks form nomadic foraging flocks which move over a large area searching for food. During the breeding season, pairs are uniformly dispersed by territory. The species nests in shallow depressions, often lined with fine plant material, on bare ground such as plowed or fall-planted fields. The most significant threat to this subspecies is habitat destruction and fragmentation. Suitable habitat for horned lark occurs throughout the survey area. California horned larks were detected in flocks throughout the survey area in 2007 but was not mapped.

Le Conte's Thrasher

Le Conte's thrasher is an uncommon resident of the American southwest and northwestern Mexico deserts. Typical habitat consists of sparsely vegetated desert flats, dunes, alluvial fans, or gently rolling hills having a high proportion of saltbush or shadscale (*Atriplex* spp.) and/or cylindrical cholla cactus (*Opuntia* spp.) (Sheppard 1996). Shrubs are well scattered with contiguous or closed cover usually <15 m in any direction; the ground underneath is bare or with sparse patches of grasses and annuals as low ground cover. The species feeds exclusively on arthropods that it digs from litter under desert shrubs. Surface water rarely exists within several kilometers of most territories, except temporarily following infrequent rains. The species is not migratory and pairs remain together year-round. Suitable habitat for this species occurs throughout the survey area. Le Conte's thrasher was observed several times in the survey area (Figure 10).

American Badger

The badger is a resident of level, open areas in grasslands, agricultural areas, and open shrub habitats. It digs large burrows in dry, friable soils and feeds mainly on fossorial mammals: ground squirrels, gophers, rats, mice, etc. Badgers are primarily active during the day, but may become more nocturnal in close proximity to humans. The home range of male badger has been measured to be 1,327 to 1,549 acres for males and 338 to 751 acres for females in Utah (Lindzey 1978) and 400 to 600 acres in Idaho (Messick and Hornocker 1981). Mating occurs in late summer or early fall and 2 to 3 young are born 183 to 265 days later in March or April (Long 1973). Badgers are known to live 11 to 15 years (Messick and Hornocker 1981).

The American badger was not detected during surveys but has a moderate potential to occur in the survey area. This species is considered relatively common in native habitats of the area (A. Karl, pers. comm.).

3.5 CRITICAL HABITAT

The survey area does not include any designated critical habitat for any special status plant or wildlife species.

3.6 WILDLIFE MOVEMENT CORRIDORS

Wildlife movement corridors, also referred to as dispersal corridors or landscape linkages, are generally defined as linear features along which animals can travel from one habitat or resource area to another. A wildlife corridor study was not conducted as part of the BSEP since extensive, long-term species ecology, movement patterns, and dispersal behavior would be required to conclusively demonstrate if 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 in the survey area. However, drainages, ridgelines, and other natural and manmade linear features and barriers often serve as areas that wildlife routinely use to access essential natural resources. It is assumed that wildlife species would use such features for movement if they occurred within the survey area.

The vegetated wash within the eastern section of the plant site has the potential to serve as a wildlife movement corridor. However, the wash and accompanying vegetation disperses at the northern boundary of the plant site, thus limiting the utility of this feature for cross-site movement of wildlife. No other existing linear features occur within the plant site that would provide a corridor for wildlife movement. Additionally, an existing somewhat degraded chicken-wire fence currently encompasses most of the plant site, providing a barrier to wildlife movement through the site.

CHAPTER 4

IMPACTS

In this section, Project-related impacts to vegetation communities and special status plant and animal species are analyzed. 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 and dust levels, soil compaction, increased human activity, decreased water quality, and the introduction of invasive wildlife (domestic cats and dogs) and plants.
- **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 and the National Environmental Policy Act (NEPA). Potentially significant impacts to biological resources include, but are not limited to, the following:

- Substantial impact to plant species considered by the CNPS to be rare, threatened, or endangered in California (CNPS 2007) 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).

- Any impact 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 impact to 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.
- Any impact to important riparian habitats or wetlands and any other “waters of the U.S.” or “waters of the state.”

4.1 ASSUMPTIONS

Assumptions employed for the calculation of direct impacts to biological resources are described below. Indirect impacts are described separately, specific to each biological resource.

4.1.1 Permanent Impacts

Solar Array, Access Roads, and Maintenance Facilities

2,012 acres of the proposed Beacon Solar Energy Project survey area east of the railroad tracks will be permanently developed to accommodate the solar array field, power generating facilities, access roads, and maintenance facilities. The entire footprint of the solar array will be graded level with a slight slope and compacted.

Transmission Line Structures

New conductor wires would transmit electrical power generated at the site to an interconnection point with the LADWP regional system west of SR-14. Two options are under consideration for interconnecting the Project to the existing LADWP Barren Ridge Switching Station.

Option 1 would involve constructing a new, approximately 3.5-mile 230-kV transmission line (of which approximately 1.6 miles will be within the plant site boundary), that would run west and southwest from the power block across SR-14 and south along an expanded LADWP right-of-

way (ROW) to the Barren Ridge Switching Station. Under Option 1, 0.9 mile of the transmission line (ten poles) are located in desert tortoise and potential Mohave ground squirrel habitat.

Option 2 would involve constructing a new, approximately 3.5-mile 230-kV transmission line (of which approximately 1.6 miles will be within the plant site boundary) to a new switching station to be constructed at the location where the Project's transmission line first meets LADWP's existing transmission ROW west of SR-14. A second, approximately one-mile 230kV transmission line would then be constructed within the expanded LADWP ROW to the Barren Ridge Switching Station (Figure 2). Under Option 2, approximately 1.5 mile of the transmission line (17 poles) are located in desert tortoise and potential Mohave ground squirrel habitat.

Under either transmission option, each pole location would require construction of a 50-foot by 50-foot pole pad. Pole height would range from 75 to 110 feet, depending on terrain and span length. Span length would range between 440 to 560 feet, averaging about 500 feet. During construction of the transmission line, pole site work areas and pull/splicing sites would be required. The pole site work areas measure 50 feet by 50 feet. The pull sites for the transmission lines average 50 feet by 140 feet each. The splicing site for the transmission line measures 95 feet by 200 feet. There will be no grading at the pole site work areas or the pull and splicing site; rather, vegetation will be crushed. The pole site work areas, pull sites, and splicing sites within desert tortoise and potential Mohave ground squirrel habitat would result in temporary disturbance that would be considered permanent based on slow recovery time of habitats in desert ecosystems. Under Option 1, up to 5.0 acres would be disturbed, which includes the access and spur roads, described below; under Option 2 (including a new switchyard), up to 5.8 acres would be disturbed (Table 1).

Under either transmission option, the new Project transmission line would tie into the existing Inyo-Rinaldi 230-kV transmission line at the existing Barren Ridge Switching Station; however, under Option 2, a new electrical switchyard would be built in association with the Project. Up to 1.7 acres of desert tortoise and potential Mohave ground squirrel habitat would be impacted by construction and Operations and Management (O&M) activities associated with the construction of the Option 2 switchyard and associated electrical tie-in. The switchyard is accessed from the existing graded patrol road that runs along the Inyo-Rinaldi line. Periodic maintenance activities for the transmission line could include cleaning of the line conductors and repair of equipment damaged by wind, dust, or accident. Activities could also include road and drainage structure repairs. Such activity would occur infrequently, perhaps once per year.

Anticipated impacts associated with the transmission line structures are summarized in Table 4.

Table 4
Estimated Natural Desert Tortoise and Mohave Ground Squirrel
Habitat Acreage West of SR-14 Potentially Impacted by
Transmission Line Interconnection Route

Feature	Quantity	Impact Dimensions per Feature	Square Feet	Acres
Option 1				
Pole Pad Construction	10	50' x 50'	25,000	0.6
Pull Property	3	50' x 140'	21,000	0.5
Splice Property	1	95' x 200'	19,000	0.4
Spur Roads	10	12' x 115'	13,800	0.3
Access Road	1	14' x 10,032'	140,400	3.2
Total Impact			219,200	5.0
Option 2				
Pole Pad Construction	17	50' x 50'	42,500	1.0
Pull Property	3	50' x 140'	21,000	0.5
Splice Property	1	95' x 200'	19,000	0.4
Spur Roads	17	12' x 115'	23,460	0.5
Access Road	1	14' x 5,280'	73,920	1.7
New Switchyard	1		74,052	1.7
Total Impact			242,932	5.8

New Switchyard

Under option 2, an electrical switchyard is proposed for interconnection with the existing LADWP transmission lines that cross the surveyed area west of SR-14. This switchyard will require a 1.7-acre pad. Anticipated impacts at the new switchyard are shown in Table 4.

Access

An existing dirt road off SR-14 will be upgraded (paved) to provide access to the solar array, power block, and support facilities on the plant site. Existing dirt roads west of SR-14 would provide construction and O&M access to transmission line structures whenever possible, with potential new access roads created under Option 1 (14 feet by 1.9 miles) would affect up to 3.2 acres; Option 2 (14 feet by 1.0 mile), would affect up to 1.7 acres. Additionally, spur roads (averaging 12 feet by 115 feet) to 10 pole sites under Option 1 (up to 0.3 acre) and 17 pole sites under Option 2 (up to 0.5 acre). Tortoise-proof secure gates will be installed where access roads leave SR-14 and enter the plant site.

Rerouted Desert Washes

Two existing desert washes that cross sections of the plant site will be rerouted in new, constructed channels (Figure 2). For the eastern wash, the new, revegetated channel will have an earthen bottom and will run immediately outside of the southern and eastern security fences of the plant site but inside the low-maintenance barbed-wire property fence and terminate northeast of the plant site where the existing wash currently disperses toward Koehn Lake. This new channel was designed to convey the volume and energy currently conveyed by the existing desert wash. The western, mostly unvegetated wash will be earthen bottom, and will be rerouted to pass west of the proposed evaporation ponds, follow the northern and western boundaries of the plant site, then turn east to pass through the plant site between solar arrays and terminate in the outflow of the eastern wash. The new channels will be constructed entirely within the permanent impact area within the plant site and therefore would not incur further permanent impacts.

4.1.2 Temporary Impacts

Natural Gas Pipeline

A natural gas pipeline will be constructed from California City to the solar block along California City Boulevard, Neuralia Road, and an existing dirt road that accesses the eastern edge of the plant site. This approximately 17.6-mile pipeline will occur entirely within the disturbed and developed shoulders of the existing roads and will avoid native habitat. Approximately 60.0 acres of disturbed habitat will be temporarily disturbed for the natural gas pipeline.

Construction Disturbance Areas

In addition to roads, a number of other areas associated with Project construction and operations must be cleared and graded. During the construction of the transmission line, pole site work areas (three at 50 feet x 140 feet) and splicing site work areas (one at 95 feet x 200 feet) would be required. While these are typically considered temporary impacts, they were considered permanent in calculating mitigation for the Project due to the slow recovery of native communities in desert ecosystems.

4.2 VEGETATION COMMUNITIES

4.2.1 Direct Impacts

Project-related activities would not result in significant direct impacts to sensitive vegetation communities because no sensitive vegetation communities occur in the survey area. All non-sensitive vegetation communities in the solar array area, areas associated with transmission structure footprints, access roads, equipment laydown areas, transmission line, and pipeline installation would be directly and permanently impacted (Table 5).

Table 5
Anticipated Permanent and Temporary Impacts to
Plant Communities and Waters of the State in the
Proposed Beacon Solar Energy Project Site

Vegetation Communities and Other Cover	Total Permanent Impact Acreage	Total Temporary Impact Acreage	Total Impact Acreage
Mojave Creosote Bush Scrub			
Option 1	4.1	0.9	5.0
Option 2	4.9	0.9	5.8
Mojave Desert Wash Scrub	59.0	0.0	59.0
Developed	7.2	60.0	67.2
Fallow Agricultural-Ruderal	1,573.8	0.9	1,574.7
Fallow Agricultural-Disturbed Atriplex Scrub	371.9	0.0	371.9
Waters of the State ¹	13.7	0.0	13.7
Total Option 1 Acres	2,016.0¹	61.8	2,077.8¹
Total Option 2 Acres	2,016.8¹	61.8	2,078.6¹

¹ Acreage of waters of the state not added to total as area is counted within other vegetation communities.

4.2.2 Indirect Impacts

Project-related activities would not result in significant indirect impacts to sensitive vegetation communities because there are no sensitive vegetation communities in the vicinity of the survey area. Potential indirect impacts to the vegetation communities surrounding the survey area would occur as a result of grading activities creating air-borne dust and potential off-site sedimentation. Potential permanent, indirect impacts include spreading of exotic species in native vegetation communities such as those in transmission line corridors, wildfires caused by new transmission wires destroying or disturbing native vegetation communities, and alteration of drainage patterns. Because Project design includes rerouting the desert wash that traverses the survey area by creating an open channel along the eastern side of the site that would direct flow to an existing drainage basin northeast of the site, potential indirect impacts to downstream

vegetation communities would be minimized. However, potential wildfires and sitewide ground-disturbing activities could adversely affect vegetation communities by altering adjacent vegetation boundaries and creating disturbed areas that are more conducive to invasion of exotic species. The introduction and invasion of exotic species could potentially reduce native population growth, dispersal, and recruitment. Project design will include efforts to avoid the increase in exotic vegetation, thereby reducing the impacts to surrounding vegetation communities to a level of insignificance.

Potential temporary, indirect impacts resulting from grading include sedimentation and erosion. While detailed evaluation of these impacts will occur following completion of a more refined Project layout, a Storm Water Pollution Prevention Plan (SWPPP) and a Drainage, Erosion, and Sedimentation Control Plan (DESCP) will be prepared to comply with Regional Water Quality Control Board (RWQCB) and CEC recommendations. The SWPPP and DESCP will identify the Project design features and BMPs that will be used to effectively manage drainage-related issues (e.g., erosion and sedimentation) during construction grading and for long-term operations.

4.3 JURISDICTIONAL WATERS

4.3.1 Direct Impacts

The waters of the state that traverse the site, approximately 13.7 acres within the plant site, would be directly affected by Project development; however, these impacts would be minimized to the greatest extent feasible by re-routing the washes around Project features, revegetating the eastern new channel, and terminating both channels at the original outflow of the eastern wash. The dry desert washes extending across the survey area likely would be considered state waters.

4.3.2 Indirect Impacts

No significant indirect impact to waters of the state would occur as a result of Project-related activities because these effects would be reduced to insignificance by impact avoidance, minimization, and mitigation measures outlined in the mitigation section of this document. Potential indirect impacts to state waters surrounding the survey area would occur as a result of grading activities creating air-borne dust and potentially off-site sedimentation. Potential permanent, indirect impacts include alteration of drainage patterns. Because Project design includes rerouting the desert wash that traverses the survey area by creating an open channel along the southern and eastern side of the site that would direct flows to an existing drainage basin northeast of the site, potential indirect impacts to downstream waters would be minimized.

4.4 PLANT SPECIES

4.4.1 Direct Impacts

Potential permanent, direct impacts to special status plant species, if present, may arise from implementation of the proposed Project by permanent development of the solar array, power generation and support facilities, transmission structure locations, and access roads.

Federally and State Listed Plant Species

No federally or state listed plants are considered to have the potential to occur within the survey area; therefore, no direct impacts to listed plant species would result from either Project construction or operation.

Nonlisted, Special Status Plant Species

Habitat conditions within the survey area create a moderate potential for Alkalai mariposa lily, Charlotte's phacelia, and creamy blazing star to occur within the Mojave Creosote Bush Scrub, Mojave Desert Wash Scrub, and Fallow Agricultural-Disturbed Atriplex Scrub vegetation communities (Figure 6). Red Rock tarplant and Red Rock poppy are considered to have a low potential to occur within the site. Due to low annual rainfall in 2007, conditions to adequately assess the site for these species were less than satisfactory, and therefore their absence from the site cannot be confirmed. If required, further surveys to assess the presence of these species in the survey area may be completed at a later date if average seed germination occurs in response to winter precipitation. With implementation of the impact avoidance, minimization, and mitigation measures outlined in the mitigation section of this document, the Project's direct impacts on nonlisted, special status plant species, if any, would be reduced to a level of insignificance.

4.4.2 Indirect Impacts

Potential permanent, indirect impacts to special status plant species, if present, may arise from population fragmentation and introduction of nonnative weeds. Population fragmentation could affect pollinator activity and hence gene flow. Introduction and establishment of invasive weeds within, or adjacent to, special status plant populations can adversely affect native species by

reducing growth and recruitment. Such impacts would be avoided through implementation of Project avoidance and minimization measures.

Potential temporary, indirect impacts could arise from runoff and sedimentation, erosion, fugitive dust, and unauthorized access by construction workers. Runoff, sedimentation, and erosion can adversely affect plant populations by damaging individuals or by altering site conditions sufficiently to favor other species that could competitively displace the special status species. Construction-generated fugitive dust can adversely affect plants by reducing the rates of metabolic processes such as photosynthesis and respiration. Unauthorized access by construction workers and their vehicles can trample and destroy individuals outside of, but immediately adjacent to, the proposed construction area. These impacts will be avoided, however, through implementation of Project avoidance and minimization measures.

Federally and State Listed Plant Species

Because no federally or state-listed plants have the potential to occur within the survey area, no indirect impacts to listed plant species would result from either Project construction or operation.

Nonlisted, Special Status Plant Species

As discussed above, habitat conditions within the survey area create a moderate potential for Alkalai mariposa lily, Charlotte's phacelia, and creamy blazing star to occur within the Mojave Creosote Bush Scrub, Mojave Desert Wash Scrub, and Fallow Agricultural-Disturbed Atriplex Scrub vegetation communities (Figure 6). Red Rock tarplant and Red Rock poppy are considered to have a low potential to occur within the site. Due to low annual rainfall in 2007, conditions to adequately assess the site for these species were less than satisfactory, and therefore their absence from the site cannot be confirmed. If required, further surveys to assess the presence of these species in the survey area may be completed at a later date if average seed germination occurs in response to winter precipitation. With implementation of the impact avoidance, minimization, and mitigation measures outlined in the mitigation section of this document, the Project's direct impacts on nonlisted, special status plant species, if any, would be reduced to a level of insignificance.

4.5 WILDLIFE SPECIES

4.5.1 Direct Impacts

The proposed Project could potentially result in direct impacts to special status wildlife species. For example, direct impacts could result from mortality of wildlife by crushing or vehicle collisions during construction and subsequent maintenance activities.

Federally Listed Wildlife Species – Desert Tortoise

No impacts to DT are expected within the plant site area due to lack of suitable habitat, although it is recognized that a low possibility exists that one or few transient tortoises may be found in regrowth habitats that connect to native habitat off-site (e.g., in the wash or in saltbush scrub). The vegetation regrowth community within the survey area is not DT habitat that could support the persistence or recovery of the DT population, even if one or a few tortoises are found on the site. Direct permanent and temporary impacts to the DT could potentially occur as a result of the installation of an electrical substation facility and transmission structures, which cumulatively could impact 5.0 acres (transmission Option 1) to 5.8 acres (transmission Option 2) of habitat associated with construction of these features. Temporary direct impacts to the DT could result from an increase in vehicle traffic while the Project is under construction and, consequently, an increase in vehicular strikes while tortoises are attempting to cross roads near the survey area.

Project mitigation, especially site fencing and a preconstruction DT clearance, will minimize any potential impacts to DT as a result of Project activities. Implementation of the impact avoidance, minimization, and mitigation measures outlined in the mitigation section of this document will reduce the Project's impacts on DT to a level of insignificance.

State Listed Wildlife Species - Desert Tortoise and Mohave Ground Squirrel

See above for discussion of impacts to the federally and state-listed DT. No impacts to MGS are expected to occur within the plant site due to lack of suitable habitat. However, the development of a substation facility, transmission line, access road to the plant site, and spur access roads in Mojave Creosote Bush Scrub west of SR-14 could potentially result in direct permanent and temporary impacts to 5.0 to 5.8 acres of suitable MGS habitat.

Implementation of the impact avoidance, minimization, and mitigation measures outlined in the mitigation section of this document will reduce the Project's impacts on MGS to a level of insignificance.

Nonlisted, Special Status Wildlife Species

Direct impacts to other non-listed, special status wildlife species could result from the installation of the transmission line, the establishment of work areas on-site, and wildlife mortality by crushing or vehicle collisions during Project construction and subsequent operations and maintenance activities. Direct impacts to the WBO and other birds listed under the Migratory Bird Treaty Act (MBTA) will be avoided by implementation of Project avoidance and minimization measures.

Direct impacts to WBO and other non-listed special status wildlife species could result from crushing of occupied burrows and destruction of nests; collisions with construction and maintenance vehicles; and taking of breeding and wintering habitat as a result of development of the solar array, power generation and support facilities, access roads, maintenance facilities, and transmission line and substation. Based on WBO survey data, the Project locations of the power generation and support facilities, transmission structures, access roads, and electrical substation would permanently impact three pairs of WBO. Implementation of the impact avoidance, minimization, and mitigation measures outlined in the mitigation section of this document will reduce the Project's impacts on WBO and other non-listed, special status wildlife species to a level of insignificance.

4.5.2 Indirect Impacts

The proposed Project could potentially result in temporary and permanent indirect impacts to special status wildlife species. These impacts would be reduced to insignificance by implementation of Project avoidance, minimization, and mitigation measures outlined in the mitigation section of this document. Temporary indirect impacts could result from dust accumulation on surrounding vegetation; increased ambient noise levels in adjacent plant communities; use of unnatural lighting during dawn, dusk, or nighttime construction; wildfires caused by new transmission wires destroying or disturbing habitat; accumulation of waste material in evaporation ponds; or changes in surface drainage patterns following precipitation events.

Dust accumulation on surrounding vegetation, increased ambient noise levels adjacent to construction areas, and wildfires could potentially lead to temporary, indirect impacts to special status avian species that may use the adjacent plant communities by disrupting their natural foraging patterns and destroying foraging habitat. If construction activities are conducted at night, the use of unnatural lighting could temporarily indirectly impact special status wildlife

species adjacent to construction areas by increasing possible detection by predators. Accumulated waste material in evaporation ponds could adversely affect shorebirds that stop over and use the pond during migration. Groundwater at the plant site was tested for toxic pollutants such as selenium and concentrations were found to be below accepted thresholds. If necessary, waste material will be removed and disposed of at an appropriate facility. Potential indirect impacts associated with changes in drainage patterns would be reduced to insignificance by implementation of the SWPPP and DESCP, which will include flood management procedures.

Permanent indirect impacts to special status wildlife species resulting from the proposed Project could also include: (1) habitat fragmentation, where removal of habitat elements results in separation of formerly connected habitat patches; (2) increased raptor predation on reptiles, songbirds, and small mammals resulting from an increase in perch sites provided by support structures such as transmission line towers; and (3) alteration of surface drainage patterns, which may cause differential senescence and death of plant species used by special status wildlife species. Indirect impacts from habitat fragmentation are expected to be less than significant due to the previously disturbed nature of the majority of the site, and the relatively small and discontinuous areas of native habitat that would be affected by the Project. The effects of potentially increased raptor predation on small animals and changes in surface drainage patterns on special status wildlife species are discussed further below.

Federally Listed Wildlife Species – Desert Tortoise

Indirect impacts to the DT could occur from increased common raven predation associated with the installation of new evaporation ponds and the introduction of new elevated perching sites (e.g., new transmission line towers). Biologists monitoring one groundwater pump test in September 2007 noticed 15 to 20 common ravens using the temporarily ponded water, an increase from two to five common ravens seen daily prior to the groundwater pump test. While this attraction is not within DT habitat, the movement of common ravens throughout the area and over potential DT habitat at the western edge of the survey area (e.g., between open water and transmission line perches) could increase the chances of a raven encountering and depredating a DT. Those impacts will be avoided or minimized, however, by implementation of a raven management plan. Indirect impacts to the DT from potential deposition of sediment loads during heavy rain events and flooding downstream of the site, which could impact existing DT burrows outside of the survey area, would be minimized by Project design (i.e., rerouting the desert wash and connecting to an off-site channel and grading and compacting the entire footprint of the solar array, thereby reducing on-site erosion). Similarly, indirect impacts to DT habitat by changes in

drainage patterns potentially altering off-site vegetation communities would be minimized by Project design. Implementation of the impact avoidance, minimization, and mitigation measures outlined in the mitigation section of this document will reduce the Project's indirect impacts on DT to a level of insignificance.

State Listed Wildlife Species – Desert Tortoise and Mohave Ground Squirrel

The potential indirect impacts on desert tortoise are discussed above. Indirect impacts to the MGS could occur from increased raptor and common raven predation associated with the installation of new evaporation ponds in addition to elevated perching sites, including the tower structures, the transmission lines, and support structures, as discussed above for DT. Indirect impacts to the MGS from potential deposition of sediment loads during heavy rain events and flooding downstream of the site, which could impact existing MGS habitat, would be minimized by Project design (i.e., rerouting the desert wash and connecting to an off-site channel and grading and compacting the entire footprint of the solar array, thereby reducing on-site erosion). Similarly, indirect impacts to MGS habitat by changes in drainage patterns potentially altering off-site vegetation communities would be minimized by Project design. Implementation of the impact avoidance, minimization, and mitigation measures outlined in the mitigation section of this document will reduce the Project's indirect impacts on MGS to a level of insignificance.

Nonlisted, Special Status Wildlife Species

Indirect impacts could result from increased common raven and raptor predation associated with the installation of new evaporation ponds, in addition to new elevated perching sites, including the tower structures, the transmission lines, and support structures, as discussed above for DT. Indirect impacts from potential deposition of sediment loads during heavy rain events and flooding downstream of the site, which could impact existing habitat outside of the survey area, would be minimized by Project design (i.e., rerouting the desert wash and connecting to an off-site channel and grading and compacting the entire footprint of the solar array, thereby reducing on-site erosion). Similarly, indirect impacts to habitat by changes in drainage patterns potentially altering off-site vegetation communities would be minimized by Project design. Implementation of the impact avoidance, minimization, and mitigation measures outlined in the mitigation section of this document will reduce the Project's indirect impacts on non-listed, special status wildlife species to a level of insignificance.

Direct impacts could result from mortality of wildlife by crushing or vehicle collisions during operation and maintenance activities. Project mitigation, especially site fencing, will minimize

any potential impacts to DT as a result of Project activities. Implementation of the impact avoidance, minimization, and mitigation measures outlined in Chapter 6.2 will reduce the Project's impacts on listed and special status wildlife species to a level of insignificance.

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 could potentially adversely affect shorebirds that stop over and use the pond during migration.

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). The selenium discharge concentration within the evaporation ponds has been calculated at 0.0028 milligrams per liter (mg/L). 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 BSEP 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 [*Anas platyrhynchos*] and black-crowned night heron [*Nycticorax nycticorax*] 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, and

the implementation of those pertinent mitigation measures will reduce the effects of those compounds on wildlife species to a level of insignificance.

Overall, implementation of the impact avoidance, minimization, and mitigation measures outlined in Chapter 6.2 will reduce the Project's indirect impacts on special status species to a level of insignificance.

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CHAPTER 5

REGULATORY SETTING

5.1 STATE AND LOCAL JURISDICTIONS

The Project requires biological resource-related approvals from the CEC and CDFG. The CEC licensing process is a CEQA-equivalent process under the Warren-Alquist Act. It is anticipated that CDFG will take jurisdiction over any waters associated with the Project and a CDFG Streambed Alteration Agreement (SAA) would be required for impacts to waters of the state. While the formal land use permitting is handled through the CEC licensing process, the CEC incorporates local agency requirements into its license and thus Kern County's land use zoning, plans, and policies also are important.

The anticipated local and state actions/authorizations pertaining to potential Project effects on biological resources are as follows:

- CEC: Electricity-generating facility license and associated CEQA compliance
- CDFG:
 - SAA, CFG Code Section 1602, and
 - CESA, CFG Code Section 2081(CDFG would be a “responsible agency” to the CEC’s lead agency CEQA process)

Review of Project impacts and avoidance and minimization measures, and issuance of formal authorizations by CDFG will be needed before Project construction can begin. These reviews and authorizations are described further below.

5.1.1 Review and Authorization for Impacts to State Waters

Because the Project may affect state jurisdictional waters, a SAA is expected to be required from CDFG. Under CFG Code Sections 1600-1616, CDFG regulates activities that would alter the flow, bed, channel, or bank of streams and lakes in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit.

Project proponents must provide CDFG with written notification before activities begin that will:

- Substantially divert or obstruct the natural flow of any river, stream, or lake;

-
- Substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or
 - Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake.

Notification is generally required for any activity that will take place in or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks and support fish or other aquatic life, and watercourses having a surface or subsurface flow that support or have supported riparian vegetation. Generally, CDFG is concerned with activities that have the potential to impact state-regulated resources at the activity site, as well as the effects of those actions on the ecosystem at and surrounding the activity (i.e., upstream, downstream, and neighboring). As needed, the process of working with CDFG to develop a draft SAA will identify modifications to Project features, if any, to avoid or decrease potential impacts on fish and wildlife resources.

5.1.2 Review and Authorizations for Impacts to State Listed Species

The CESA requires issuance of a take authorization, pursuant to California Fish and Game (CFG) Code Section 2081, for species listed by the state as endangered or threatened. MGS and DT are two state listed species that may be affected by the Project. Because DT are present and MGS are assumed to be present in areas associated with the proposed transmission line, the Project will obtain a Section 2081 permit for MGS and either a Section 2081 permit for DT, or a CDFG concurrence under CESA Section 2080.1 with the federal take authorization issued by USFWS for DT under the federal ESA. The federal process is discussed below.

5.1.3 Compliance With Other State Laws

The Project also will comply with CFG Code Section 3503, which prohibits take, possession, or needless destruction of the nests or eggs of any bird, except as otherwise provided by the code or any regulation made pursuant thereto and CFG Code Section 3503.5, which prohibits take, possession, or destruction of any birds in the orders Falconiformes or Strigiformes (birds of prey) or take, possession, or destruction of the nests or eggs of any such bird except as otherwise provided by the code or any regulation adopted pursuant thereto.

5.2 FEDERAL ACTIONS

It is not anticipated that the Project will have any impacts on waters of the United States, and therefore no permitting will be required from the U.S. Army Corps of Engineers (USACE) under the federal Clean Water Act. A permit will be obtained under the federal ESA for impacts to the DT, which is listed as threatened under that act. The anticipated federal action/authorization pertaining to potential Project effects on biological resources, therefore, will be limited to a Section 10 Low Effect Habitat Conservation Plan (HCP) and Incidental Take Permit (ITP) issued by the USFWS pursuant to the Federal ESA.

5.2.1 Review and Authorizations for Impacts to Federal Waters

Waters that traverse the survey area flow into Koehn Lake, which was determined to be an isolated water body (through the jurisdictional review of an adjacent project unrelated to Beacon Solar, LLC and The Beacon Solar Energy Project) and not within USACE jurisdiction (USACE letter to the City of Los Angeles, dated July 22, 2003). The USACE and the U.S. Environmental Protection Agency have granted official concurrence of no waters of the United States within the survey area (Attachment H). Therefore the USACE will not take jurisdiction over any waters associated with the Project.

5.2.2 Review and Authorizations for Impacts to Federally Listed Species

Because the DT is protected by the ESA and CESA and is known to exist in the survey area, the requirements of both laws must be met. ESA permitting will be obtained through Section 10, which requires preparation of an HCP and issuance of an ITP by USFWS. Because the survey area has been previously heavily disturbed by agricultural activities and the potential impacts to listed species are minimal, the Project will obtain ESA permitting from USFWS using the “Low Effect” HCP process.

5.2.3 Compliance With Other Federal Laws

The Project also will comply with the BGEPA and the MBTA. National guidelines for eagle management have been published by the USFWS (2007) to assist land owners, land managers, and the general public in determining when and under what circumstances protective provisions of the BGEPA apply to their activities. The MBTA prohibits “take” of migratory birds, raptors, and eagles, where “take” is defined as pursue, hunt, shoot, wound, kill, trap, capture, possess, or collect. In addition, the BGEPA also prohibits “take” of bald or golden eagles, their parts, nests,

and eggs, and further defines “take” as pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb, where disturb is defined as:

...agitate or bother...to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding or sheltering behavior.

This definition includes impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle’s return, such alterations agitate or bother an eagle to a degree that injures an eagle or substantially interferes with normal breeding, feeding, or sheltering habitats and causes, or is likely to cause, a loss of productivity or nest abandonment.

CHAPTER 6

AVOIDANCE, MINIMIZATION, AND CONSERVATION MEASURES

6.1 GENERAL AVOIDANCE AND MINIMIZATION 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. A Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) has been developed for review by the CEC as a Condition of Certification. The BRMIMP comprehensively describes avoidance, minimization, and mitigation measures, and provides a matrix to document their implementation and monitor their effectiveness. Those measures include:

- All temporary and permanent impact areas will be surveyed for listed species within 30 days prior to commencement of construction activities in the survey area. Rare plant species identified during pre-activity surveys will be flagged for avoidance.
- 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. 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.
- 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 during pre-activity surveys to indicate priority for avoidance.
- 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.
- 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.

- The pipeline construction will involve nearly simultaneous trenching, laying of pipe, and backfilling so that no open trenches will be left unattended during daylight hours. Any open trenches that cannot be backfilled will be covered with steel plates at night. Biological monitors will attend pipeline construction to ensure that special status resources are avoided or moved to a safe location when necessary.
- Spoils will be stockpiled in disturbed areas presently lacking native vegetation. Stockpile areas should be marked to define the limits where stockpiling can occur.
- Best Management Practices (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 (2) days of discovery.
- 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.
- Construction activity will be monitored by a qualified biologist to ensure compliance with avoidance and minimization measures.
- The Project proponent 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 prior to initiation of the Project.
- The introduction of exotic plant species will be avoided and controlled wherever possible, and may be achieved through physical or chemical removal and prevention. Preventing exotic plants from entering the site via vehicular sources will include measures such as implementing Trackclean or other method of vehicle cleaning for vehicles coming and going from the site. Earth-moving equipment shall be cleaned prior to transport to the project site. Weed-free rice straw or other certified weed-free straw will be used for erosion control. Weed populations introduced into the site during construction will be eliminated by chemical and/or mechanical means approved by the CDFG, USFWS, and CEC.

6.2 RESOURCE-SPECIFIC AVOIDANCE, MINIMIZATION, AND CONSERVATION MEASURES

Resource-specific impact avoidance, minimization, and mitigation measures for the 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.

6.2.1 Vegetation Communities

No mitigation is required to compensate for nonsensitive vegetation that would be directly impacted by the Project (see below for mitigation required to compensate for impacts to the vegetation communities that are considered state waters or suitable habitat for listed species).

6.2.2 Sensitive Vegetation Communities

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

6.2.3 Waters of the State

Project related direct permanent and temporary impacts to approximately 13.7 acres of state waters, in the form of the ephemeral washes occurring within the project boundaries are anticipated. The Project would apply a mitigation ratio of 1:1 for the direct impacts to approximately 13.7 acres of state waters. Compensatory mitigation would be achieved by onsite and in-kind planting of desert wash scrub vegetation within and immediately adjacent to the channels, in order to provide erosion control and bank stabilization. Project design includes rerouting both existing washes. The eastern wash will be rerouted to follow the southern and eastern boundaries of the plant site and ultimately match the original sheet flow drainage path just northeast of the plant site (Figure 2). The rerouted channel will be approximately 14,000 feet long. The realigned dry wash will be a 3:1 trapezoidal channel, with a minimum bottom width of 345 feet (to a maximum of about 2,900 at the end of transition to sheet flow). The proposed average channel depth is about 8 feet. Channel side dirt berms are used to accomplish the transition from the 8' depth channel bottom to daylight to the existing ground at the northeast corner of the plant site. The western, mostly unvegetated wash will be rerouted to a swale west of the proposed evaporation ponds, then follow the northern and western boundary of the plant site, pass through the plant site between solar arrays, and join the eastern wash outflow, east of the plant site. The swale will be approximately 9,000 feet long with an average depth of one foot and a minimum bottom width of 15 feet. Each rerouted wash will have an earthen bottom. The

proposed rerouted channels will meet the requirements of Kern County through use of the methodology outlined in the “Kern County Hydrology Manual” and “County Division Four Standards for Drainage.” The rerouted channels will be sized to convey Capital Storm Design Discharge for a 100-year event with a minimum of one foot of freeboard above the water surface elevation. Project-specific mitigation would be refined in consultation with CDFG.

6.2.4 Special Status Plants

Mitigation for rare plants, if required, will be based on the results of future surveys should they occur. Appropriate mitigation would be provided and will include avoidance, where possible, or other conservation measures.

6.2.5 Special Status Wildlife

Anticipated mitigation requirements for the Project’s permanent impacts to habitats occupied, or presumed occupied, by special status wildlife species (DT, MGS, and WBO) are outlined in Table 6. Mitigation for permanent impacts to these species is generally provided by acquiring and conserving in-kind habitat of equal or greater value than the habitat impacted.

**Table 6
Anticipated Mitigation for Impacts to Habitats for
Special Status Wildlife Species within the Beacon Solar Energy Project Site**

Listed Species	Mitigation Ratio	Option 1		Option 2	
		Total Impact ¹	Total Mitigation Acreage	Total Impact ¹	Total Mitigation Acreage
Desert Tortoise	1:1	5.0	5.0	5.8	5.8
Mohave Ground Squirrel	2:1	5.0	10.0	5.8	11.6
Western Burrowing Owl	6.5 - 19.5:1 ²	3 WBO pairs	19.5 - 58.5	3 WBO pairs	19.5 - 58.5
Total			29.5 – 68.5		31.1 – 70.1

¹ The temporary impacts are considered permanent in this desert ecosystem.

² Per CBOC/CDFG guidelines.

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

Mitigation totals may be lower than 70.1 acres, depending upon whether or not habitats suitable for these species overlap one another and which transmission line option is used. Additional discussion of the mitigation required for DT, MGS, and WBO is presented below.

Desert Tortoise

Avoidance, minimization, and mitigation measures for the DT would include the following:

1. Prior to the onset of construction, the entire plant site (east of the railroad tracks) will be enclosed with a permanent tortoise-proof fence to keep tortoises in habitat adjacent to the site from entering the site during construction and operations phases. The fencing type will be one- by two-inch vertical mesh galvanized fence material, extending at least two feet above the ground and buried at least one foot. Where burial is impossible, the mesh will be bent at a right angle toward the outside of the fence and covered with dirt, rocks, or gravel to prevent the tortoise from digging under the fence. Tortoise-proof gates will be established at all site entry points. Any utility corridors and tower locations will be temporarily fenced to prevent tortoise entry during construction. Temporary fencing will follow guidelines for permanent fencing and supporting stakes will be sufficiently spaced to maintain fence integrity. All fence construction will be monitored by qualified biologists (see #3, below) to ensure that no tortoises are harmed. Following installation, the fencing will be inspected monthly and during all major rainfall events. Any damage to the fencing will be repaired immediately.
2. A clearance for any desert tortoises that may be on the site east of the railroad tracks will be conducted in all areas with shrub cover. A minimum of two clearance passes will be completed after tortoise-proof fencing is installed and these will coincide with heightened tortoise activity, from late March through May and during October. This will maximize the probability of finding all tortoises. It is anticipated that no or very few tortoises will be found. Any tortoises found will be translocated to a location outside of the tortoise-proof fencing but within the plant site (e.g., the newly rerouted desert wash) using techniques approved by Agency Representatives. Translocation should only occur when daily ground temperatures do not exceed 42 degrees Centigrade (°C) (i.e., early spring or fall), so that animals can safely find refuge in potentially unfamiliar areas without the added constraints of lethal temperatures. No tortoises will be translocated between mid-April and early October, unless ambient temperatures are favorable. If the schedule of construction requires that clearance surveys continue past the safe time to translocate tortoises (i.e., past early April), then continued searches for tortoises would include temporarily affixing found tortoises with transmitters for ease of refinding them and translocating them during autumn, at a safe time for translocation. Once the site is deemed free of desert tortoises after two

consecutive clearance passes, then heavy equipment will be allowed to enter the sites to perform construction activities.

West of SR-14, tortoises will be monitored during construction activity to avoid direct impacts to individuals, or all tortoises will be sought and fenced out of construction zones. Tortoises may be moved during seasons when daily ambient temperatures exceed lethal levels, but only late in the day when ground temperatures fall below 42°C and air temperatures fall below 32°C. These tortoises will be temporarily monitored to ensure that their behaviors resulting from translocation do not affect their survival.

Following site clearance, a report will be prepared by the Project Authorized Biologist (see #3) to document the clearance surveys, the capture and release locations of all tortoises found, individual tortoise data, and other relevant data. This report will be submitted to Agency Representatives.

3. In the unlikely event that a tortoise is found on the site during Project Operations, the tortoise will be captured, boxed in a clean, escape-proof box, and temporarily maintained in a cool, quiet, safe location until the Authorized Biologist can arrive to remove it from the site, no more than one day. The capture location will be recorded. If ambient temperatures exceed lethal levels on a daily level, the Authorized Biologist will confer with CDFG and USFWS representatives prior to transporting the tortoise outside the tortoise-proof fence.
4. An Authorized Biologist (AB) and Biological Monitor(s) (BM) will be appointed to oversee compliance with the protection measures for the desert tortoise and other species. The AB or BM will be on site during fencing activities. The AB or BM will have the right to halt all activities that are in violation of the tortoise protection measures. Work will proceed only after hazards to the desert tortoise are removed and the species is no longer at risk, or the individual has been moved from harm's way by the AB. The AB and BM will have in their possession a copy of all the compliance measures while work is being conducted on site.
5. The proponent will submit the names and statement of qualifications of all proposed ABs and BMs to USFWS, the Department, and CEC (Agency Representatives) for review and approval at least 30 days prior to initiation of any tortoise handling, clearance, and preactivity surveys. Project activities will not begin until the ABs and BMs are approved by the aforementioned agencies. Only ABs will be allowed to handle and relocate desert tortoises when necessary. Biological monitors will ensure compliance with the protection measures

but will not be allowed to survey for or handle desert tortoises. Workers will notify the AB or BM of all desert tortoise observations.

6. The AB and BM will be responsible for awareness trainings, surveys, compliance monitoring, and reporting.
7. Personnel will utilize established roadways (paved or unpaved) in traveling to and from the survey area and also will utilize existing tracks on-site whenever possible. Cross-country vehicle and equipment use outside designated work areas will be prohibited. To minimize the likelihood for vehicle strikes of DTs, a speed limit of 25 miles per hour will be established for travel within DT habitat.
8. A trash abatement program will be established. Trash and food items will be contained in closed containers and removed daily to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs.
9. Workers will be prohibited from bringing pets and firearms to the site.
10. As much as is feasible, parking and storage will occur within the tortoise exclusion fencing. Anytime a vehicle or construction equipment is parked for longer than two minutes in unfenced desert tortoise habitat, the ground under the vehicle will be inspected for the presence of desert tortoise before the vehicle is moved. If a desert tortoise is observed, it will be left to move on its own. If it does not move within 15 minutes, the AB will remove and relocate the animal to a safe location.
11. All vehicles and equipment will be in proper working condition to ensure that there is no potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The AB and BM will be informed of any hazardous spills within 24 hours. Hazardous spills will be immediately cleaned up and the contaminated soil will be properly disposed of at a licensed facility.
12. Intentional killing or collection of either plant or wildlife species including listed species such as the DT in the survey area and surrounding areas will be prohibited. The AB, BM, and Agency Representatives will be notified of any such occurrences within 24 hours.
13. For emergency response situations, the AB will notify the Agency Representatives within 24 hours. As a part of this response, the Agency Representatives may require additional measures to protect the DT. During any responses related to human health, fire, hazardous

waste, or repairs requiring off-road vehicle and equipment use, the Agency Representatives may also require measures to recover damaged habitat.

14. Water will be applied to the construction right-of-way, dirt roads, trenches, spoil piles, and other areas where ground disturbance has taken place to minimize dust emissions and topsoil erosion. During the DT active season, a BM will patrol these areas to ensure water does not puddle for long periods of time and attract DTs, common ravens, and other wildlife to the site.
15. Upon locating a dead or injured DT, the AB will make initial notification to the Agency Representatives within 24 hours of its finding. The notification must be made by telephone and writing to the nearest USFWS Field Offices. The report will include the date and time of the finding or incident (if known), location of the carcass, a photograph, cause of death (if known), and other pertinent information. Tortoises fatally injured as a result of Project-related activities will be submitted for necropsy as outlined in Salvaging Injured, Recently Dead, Ill, and Dying Wild, Free-Roaming Desert Tortoises (*Gopherus agassizii*) (Berry 2003). Tortoises with fewer major injuries will be transported to a nearby qualified veterinarian for treatment at the expense of the proponent. If an injured animal recovers, the offices of the Agency Representatives will be contacted for final disposition of the animal.
16. On a monthly basis until construction is completed, the AB will prepare a brief report for the Agency Representatives, documenting the effectiveness and practicality of the protection measures that are in place and making recommendations for modifying the measures to enhance species protection, as needed. The report will also provide information on the overall biological resources-related activities conducted, including the worker awareness training, clearance/preactivity surveys, monitoring activities, and any observed DTs including injuries and fatalities.

In addition to the measures discussed above, the Project proponent will compensate for impacts to DT habitat in the area west of the plant site potentially affected during construction activities related to the transmission line. This will be accomplished either by land acquisition acceptable to USFWS, CDFG, and CEC or an assessed financial contribution calculated based on the final construction footprint. Direct permanent and temporary impacts to 5.0 or 5.8 acres of potential DT habitat would be mitigated at a 1:1 ratio (Table 6). A 1:1 ratio is considered to be sufficient because of: (a) the documented reduction in habitat quality for areas adjacent to well-traveled roads; and (b) the minor biological significance of the small and dispersed surface disturbance resulting from construction of the transmission line. Habitat conservation generally consists of

the off-site purchase of in-kind habitat of equal or greater value than that impacted. Funding for the long-term management of the land preserved will also be required. The location of the preserved land and the management program would be negotiated between the resource agencies (including the CEC) and the Project applicant.

In addition to the avoidance and minimization measures outlined above, the Project proponent would implement any measures required by the CEC and CDFG as a condition of Project certification.

Mohave Ground Squirrel

As noted above, impacts to potential MGS habitat would require mitigation. On October 15, 2007, Dr. Leitner conducted a site evaluation of potential MGS habitat in the western portion of the survey area, primarily west of SR-14 where portions of the transmission line would be constructed. He concluded that the habitat in this area is of moderate quality, and a mitigation ratio of 2:1 would be appropriate. The Project therefore proposes to compensate for the potential direct permanent and temporary loss of 5.0 or 5.8 acres of potential MGS habitat (see Table 6) at a ratio of 2:1. Funding for the short term enhancement and long-term management of the compensation land also will be provided on a per acre basis. Because DT, MGS and WBO typically co-occur within the same habitat type, and the rare plants with moderate potential to occur within the survey area also share the same habitat requirements, the Project intends to purchase compensation lands that also would support DT, MGS, WBO and these rare plants, to mitigate impacts to both wildlife species and special status plants (if any).

As with DT, to help avoid and minimize impacts to the species, a BM should be on-site during all construction activities in potential MGS habitat. Addressing potential MGS-related concerns will be part of the biological portion of the construction worker education program mentioned above. Trash and food items should be removed from the plant 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 Beacon Solar Energy Project.

Western Burrowing Owl

Avoidance and minimization of impacts to WBO will consist of the following:

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1. A preconstruction survey of the permanent and temporary impact areas will be conducted to locate active WBO burrows. The survey will consist of walking parallel transects and noting any fresh WBO sign or presence of WBOs (may be combined with DT preconstruction surveys).
 2. No disturbance will occur within 160 feet of occupied burrows during the nonbreeding 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 that either 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.
 3. WBOs within the temporary or permanent impact areas and a 160-foot buffer will be excluded from active burrows during the nonbreeding season (September 1 – January 31) and encouraged to passively relocate to suitable, unoccupied habitat at least 160 feet outside of the exclusion area. Off-site 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 for WBO will be preserved for each pair impacted. After burrows are confirmed to no longer be in use (1 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 WBO 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. WBOs will not be moved or excluded from burrows during the breeding season.
 4. A BM will be on-site during all construction activities in potential WBO habitat.
 5. The WBO will be covered as part of the WEAP element of the CEC-required BRMIMP.
 6. Trash and food items will be removed from the plant site daily and disposed of properly to avoid attracting ravens, a potential predator of the WBO.
 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 Beacon Solar Energy 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. Three burrowing owls have been documented to occur within the plant site in different areas, although one individual may have been depredated prior to the final survey. Assuming that each detected WBO is part of a mated pair and therefore the plant site supports three burrowing owl pairs, the anticipated mitigation is anticipated to be 19.5 to 58.5 acres of suitable habitat at a location approved by 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 (in addition to the WBO 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 DT or WBO 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 off-site. After 48 hours post-installation, the den will be excavated and collapsed, following the same protocol as with WBO burrows. These dens will be collapsed prior to construction of the DT fence, to allow badgers the opportunity to move off-site without impediment. Alternatively, a qualified biologist will trap and remove badgers from occupied dens and translocate them off-site into appropriate habitat.

The water discharged to the evaporation ponds will be routinely tested, throughout the active life of the facility. If any constituent of the pond water, in particular selenium, reach levels that may

adversely effect migratory bird species, then the Project would coordinate with the pertinent resource agencies to develop additional avoidance measures, such that no significant effect would occur to migratory bird species.

CHAPTER 7

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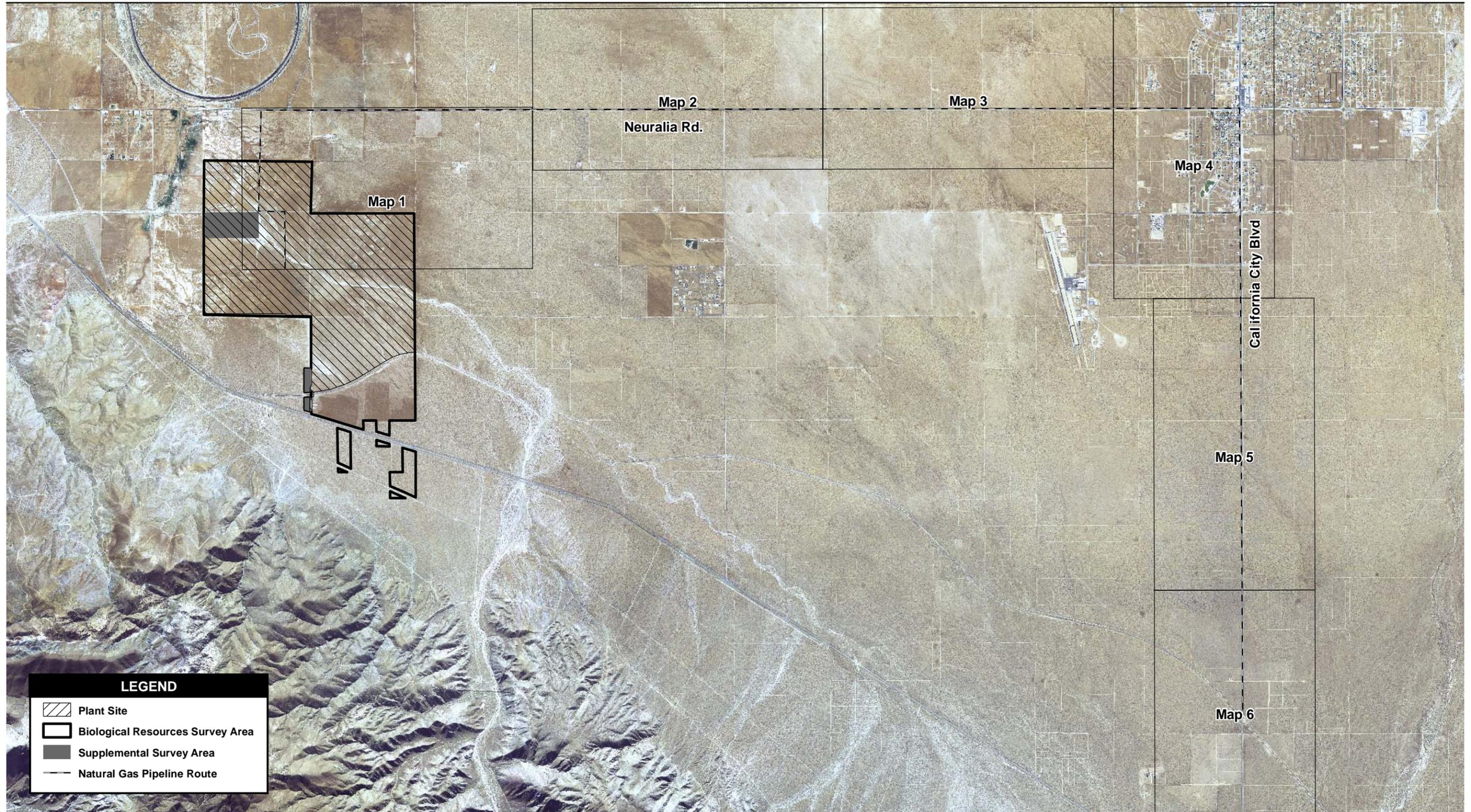
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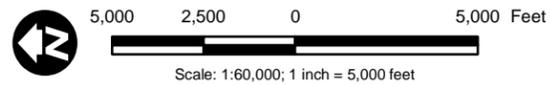
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ATTACHMENT A

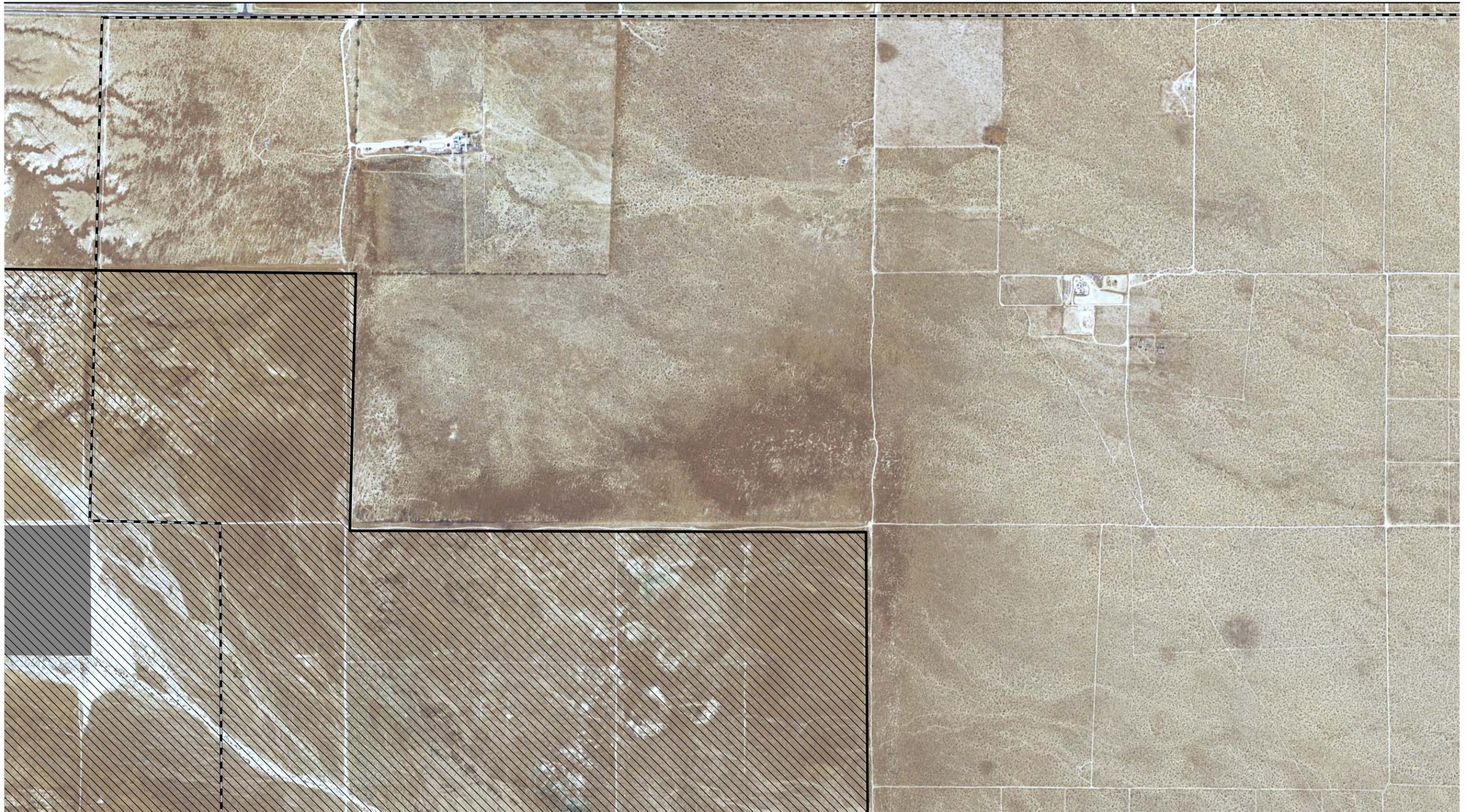
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AT 1:12,000-SCALE RESOLUTION**



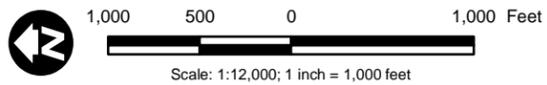
Source: NAIP 2005; Worley Parsons 2007



**Attachment A
Natural Gas Pipeline**



Source: NAIP 2005; Worley Parsons 2007



Attachment A
Natural Gas Pipeline

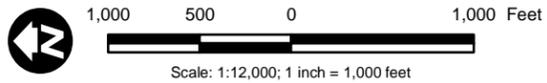
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Map 1



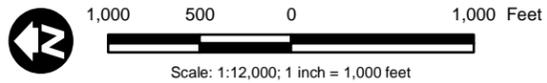
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Attachment A
Natural Gas Pipeline



Source: NAIP 2005; Worley Parsons 2007



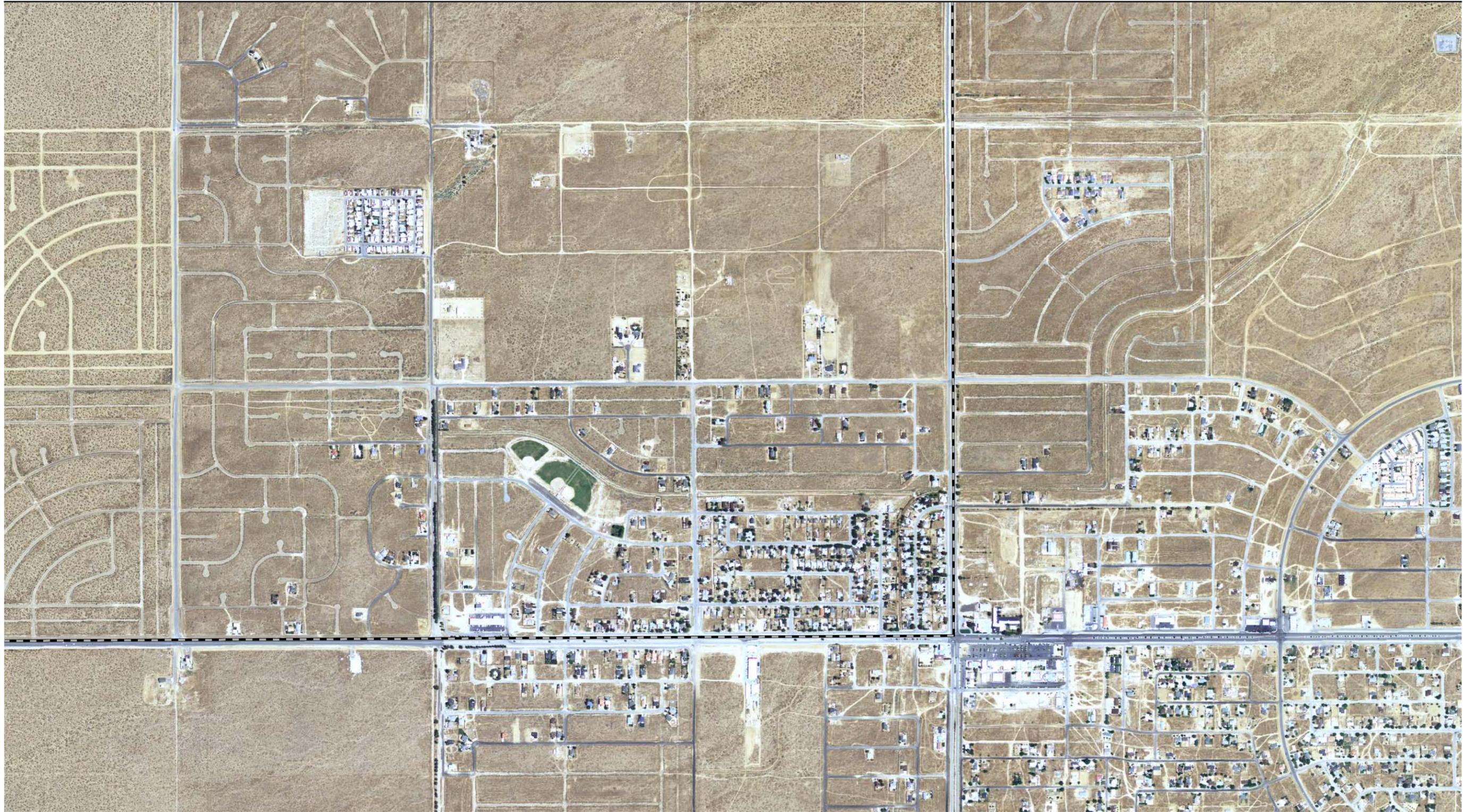
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Attachment A
Natural Gas Pipeline

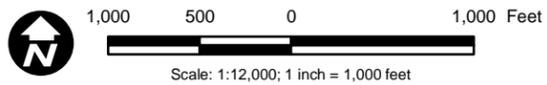
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Map 3



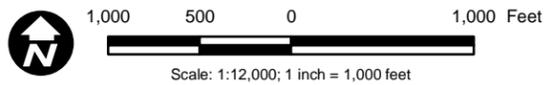
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Attachment A
Natural Gas Pipeline



Source: NAIP 2005; Worley Parsons 2007

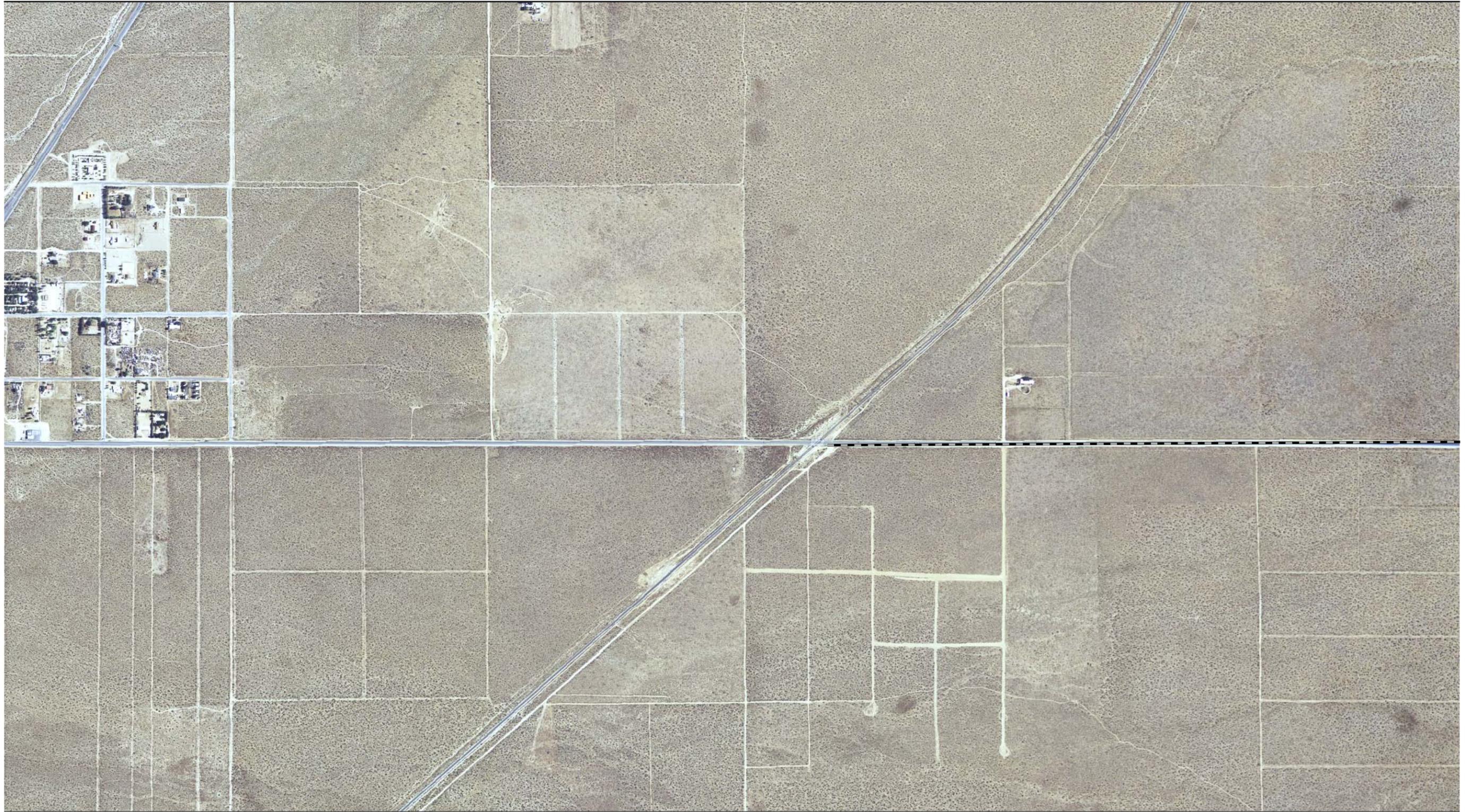


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Natural Gas Pipeline

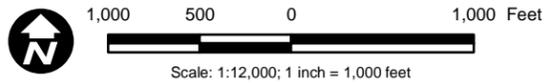
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Map 5



Source: NAIP 2005; Worley Parsons 2007



Attachment A
Natural Gas Pipeline

ATTACHMENT B

**LIST OF FIELD BIOLOGISTS
AND QUALIFICATIONS**

ATTACHMENT B
LIST OF FIELD BIOLOGISTS AND QUALIFICATIONS

Name	Affiliation	Surveys Performed	Qualifications
Barbra Calantas	EDAW, Inc.	Western Burrowing Owl	Five years of experience as a wildlife biologist in southern California, and regularly conducts habitat assessments and focused surveys for various sensitive plant and wildlife species, including raptors, burrowing owl, and other sensitive birds.
Josh Corona-Bennett	EDAW, Inc.	Rare Plants Vegetation Mapping	Ten years of experience as a restoration ecologist that includes performing habitat restoration, rare plant surveys, vegetation mapping, and habitat assessments throughout the southern California region.
Andrea CurryLow	EDAW, Inc.	American Badger Desert Tortoise Western Burrowing Owl	Three years of professional consulting and survey experience including conducting biological reconnaissance surveys, vegetation mapping, and focused surveys for sensitive wildlife species, especially those in arid desert ecosystems, such as the burrowing owl and desert tortoise. Attended desert tortoise surveying, monitoring, and handling techniques workshop. Has over 600 hours of desert tortoise survey experience and is approved to handle desert tortoise.
Jeanette Duffels	EDAW, Inc.	Rare Plants Vegetation Mapping	Five years of professional consulting and survey experience including biological reconnaissance surveys, vegetation mapping, and focused surveys for sensitive plant species.
Katie Hall	EDAW, Inc.	American Badger Desert Tortoise Rare Plants Vegetation Mapping Western Burrowing Owl	Over 6 years of multidisciplinary experience; serving as environmental scientist, ecologist, on various projects related to ecological assessment, conducting biological reconnaissance surveys, vegetation mapping, and focused desert tortoise and avian protocol surveys. Has 230 hours of supervised experience surveying for desert tortoise.
Bruce Hanson	EDAW, Inc.	Rare Plants Vegetation Mapping	Over 10 years of experience of professional consulting and survey experience including vernal pools surveys, rare plant surveys, and vegetation mapping in California and Mexico.

Name	Affiliation	Surveys Performed	Qualifications
Kyle Harper	EDAW, Inc.	Western Burrowing Owl	Supervised by B. Calantas. One year of experience conducting vegetation mapping, global positioning system (GPS) data collection, focused rare plant surveys, and habitat assessments.
Suellen Lynn	EDAW, Inc.	Western Burrowing Owl	Sixteen years of professional experience as a biologist, with a background in evaluating wildlife-habitat relationships and regularly performing protocol surveys for sensitive avian species, including the burrowing owl.
Scott McMillan	EDAW, Inc.	Rare Plants Vegetation Mapping	Over 15 years of professional experience as a botanist in California, and over 10 years of experience as a restoration ecologist, conducting rare plant surveys, vegetation mapping, habitat assessments, habitat restoration and creation, and burrowing owl translocation.
Jesper Pietsch	EDAW, Inc.	Rare Plants Vegetation Mapping	Five years of experience as a restoration ecologist in southern California, performing rare plant surveys, vegetation mapping, and habitat assessment and restoration.
Linnea Spears- Lebrun	EDAW, Inc.	Rare Plants Vegetation Mapping	Two years of professional experience as a restoration ecologist, with experience in performing habitat restoration, rare plant surveys, and vegetation mapping throughout the southern California region.
Lindsey Spenceley	Sundance Biology	American Badger Desert Tortoise	Over 5 years of professional experience as a biologist, specializing in desert tortoise and large carnivore management. Has over 1,000 hours of desert tortoise survey experience and is approved to handle desert tortoise.
Peggy Wood	Peggy Wood, Inc.	American Badger Desert Tortoise	Over 17 years of professional experience as a biologist, specializing in desert tortoise and large carnivore management. Has over 1,000 hours of desert tortoise survey experience, supervised desert tortoise survey crews, and is approved to handle desert tortoise.

ATTACHMENT C

**REPRESENTATIVE PHOTOS OF VEGETATION
COMMUNITIES AT THE
BEACON SOLAR ENERGY PROJECT SITE**

**ATTACHMENT C
REPRESENTATIVE PHOTOS OF VEGETATION COMMUNITIES
AT PROJECT BEACON**



Mojave Desert Wash Scrub



Dry Desert Wash, photo courtesy of Dr. Alice Karl



Scale broom (*Lepidospartum squamatum*) in Mojave Desert Wash Scrub



Swale, photo courtesy of Dr. Alice Karl



Fallow Agricultural – Disturbed Atriplex Scrub



Fallow Agricultural – Disturbed Atriplex Scrub, 22-25% Cover, photo courtesy of Dr. Alice Karl



Fallow Agricultural – Ruderal



Fallow Agricultural – Ruderal, photo courtesy of Dr. Alice Karl



Mojave Creosote Bush Scrub



Mojave Creosote Bush Scrub, photo courtesy of Dr. Alice Karl

ATTACHMENT D

DR. ALICE KARL'S *KEY TO SIGN CLASSES*

KEY TO SIGN CLASSES

BURROWS

- 1 – DEFINITELY TORTOISE – FRESH (TRACKS, TORTOISE INSIDE, FRESHLY DISTURBED SOIL ON MOUND/RUNWAY)
- 2 – DEFINITELY TORTOISE – USED THIS SEASON (CLEARED OF ANNUALS, BUT NO FRESHLY DISTURBED SOIL)
- 3 – DEFINITELY TORTOISE – NOT USED THIS SEASON (PROBABLY HAS ANNUALS GROWING IN RUNWAY)
- 4 – POSSIBLY TORTOISE – IN GOOD CONDITION BUT UNSURE OF SPECIES USING BURROW
- 5 – DEFINITELY TORTOISE – DETERIORATED SUCH THAT IT WOULD REQUIRE SUBSTANTIAL REMODELING TO BE USABLE
- 6 – POSSIBLY TORTOISE – DETERIORATED

SCAT

- TY1 – WET OR FRESH DARK, ODORIFEROUS
- TY2 – DRIED, POSSIBLE GLAZE ON PART; UNEXPOSED SURFACES DARK BROWN; SLIGHT ODOR
- TY3 – DRIED, NO GLAZE; AT LEAST PARTIALLY FADED ON EXTERIOR; VERY SLIGHT ODOR
- NTY3 – DRIED, NO GLAZE; AT LEAST PARTIALLY FADED ON EXTERIOR; NO ODOR (DISTINGUISHES FROM TY3)
- NTY4 – DRIED, LOOSENING, PALE OR BLEACHED

CARCASSES – GENERAL INDICATORS FOR TIME SINCE DEATH

- <1 YR – UNEXPOSED SCUTES NORMAL COLOR AND SHEEN, ADHERE TIGHTLY. EXPOSED SCUTES PALING AND MAY BE LIFTING OR OFF. UNEXPOSED BONE WAXY AND SOLID.
- 1–2 YRS – UNEXPOSED SCUTES NORMAL COLOR WITH SLIGHT SHEEN, MOSTLY TIGHTLY ATTACHED. EXPOSED SCUTES SLIGHTLY PALE WITH NO SHEEN AND NO TO SLIGHT GROWTH RING PEELING. NO ODOR. UNEXPOSED BONE SILKY.
- 2–3 YRS – UNEXPOSED SCUTES PALE AND WITHOUT SHEEN BUT NO GROWTH RING PEELING. EXPOSED SCUTES PALE WITH SLIGHT PEELING, SCUTES LOOSE, OFF AND/OR TIGHT. BONE SUTURES GENERALLY TIGHT.
- 4 YRS – UNEXPOSED SCUTES NORMAL COLOR TO SLIGHTLY PALE, NO SHEEN, NO PEELING. EXPOSED SCUTES LOOSE, PALE, DULL, WITH MODERATE PEELING. SUTURES SEPARATING AND BONE SURFACE IS FISSURED, EDGES ARE ROUGHENED (FISSURED UNDER HAND LENS) AND CHIP FAIRLY EASILY.
- >>4 YRS – DISARTICULATED AND DISARTICULATING. BONE EDGES CHIP AND CRUMBLE EASILY. SCUTES ARE PEELING AND CURLED.

ATTACHMENT E

**MOJAVE DESERT TORTOISE AND MOHAVE GROUND
SQUIRREL HABITAT ASSESSMENT REPORTS**

Alice E. Karl, Ph.D.
P.O. Box 74006
Davis, CA 95617

January 3, 2008

Mr. Arrie Bachrach
Senior Program Manager
ENSR
1220 Avenida Acaso
Camarillo, CA 93012

Re: Summary of August 10, 2007 site visit for FPLE Beacon Solar Energy Project

Dear Arrie,

On August 10, Manjunath Venkat (ENSR), Lyndon Quon (EDAW), Phil Leitner and I visited the FPLE Beacon Solar Energy Project (BSEP or Project) site in Fremont Valley to look at the habitat and determine whether it would be suitable for desert tortoises (my task) and Mohave ground squirrels (Phil's task). We drove around the site (all east of Highway 14, as we know that tortoises reside in the small Project area west of Highway 14) and walked through the habitat at several points. We described and photographed the habitat, partially mapped it, and also examined the habitat surrounding the site.

Below is a brief description of each area. Please refer to the vegetation map from EDAW labeled "Habitat Types in the Survey Area" (attached). For reference, I have labeled the areas on the map.

Area A - The area in the southwest, identified as Fallow Agricultural-Ruderal, is largely barren of shrubs. Split-grass (*Schismus arabicus*), plus annuals that are indicators of disturbance (*Salsola tragus*, *Ambrosia acanthicarpa*) are common, but split grass is the only available forage for tortoises. The soil is clay and relatively hard, although there is a shallow layer (about three inches) of depositional loamy sand over the top.

Area B - Within the barren area along the northern edge, there is a small patch of nearly monospecific allscale (*Atriplex polycarpa*) that is continuous to native habitat to the north. (This is identified as Fallow Agricultural-Disturbed Atriplex Scrub on the map.) The shrub community, while almost entirely one species, is fairly established, and about 22-25% cover. The soil is very fine and the area is replete with numerous tiny basins that obviously hold water temporarily. There is a shallow layer of depositional loamy sand over the clay lens.

Area C - This native habitat adjacent to Area B, north of the site boundary, is fair tortoise habitat. The shrub diversity is low, comprising mostly creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*), with occasional

goldenhead (*Acamptopappus sphaerocephalus*). Shrub cover is about 18%. The soil is generally fine and there are numerous tiny basins.

Area D - This area is similar to Area B, but appears to hold less water. The annual community is also more established and filaree (*Erodium cicutarium*) covers approximately 65% of the surface. The substrate is composed of about 20 % fine gravel and the soil is slightly hard. As in Area B, the site has been established almost exclusively by allscale, but there are large patches throughout the area that are devoid of vegetation. Even outside the barren patches, the allscale is represented by scattered small clumps of shrubs (a few yards in diameter) or individuals.

In the northern portion of this area and to the north, the basins become more common and the vegetation more sparse. The only tortoises here and to the north would likely be transients.

Area E - This area is nearly identical to Area D, but the barren patches are small, rather than large.

Swale – This swale, where the water has been artificially diverted from the wash onsite, is mostly vegetated by Russian thistle (*Salsola tragus*; an exotic annual indicative of disturbance and common in ruderal areas in this region) with some allscale and cheesebush (*Ambrosia salsola*). There are also a few scattered creosote bush and occasional other shrubs. Both the swale and connecting wash are typically dry, probably only holding water during high-intensity storms or possibly during historic agricultural practices. Each is bounded for most of both sides by nearly barren habitat, although there is some shrub cover northwest of the wash (Area D).

Area F - This entire area is essentially barren and has been bladed. The maximum cover is in the northeastern corner of Section 9, where there is about 1-2% shrub cover.

Area G - This entire area is essentially identical to Area F.

Native Habitat East of Section 9 - This area is creosote bush scrub dominated by creosote bush and allscale, with sudominant and common winterfat (*Krascheninnikovia lanata*). Goldenhead is fairly common towards the south. Shrub cover is about 18%. The topography is very gently undulating and the soil, while loose-sandy, is stabilized. The substrate has no coarse particles. Toward the southern portion of this section, there is more loam in the soil and fine gravel in the substrate.

We ran out of time and were unable to look at the habitat along the southern border. However, I looked at this on a subsequent site visit on November 13 and found it to be essentially barren.

Desert Tortoise Habitat Analysis

Below is a brief summary of the quality of the habitat for tortoises, followed by a detailed discussion:

- Area A** - This is not tortoise habitat.
- Area B** - It is poor tortoise habitat. There's a low possibility that a tortoise could be here because of connection to native habitat to the north.
- Area C** - (Section 5, north of site) This is fair tortoise habitat. Tortoises are probably here in very low numbers.
- Area D** - (Section 4) This is very poor tortoise habitat. There's a low possibility that one or two tortoises could be here because it is a sizeable patch and continuously connected to native habitat to the west. There is a decreasing possibility of tortoises in the northern part of the site in Section 4 as the habitat becomes increasingly sparse.

Note: The old chicken-wire fence along the northern border is mostly intact and would serve as a barrier to tortoises.

- Area E** - Same as Area D.
- Swale** - This is not tortoise habitat.
- Area F** - This is not tortoise habitat.
- Area G** - This is not tortoise habitat. The native habitat to the southeast is medium-quality tortoise habitat.

So, the only places where a tortoise might be found are Areas B, D and E or the wash. I don't think that there are any tortoises there, but it's possible because there's shrub cover that has been there quite awhile and because the areas are partially connected to tortoise habitat outside the site. However, I don't believe that these should be considered tortoise habitat or have any conservation value for desert tortoises, even if one or a few tortoises are found there. My rationale is based on the quality of this regrowth habitat, the broad area of adjacent non-habitat, the low quality of the adjacent intact habitat, the type and history of the disturbance, and the length of time that this block of land has been out of use by the local tortoise population. To explain:

In areas where allscale has re-invaded the site, it is unlike the native community surrounding the survey area. The surrounding habitat is native Creosote Bush Scrub whereas the regrowth area is nearly a monotypic allscale stand. It is patchy, with broad, open areas, has poor soil friability (i.e., fine, slightly hard soils) and shows evidence of periodic inundation by water. So, even though tortoises are known to occupy native saltbush scrub communities in relatively low densities, those occupied native scrub communities are far different in vegetation

structure and composition, soil, and hydrology than the invaded area on the Project site.

While there is a possibility that a DT might be observed in the allscale shrub patches on the site or in the wash that extends through the eastern portion of the survey area (see below), this would largely be due to the adjoining native habitat outside of the Project boundary and is likely to be temporary use because of the poor quality. It should also be recognized that even the native habitat north of the site is only poor to fair tortoise habitat, so tortoise densities there are expected to be low to very low.

The wash through the eastern-central portion of the site has poor shrub diversity and cover and is largely bordered by barren land. The northern terminus (“swale”) is dominated by stands of exotic Russian thistle. Poor habitat in the wash limits the wash’s usefulness as occupiable habitat or a movement corridor. Furthermore, while there is good tortoise habitat south of the Project, there is little habitat that such a “corridor” could connect to this. There is no habitat north or east of the wash or for much of the area west of the wash; these areas are entirely denuded of vegetation by long-term agriculture. The only shrub-populated area is the area northwest of the wash (see above).

Not only does the site and some of the adjacent area to the east and northwest comprise a broad area of contiguous non-habitat, but this area also has been excluded from tortoise use for decades, due to farming. So, the area has had no value for population persistence or recovery for many years. Even the allscale-regrowth in the north is still moderately well excluded from tortoise use by the chicken-wire perimeter fence (originally erected to keep rabbits out of the alfalfa) that is intact for long segments. This fence would effectively block much of the movement of tortoises onto the site.

A clearance would be appropriate, after the entire site is fenced in tortoise-proof fencing. (This can be done at a fairly reasonable cost, using four-strand wire fencing and metal T-stakes, with tortoise fabric hung from the bottom 2-3 feet and buried.) I suspect that we won’t find tortoises, but we may find a couple.

Respectfully,

Alice Karl

Cc: Kenny Stein
Lyndon Quon
Kim McCormick
Sara Head
Manjunath Venkat

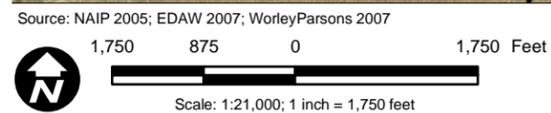
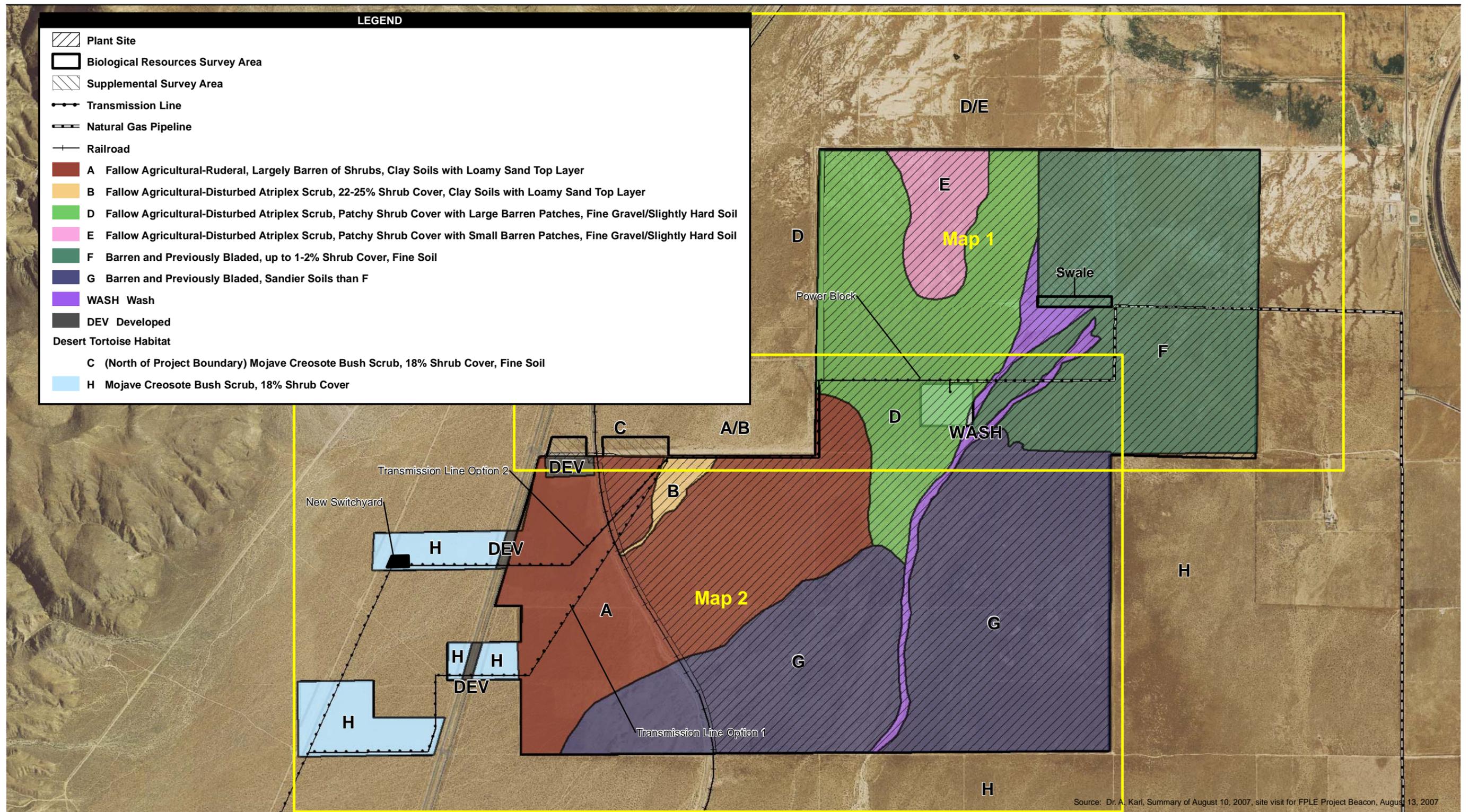
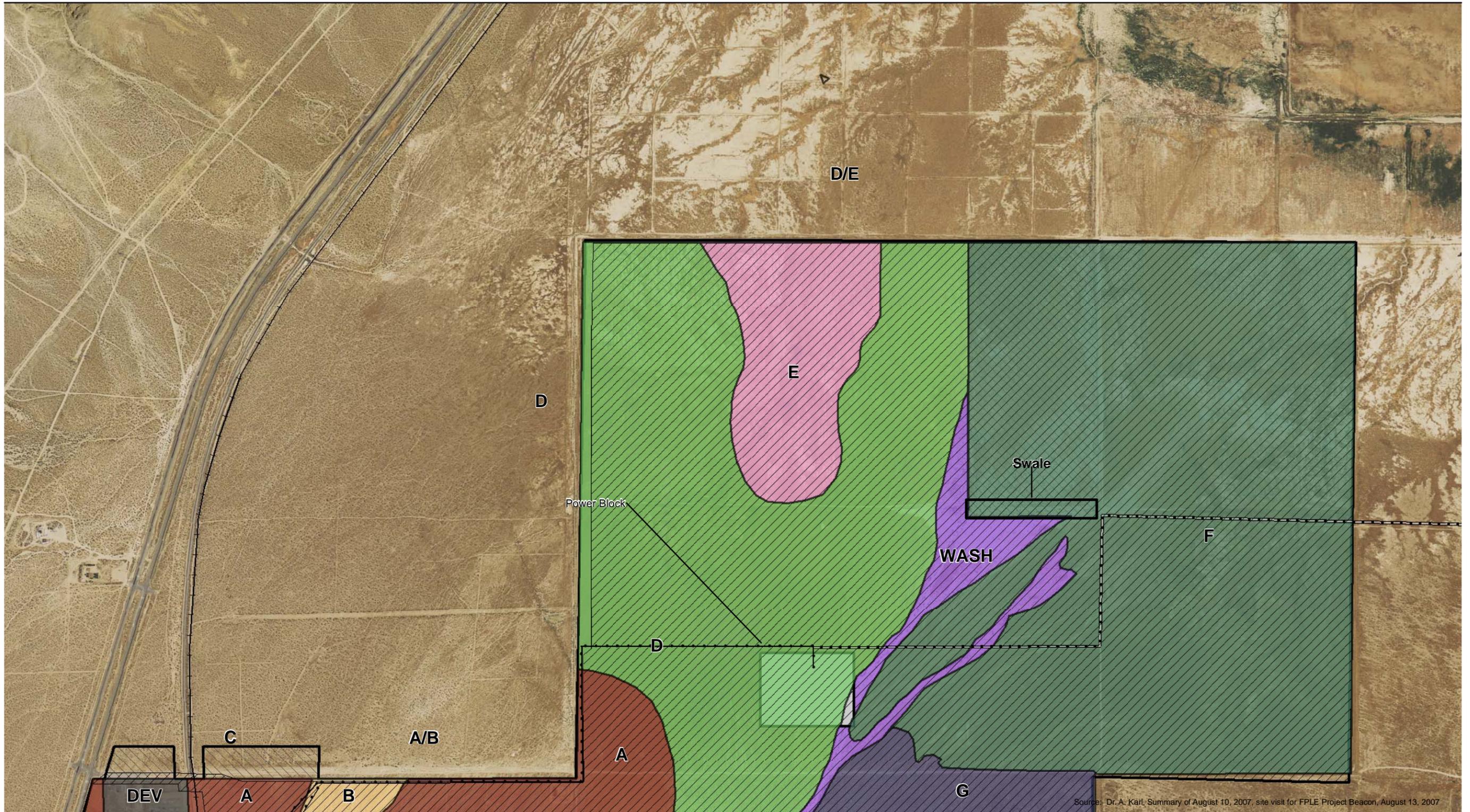


Figure 7
Habitat Types in the
Survey Area



Source: Dr. A. Karl, Summary of August 10, 2007, site visit for FPLE Project Beacon, August 13, 2007

Source: NAIP 2005; EDAW 2007; WorleyParsons 2007

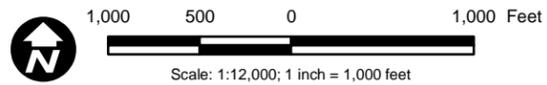
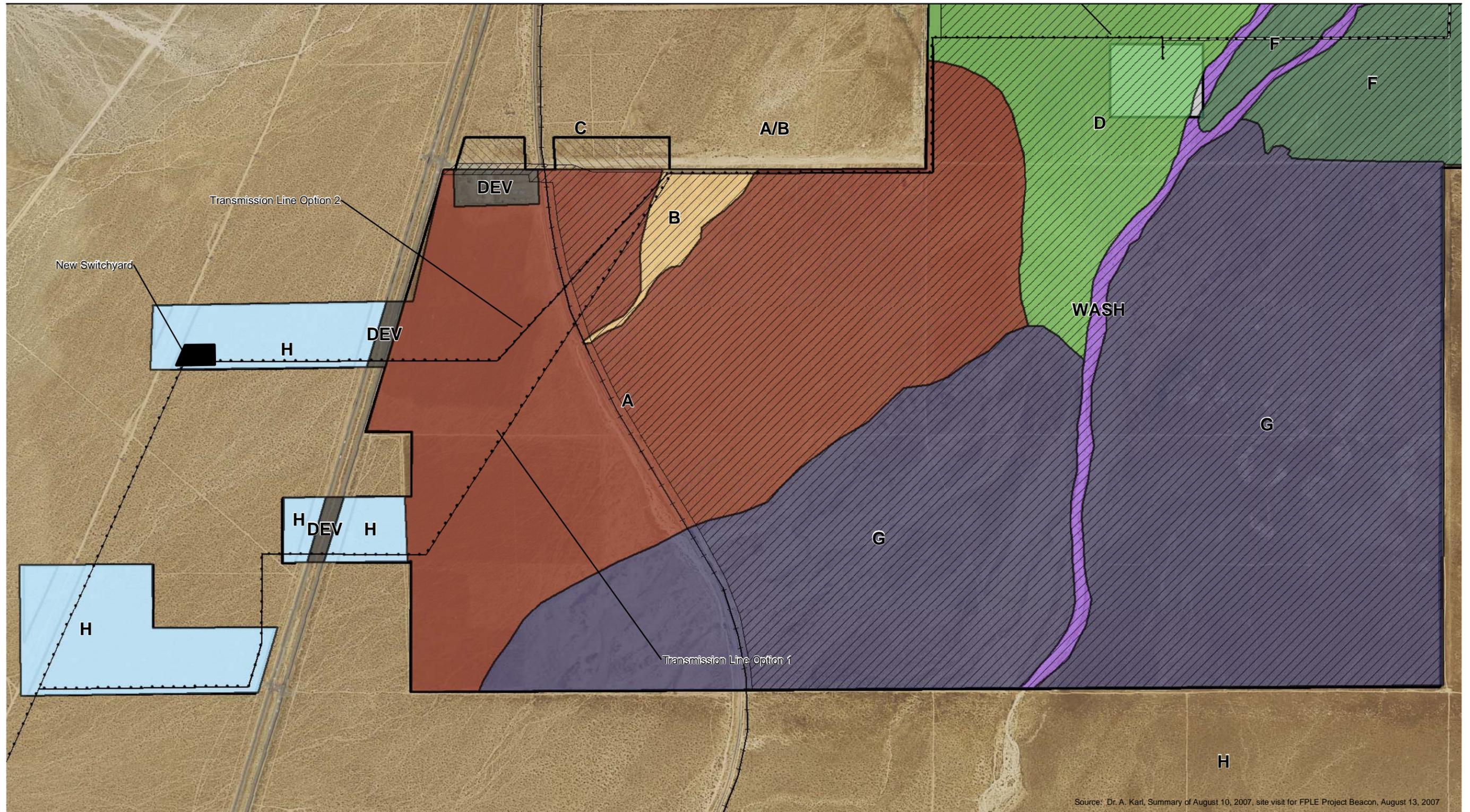


Figure 1
Habitat Types in the
Survey Area



Source: Dr. A. Karl, Summary of August 10, 2007, site visit for FPLE Project Beacon, August 13, 2007

Source: NAIP 2005; EDAW 2007; WorleyParsons 2007

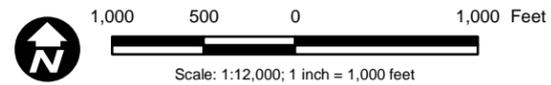


Figure 1
Habitat Types in the
Survey Area

**MOHAVE GROUND SQUIRREL HABITAT ASSESSMENT
BEACON SOLAR ENERGY PROJECT
KERN COUNTY, CALIFORNIA**

Philip Leitner
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December 21, 2007

Beacon Solar LLC proposes to construct and operate the Beacon Solar Energy Project on private lands in the Fremont Valley north of California City, Kern County, California. This report provides an assessment of the suitability of habitat on the project site for the state-listed Mohave ground squirrel (*Spermophilus mohavensis*). It also discusses habitat suitability of the project site in a regional context and evaluates the potential for impacts to the species.

METHODOLOGY

The conclusions in this report are based upon two field visits to the project site and surrounding habitat, evaluation of all relevant published and unpublished data including the California Natural Diversity Database, and 30 years of personal research on the ecology and habitat requirements of the Mohave ground squirrel.

On August 10, 2007, I made my first visit to the proposed project site in order to conduct a field assessment of habitat conditions. I surveyed the entire site east of State Route 14 by driving dirt access roads and walking through selected areas. During the site visit, I focused on the species composition and physical structure of the vegetation, soil conditions, and evidence of rodent activity. I was also able to observe the habitat conditions of areas adjoining the project site to the north, east, and south.

During my second field visit on October 15, 2007, I was able to observe habitat conditions to the west of State Route 14. I drove all dirt access roads throughout the area between the highway and the transmission corridor. Again, I focused on the vegetation and soils, noting habitat features that are of significance for the Mohave ground squirrel.

I consulted the California Department of Fish and Game (CDFG) California Natural Diversity Database (CNDDB) to determine historic occurrences of the Mohave ground squirrel within ~16 kilometers (10 miles) of the proposed site (CDFG 2007). In addition, I utilized other records of Mohave ground squirrel occurrence that I have collected for a comprehensive database covering the period 1998-2007. I also reviewed maps prepared for the U.S. Bureau of Land Management (BLM) West Mojave Plan that indicate the

locations of lands designated for the Mohave Ground Squirrel Conservation Area (U.S. Bureau of Land Management 2005).

EXISTING HABITAT

Regional Context

All Mohave ground squirrel detections in the region of the proposed project site are shown on Figure 1. The CNDDDB contains nine records of Mohave ground squirrel occurrence within 16 km (10 mi) of the project site. Three of them are located in Jawbone Canyon, from a point just west of State Route 14 to Blue Point (Occurrences # 86, 87, and 282). A fourth occurrence is near the southern edge of Red Rock Canyon State Park on the west side of State Route 14 (Occurrence #186). Mohave ground squirrels were detected recently on Cache Creek near the western boundary of the Desert Tortoise Natural Area (Occurrences #321 and 322). Three occurrences are farther east, but within the Desert Tortoise Natural Area (Occurrences #75, 77, and 185). There are ten other records within 20 km (12.4 mi) that have not been entered into the CNDDDB (Fig. 1). All of these additional detections are associated with the Desert Tortoise Natural Area.

All public lands to the west of State Route 14 in the vicinity of the project site are included in the Mohave Ground Squirrel Conservation Area as designated in the West Mojave Plan (U.S. Bureau of Land Management 2005). However, the protections associated with the Mohave Ground Squirrel Conservation Area apply only to public lands managed by the U.S. Bureau of Land Management.

There is an extensive area of Mojave Creosote Bush Scrub to the east and south of the project site. It appears to provide suitable habitat for the Mohave ground squirrel, although there are no occurrence records and no evidence of any trapping attempts. To the north and northeast of the project site is a wide strip of fallow agricultural land that does not provide Mohave ground squirrel habitat. North of the project site and east of State Route 14 is a small patch of Mojave Creosote Bush Scrub. Vegetative cover here is sparse and there is very little plant diversity. At best, this area is marginal habitat for the Mohave ground squirrel. To the west of State Route 14 is a wide strip of Mojave Creosote Bush Scrub on the alluvial fans reaching down from the mountains. This area is characterized by vegetation and soil conditions that are suitable for Mohave ground squirrels.

Proposed Project Site

Based upon my field assessments, only a small portion of the project site can be considered as suitable Mohave ground squirrel habitat. The only vegetation community on the property capable of supporting Mohave ground squirrels is the ~116 acres of Mojave Creosote Bush Scrub in Section 7 at the western edge of the property. This area is located on a large alluvial fan deposited by outflows from Pine Tree Canyon. The dominant shrub species are creosote bush (*Larrea tridentata*) and white bursage

(*Ambrosia dumosa*). Because of disturbance from periodic surface water flows, desert senna (*Senna armata*) and cheesebush (*Hymenoclea salsola*) are also abundant. I did not observe any winterfat (*Krascheninnikovia lanata*) or spiny hopsage (*Grayia spinosa*), two shrubs that provide important food resources for Mohave ground squirrels (Leitner and Leitner 1998). This relatively undisturbed habitat has moderately diverse vegetation that could provide adequate forage and cover for Mohave ground squirrels. The habitat on this portion of the project site appears suitable for the species, but is not of high quality.

The remainder of the project site to the east of State Route 14 is unsuitable as habitat for Mohave ground squirrels. The natural vegetation on this portion of the property was completely removed some years ago, when the land was converted to irrigated agriculture. Most of the property is classified as Fallow Agricultural, which is barren and does not support any vegetative cover. Elsewhere on the project site, there are three separate shrub patches made up almost entirely of allscale (*Atriplex polycarpa*). These stands of allscale are mapped as Disturbed Atriplex Scrub and cover a total of ~539 acres. This is not a natural vegetation community, but is essentially an allscale monoculture that has become established since agricultural operations were abandoned. Within these patches, there is relatively low density and cover of allscale. The herbaceous layer is sparse and consists almost entirely of a few non-native species, including filaree (*Erodium cicutarium*). Mohave ground squirrels do occasionally consume *Atriplex* foliage and filaree seeds, but these plants do not provide the full range of food resources necessary for the species (Leitner and Leitner 1998).

An intermittent stream course runs through the eastern part of the project site, creating a total of ~57 acres of Mojave Desert Wash Scrub habitat. This habitat is not suitable for occupancy by Mohave ground squirrels, since the shrub vegetation is sparse, plant diversity is low, and there is little cover or forage appropriate for the species. In general, this wash habitat appears disturbed, with shrubs widely separated and damaged and extensive bare ground.

That portion of the project site to the east of State Route 14 has no value as a movement corridor for Mohave ground squirrels. Although dispersing juveniles might attempt to enter from adjoining creosote bush habitat, they would not be able to cross the wide bands of barren fallow agricultural land. Studies in the Coso area of Inyo County have shown that a small playa acted as a complete barrier to the dispersal movements of radiocollared juveniles (Harris and Leitner 2005).

CONCLUSIONS

The development of a transmission line, associated maintenance road, and substation facility in Mojave Creosote Bush Scrub habitat west of State Route 14 could potentially result in direct impact to <5 acres of suitable Mohave ground squirrel habitat. However, the abandoned agricultural lands east of State Route 14 do not provide suitable habitat for this species. The only shrub vegetation in this portion of the project site consists of several patches of allscale and a narrow strip of scattered shrubs along an intermittent

watercourse. This area does not provide the cover and diverse food resources that are necessary to support a Mohave ground squirrel population (Leitner and Leitner 1998). Furthermore, the lack of cover precludes use of the property as a dispersal route. I have never found Mohave ground squirrels to occur in or to use an area with these habitat characteristics.

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California Department of Fish and Game (CDFG). 2007. California Department of Fish and Game. RareFind 3 computer program. California Natural Diversity Database search for USGS 7.5-minute quadrangles California City North, Cantil, Cinco, Dove Spring, Mojave NE, Saltdale NW. California Department of Fish and Game, State of California Resources Agency. Sacramento, California.

Harris, J.H. and P. Leitner. 2005. Long-distance movements of juvenile Mohave ground squirrels, *Spermophilus mohavensis*. Southwestern Naturalist, 50(2):188-196.

Leitner, P. and B.M. Leitner. 1998. Coso Grazing Exclosure Monitoring Study. Mohave Ground Squirrel Study, Coso Known Geothermal Resource Area, Major Findings, 1988-1996. Final Report. 42 pp. + append.

U.S. Bureau of Land Management. 2005. Final Environmental Impact Report and Statement for the West Mojave Plan. U.S. Bureau of Land Management, Moreno Valley, CA.

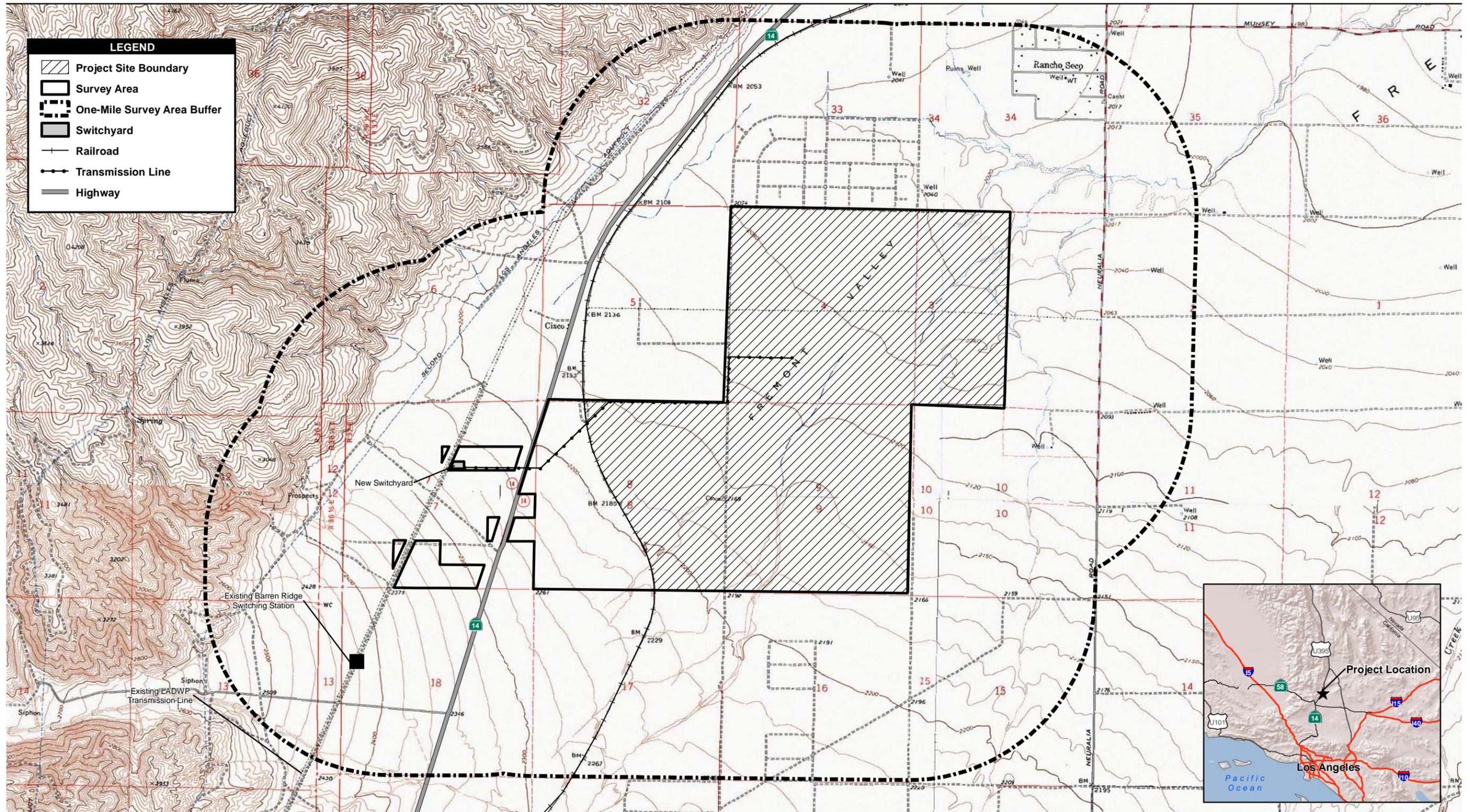


Figure 1
Project Site Boundary and
Survey Area

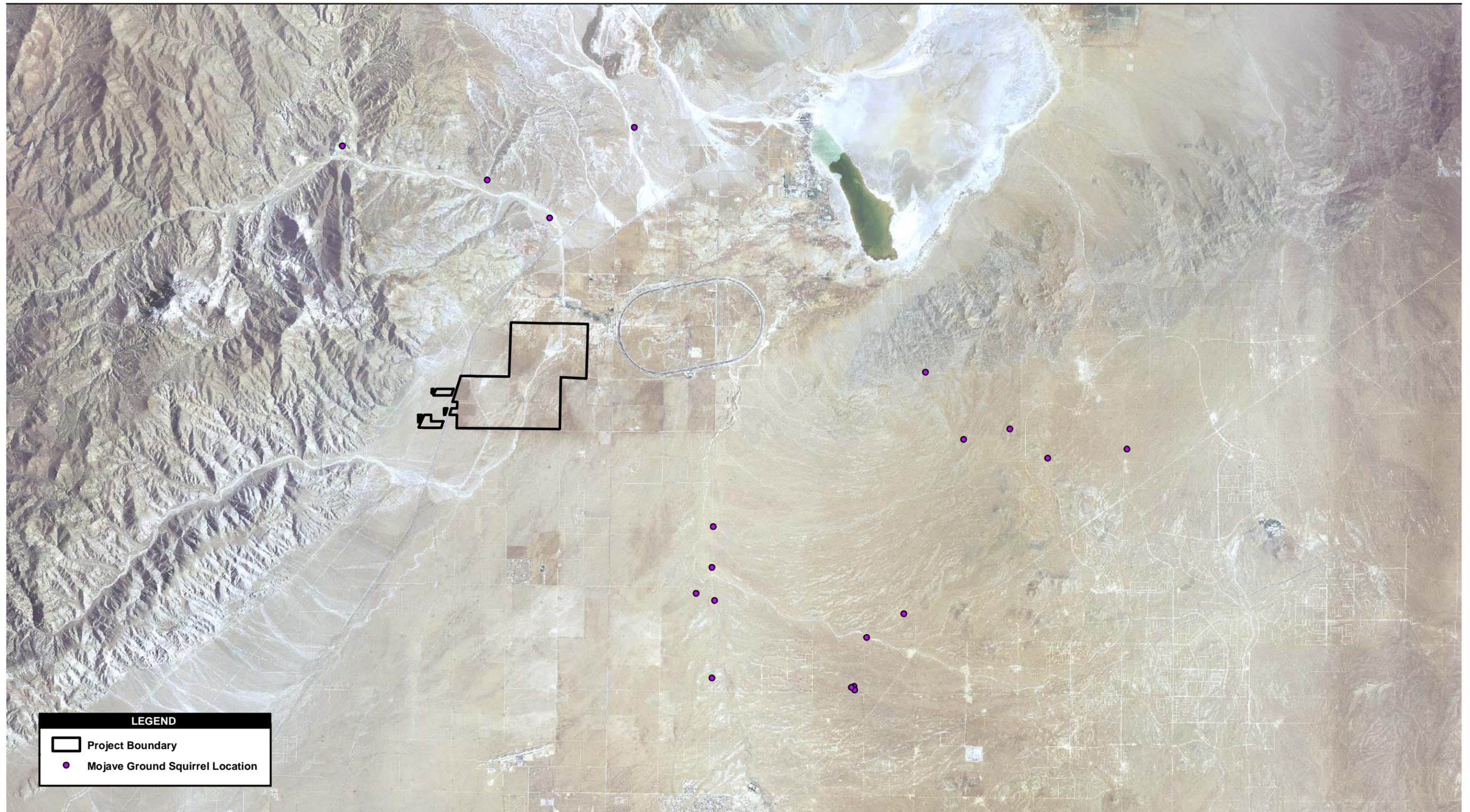


Figure 2
Historic Mohave Ground Squirrel Locations

ATTACHMENT F

**FLORAL SPECIES OBSERVED AT THE
PROPOSED BEACON SOLAR ENERGY PROJECT SITE, 2007**

ATTACHMENT F
FLORAL SPECIES OBSERVED AT PROJECT BEACON,
SPRING/SUMMER 2007

Family	Scientific Name	Common Name
Asteraceae	<i>Acamptopappus sphaerocephalus</i>	goldenhead
	<i>Ambrosia acanthicarpa</i>	annual bursage
	<i>Ambrosia dumosa</i>	white bursage
	<i>Chrysothamnus nauseosus</i> ssp. <i>mohavensis</i>	rubber rabbitbush
	<i>Gutierrezia microcephala</i>	sticky snakeweed
	<i>Helianthus annuus</i>	western sunflower
	<i>Hymenoclea salsola</i>	cheesebush
	<i>Lactuca serriola</i> *	prickly lettuce
	<i>Lepidospartum squamatum</i>	scale broom
	<i>Tetradymia stenolepis</i>	horsebrush
Boraginaceae	<i>Heliotropium curassavicum</i>	salt heliotrope
Brassicaceae	<i>Brassica tournefortii</i> *	Sahara mustard
	<i>Sisymbrium officinale</i> *	hedge mustard
Cactaceae	<i>Cylindropuntia echinocarpa</i>	silver cholla
Capperaceae	<i>Isomeris arborea</i>	bladderpod
Chenopodiaceae	<i>Atriplex confertifolia</i>	shadscale
	<i>Atriplex polycarpa</i>	allscale
	<i>Atriplex spinifera</i>	spinescale
	<i>Grayia spinosa</i>	spiny hopsage
	<i>Krascheninnikovia lanata</i>	winter fat
	<i>Salsola tragus</i> *	Russian thistle, tumbleweed
Cuscutaceae	<i>Cuscuta</i> sp.	dodder
Ephedraceae	<i>Ephedra nevadensis</i>	Mormon tea
Fabaceae	<i>Senna armata</i>	spiny senna
Krameriaceae	<i>Krameria erecta</i>	rhatany
Lamiaceae	<i>Salvia columbariae</i>	chia
Liliaceae	<i>Yucca brevifolia</i>	Joshua tree
Poaceae	<i>Bromus madritensis</i> ssp. <i>rubens</i> *	foxtail chess
	<i>Distichlis spicata</i>	salt grass
	<i>Schismus arabicus</i> *	split grass
	<i>Vulpia myuros</i> *	Foxtail fescue
Rosaceae	<i>Coleogyne ramosissima</i>	blackbrush
	<i>Purshia tridentata</i>	antelope bush

Family	Scientific Name	Common Name
Solanaceae	<i>Datura wrightii</i>	jimson weed
	<i>Lycium cooperi</i>	box thorn
Tamaricaceae	<i>Tamarix ramosissima</i> *	tamarisk
Zygophyllaceae	<i>Larrea tridentata</i>	creosote bush

* = nonnative plant species (introduced)

ATTACHMENT G

**WILDLIFE SPECIES DETECTED AT THE
PROPOSED BEACON SOLAR ENERGY PROJECT SITE, 2007**

**ATTACHMENT G
WILDLIFE SPECIES DETECTED AT
PROPOSED PROJECT BEACON SITE, 2007**

Scientific Names	Common Names
Reptiles	
Order Squamata	Lizards and Snakes
Family Colubridae	
<i>Masticophis flagellum piceus</i>	red coachwhip
<i>Pituophis catenifer</i>	pacific gopher snake
Family Crotophytidae	
<i>Gambelia wislizenii</i>	long-nosed leopard lizard
Family Iguanidae	
<i>Dipsosaurus dorsalis</i>	desert iguana
Family Phrysonomatidae	
<i>Callisaurus draconoides</i>	zebra-tailed lizard
<i>Phrynosoma platyrhinos</i>	desert horned lizard
<i>Sceloporus graciosus</i>	sagebrush lizard
Family Teiidae	
<i>Cnemidophorus tigris</i>	western whiptail
Family Viperidae	
<i>Crotalus scutulatus scutulatus</i>	Mojave (green) rattlesnake
Order Testudines	Turtles and Tortoises
Family Testudinidae	
<i>Gopherus agassizii</i>	Mojave desert tortoise **
Birds	
Order Ciconiiformes	Herons, Egrets, Storks, etc
Family Cathartidae	
<i>Cathartes aura</i>	turkey vulture
Order Falconiformes	Diurnal Birds of Prey
Family Accipitridae	
<i>Circus cyaneus</i>	northern harrier *
Family Falconidae	
<i>Falco peregrinus</i>	peregrine falcon **
<i>Falco sparverius</i>	American kestrel
Order Columbiformes	Pigeons, Doves, Solitaires, and Dodo
Family Columbidae	
<i>Zenaida macroura</i>	mourning dove
Order Cuculiformes	Cuckoos, Anis, Coucals, etc
Family Cuculidae	
<i>Geococcyx californianus</i>	greater roadrunner
Order Strigiformes	Owls
Family Strigidae	
<i>Athene cunicularia</i>	burrowing owl *
Order Caprimulgiformes	Nightjars, Pootoos, Frogmouths, etc
Family Caprimulgidae	
<i>Phalaenoptilus nuttallii</i>	common poorwill

Scientific Names	Common Names
Order Passeriformes	Perching Birds
Family Tyrannidae	
<i>Sayornis nigricans</i>	black phoebe
<i>Myiarchus cinerascens</i>	ash-throated flycatcher
Family Laniidae	
<i>Lanius ludovicianus</i>	loggerhead shrike *
Family Corvidae	
<i>Corvus corax</i>	common raven
Family Alaudidae	
<i>Eremophila alpestris actia</i>	California horned lark *
Family Hirundinidae	
<i>Hirundo rustica</i>	barn swallow
Family Remizidae	
<i>Auriparus flaviceps</i>	verdin
Family Mimidae	
<i>Toxostoma lecontei</i>	Le Conte's thrasher *
<i>Toxostoma redivivum</i>	California thrasher
Family Sturnidae	
<i>Sturnus vulgaris</i>	European starling
Family Motacillidae	
<i>Anthus rubescens</i>	American pipit
Family Parulidae	
<i>Wilsonia pusilla</i>	Wilson's warbler
Family Thraupidae	
<i>Piranga ludoviciana</i>	western tanager
Family Emberizidae	
<i>Amphispiza belli</i>	sage sparrow
<i>Melospiza melodia</i>	song sparrow
<i>Spizella breweri</i>	Brewer's sparrow
Family Icteridae	
<i>Agelaius phoeniceus</i>	red-winged blackbird
Family Fringillidae	
<i>Carpodacus mexicanus</i>	house finch
Mammals	
Order Carnivora	Flesh-eaters
Family Canidae	
<i>Canis latrans</i>	coyote
<i>Vulpes macrotis macrotis</i>	desert kit fox (sign)
Family Felidae	
<i>Lynx rufus</i>	bobcat (scat)
Order Lagomorpha	Rabbits, Hares, and Pikas
Family Leporidae	
<i>Sylvilagus audubonii</i>	desert cottontail
<i>Lepus californicus</i>	black-tailed jackrabbit
Order Rodentia	Gnawing Mammals
Family Heteromyidae	
<i>Dipodomys deserti</i>	desert kangaroo rat
Family Sciuridae	
<i>Ammospermophilus leucurus</i>	whitetail antelope squirrel

* CDFG Species of Special Concern

** Listed under Federal or California State Endangered Species Act

ATTACHMENT H

**DEPARTMENT OF THE ARMY, CORPS OF ENGINEERS
LETTER OF CONCURRENCE OF NON-JURISDICTION**



DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
VENTURA FIELD OFFICE
2151 ALESSANDRO DRIVE, SUITE 110
VENTURA, CALIFORNIA 93001

REPLY TO
ATTENTION OF:

February 5, 2008

Office of the Chief
Regulatory Division

Kenneth Stein
Beacon Solar, LLC
700 Universe Boulevard
Juno Beach, Florida 33408

Dear Mr. Stein:

Reference is made to your letter (Corps File No. 2007-1414-CLM), dated November 5, 2007 for a Department of the Army Jurisdictional Determination to construct a wind power generation project in unnamed tributaries to Koehn Dry Lake within an unincorporated area of Kern County, California.

Based on the information furnished in your letter, we have determined that Kohn Dry Lake does not exhibit any evidence of navigation. Using the criteria at 33 CFR Part 328.3, the Corps has determined that Koehn Dry Lake exhibits insufficient evidence of interstate commerce to meet the requirements of 33 CFR Part 328.3(a)(3)(iii) and does not meet the requirements for navigability at 33 CFR Part 328.3 (a)(1). Based on the above information and the Solid Waste Agency of Northern County Supreme Court Decision, your project does not discharge dredged or fill material into a water of the United States or an adjacent wetland. Therefore, the project is not subject to our jurisdiction under Section 404 of the Clean Water Act and a Section 404 permit is not required from our office.

Please be aware that our determination does not preclude the need to comply with Section 13260 of the California Water Code (Porter/Cologne) and we recommend that you contact the California Regional Water Quality Control Board to insure compliance with the above regulations. Furthermore, our determination does not obviate the need to obtain other Federal, state, or local authorizations required by law.

This letter contains an approved jurisdictional determination for the Beacon Street Solar Energy Project. If you object to this decision, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet (Appendix C) and Request for Appeal (RFA) form. If you request to appeal this decision you must submit a completed RFA form to the Corps South Pacific Division Office at the following address:

Tom Cavanaugh
Administrative Appeal Review Officer,
U.S. Army Corps of Engineers
South Pacific Division, CESPDPDS-O, 2042B
1455 Market Street, San Francisco, California 94103-1399

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 C.F.R. Part 331.5, and that it has been received by the Division Office within 60 days of the date on the NAP. Should you decide to submit an RFA form, it must be received at the above address by April 6, 2008. It is not necessary to submit an RFA form to the Division Office if you do not object to the decision in this letter.

This verification is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. If you wish to submit new information regarding the approved jurisdictional determination for this site, please submit this information to Crystal L. Marquez at the letterhead address by April 6, 2008. The Corps will consider any new information so submitted and respond within 60 days by either revising the prior determination, if appropriate, or reissuing the prior determination. A revised or reissued jurisdictional determination can be appealed as described above.

A courtesy copy of this letter has been sent to Mr. Joshua Zinn, EDAW Inc., 1420 Kettner Boulevard, Suite 500, San Diego, CA 92101. If you have any questions regarding this matter, please contact Crystal L. Marquez at (805) 585-2143. Please be advised that you can now comment on your experience with Regulatory Division by accessing the Corps web-based customer survey form at: <http://per2.nwp.usace.army.mil/survey.html>.

Sincerely,



Antal Szijj
Senior Project Manager
North Coast Branch

Enclosures

APPENDIX F.2

Correspondence with Federal and California State Agencies Regarding Beacon Solar Energy Project

Appendix F.2 Contents

- Project Site Species List Request to U.S. Fish and Wildlife Service
- Species List for Project, Response from U.S. Fish and Wildlife Service
- Project Site Species List Request to California Department of Fish and Game
- Jurisdictional Determination Response from U.S. Army Corps of Engineers
- California Natural Diversity Database Forms for Beacon Solar Energy Project, 2007

EDAW Inc
1420 Kettner Boulevard, Suite 620, San Diego, California 92101
T 619.233.1454 F 619.233.0952 www.edaw.com

May 24, 2007

Diane K. Noda
Field Supervisor
U.S. Fish and Wildlife Service
2493 Portola Road, Suite B
Ventura, CA 93003

Subject: California City Solar Project Site, Species List Request

Dear Ms. Noda:

On behalf of FPL Energy (FPLE), EDAW, Inc. (EDAW) is submitting this letter as a request for information. We are requesting this information to support the biological investigations associated with a site feasibility study for a proposed solar energy project, north of California City, in Kern County, California. The study area is located within the USGS 7.5-minute Mojave NE quadrangle, Township 31S, Range 37E, Sections 3, 4, 7, 8, and 9.

Please provide our office with a list of any listed or proposed species, or designated or proposed critical habitats that may be present within ten miles of the feasibility study area on the enclosed map that should be addressed.

We are requesting these actions to support the feasibility study and any future biological impacts assessment of the proposed project, which is located within the Fremont Valley. Your support in expediting this matter is greatly appreciated. Should you have any questions or concerns, please contact me at (619) 233-1454, or Lyndon.Quon@edaw.com.

Sincerely,



Lyndon Quon
Senior Biologist

Enclosure – Project Area Map

Cc: Judy Hohman, USFWS Ventura Office
Manjunath Venkat, ENSR Camarillo Office



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003



IN REPLY REFER TO:
PAS 3427.5235.7514

August 1, 2007

Lyndon Quon
EDAW Incorporated
1420 Kettner Boulevard, Suite 620
San Diego, California 92101

Subject: Species List for the Proposed California City Solar Project, Kern County,
California

Dear Mr. Quon:

This letter is in response to your request of May 24, 2007, for information on endangered, threatened, proposed, and candidate species that may be present in the vicinity of the proposed solar project near California City. The proposed work area is located south of the State Route 14 and Neuralia Road intersection in Kern County.

You also requested information about listed and proposed species and critical habitat within a ten-mile radius of the proposed project site. We discussed the request for this additional information during a phone call with you on July 26, 2007. At that time, we agreed that the ancillary activities connected to the project would not drive a need to address said request. Therefore, this letter will address only the species that may be present in the area of the proposed project site. The threatened desert tortoise (*Gopherus agassizii*) is the only federally listed species in this area; the project area does not contain any critical habitat.

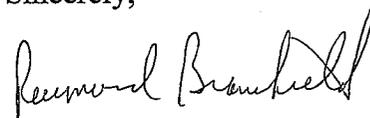
The U.S. Fish and Wildlife Service's (Service) responsibilities include administering the Endangered Species Act of 1973, as amended (Act), including sections 7, 9, and 10. Section 9 of the Act prohibits the taking of any federally listed endangered or threatened species. Section 3(18) of the Act defines take to mean to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Service regulations (50 CFR 17.3) define harm to include significant habitat modification or degradation which actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. Harassment is defined by the Service as an intentional or negligent action that creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. The Act provides for civil and criminal penalties for the unlawful taking of listed species.

Exemptions to the prohibitions against take may be obtained through coordination with the Service through interagency consultation for projects with Federal involvement pursuant to section 7 or through the issuance of an incidental take permit under section 10(a)(1)(B) of the Act. If the subject project is to be funded, authorized, or carried out by a Federal agency and may affect a listed species, the Federal agency must consult with the Service, pursuant to section 7(a)(2) of the Act. If a proposed project does not involve a Federal agency but may result in the take of a listed animal species, the project proponent should apply for an incidental take permit, pursuant to section 10(a)(1)(B) of the Act. Once you have determined if the proposed project will have a lead Federal agency, we can provide you with more detailed information regarding the section 7 or 10(a)(1)(B) permitting process.

Only listed species receive protection under the Act. However, sensitive species should be considered in the planning process in the event they become listed or proposed for listing prior to project completion. We recommend that you review information in the California Department of Fish and Game's Natural Diversity Data Base. You can contact the California Department of Fish and Game at (916) 324-3812 for information on other sensitive species that may occur in this area. Given that you are evaluating the biological resources on the site at this time, we also request that you assess its value for migratory birds.

If you have any questions regarding this letter, please contact Kate Eschelbach of my staff at (805) 644-1766, extension 259.

Sincerely,



for

Carl T. Benz
Assistant Field Supervisor

EDAW Inc
1420 Kettner Boulevard, Suite 620, San Diego, California 92101
T 619.233.1454 F 619.233.0952 www.edaw.com

May 24, 2007

Bill Loudermilk
Central Region Manager
California Department of Fish and Game
1234 East Shaw Avenue
Fresno, California 93710

Subject: California City Solar Project Site, Species List Request

Dear Mr. Loudermilk:

On behalf of FPL Energy (FPLE), EDAW, Inc. (EDAW) is submitting this letter as a request for information. We are requesting this information to support the biological investigations associated with a site feasibility study for a proposed solar energy project, north of California City, in Kern County, California. The study area is located within the USGS 7.5-minute Mojave NE quadrangle, Township 31S, Range 37E, Sections 3, 4, 7, 8, and 9.

Please provide our office with a list of any listed, proposed, or other special status species or habitats that may be present within ten miles of the feasibility study area on the enclosed map that should be addressed.

We are requesting these actions to support the feasibility study and any future biological impacts assessment of the proposed project, which is located within the Fremont Valley. Your support in expediting this matter is greatly appreciated. Should you have any questions or concerns, please contact me at (619) 233-1454, or Lyndon.Quon@edaw.com.

Sincerely,



Lyndon Quon
Senior Biologist

Enclosure – Project Area Map

Cc: Annette Tenneboe, CDFG Central Region Office
Manjunath Venkat, ENSR Camarillo Office



DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
VENTURA FIELD OFFICE
2151 ALESSANDRO DRIVE, SUITE 110
VENTURA, CALIFORNIA 93001

REPLY TO
ATTENTION OF:

February 5, 2008

Office of the Chief
Regulatory Division

Kenneth Stein
Beacon Solar, LLC
700 Universe Boulevard
Juno Beach, Florida 33408

Dear Mr. Stein:

Reference is made to your letter (Corps File No. 2007-1414-CLM), dated November 5, 2007 for a Department of the Army Jurisdictional Determination to construct a wind power generation project in unnamed tributaries to Koehn Dry Lake within an unincorporated area of Kern County, California.

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Please be aware that our determination does not preclude the need to comply with Section 13260 of the California Water Code (Porter/Cologne) and we recommend that you contact the California Regional Water Quality Control Board to insure compliance with the above regulations. Furthermore, our determination does not obviate the need to obtain other Federal, state, or local authorizations required by law.

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Tom Cavanaugh
Administrative Appeal Review Officer,
U.S. Army Corps of Engineers
South Pacific Division, CESPDPDS-O, 2042B
1455 Market Street, San Francisco, California 94103-1399

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Sincerely,



Antal Szijj
Senior Project Manager
North Coast Branch

Enclosures

**California Natural Diversity Database Forms
for
Beacon Solar Energy Project
2007**

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814

Fax: (916) 324-0475 email: CNDDDB@dfg.ca.gov

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work (mm/dd/yyyy): 07/12/2007

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Athene cucularia*

Common Name: Western burrowing owl

Species Found? Yes No If not, why? _____
Total No. Individuals 7 Subsequent Visit? yes no
Is this an existing NDDDB occurrence? _____ no unk.
Yes, Occ. # _____
Collection? If yes: _____
Number _____ Museum / Herbarium _____

Reporter: Barbra Calantas
Address: 1420 Kettner Boulevard Suite 500
San Diego, CA 92101
E-mail Address: Barbra.Calantas@edaw.com
Phone: (619) 233-1454

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

7
adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown _____
 breeding wintering burrow site rookery nesting other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

County: Kern Landowner / Mgr.: _____
Quad Name: _____ Elevation: _____
T _____ R _____ Sec _____, _____ 1/4 of _____ 1/4, Meridian: H M S Source of Coordinates (GPS, topo. map & type): GPS
T _____ R _____ Sec _____, _____ 1/4 of _____ 1/4, Meridian: H M S GPS Make & Model Garmin 5 GPSMAP76S
DATUM: NAD27 NAD83 WGS84 Horizontal Accuracy 10 meters _____ meters/feet
Coordinate System: UTM Zone 10 UTM Zone 11 OR Geographic (Latitude & Longitude)
Coordinates: _____

Habitat Description (plant communities, dominants, associates, substrates/soils, aspects/slope):

The dominant plant community in the survey area is Mojave Creosote Bush Scrub, which is an open shrub community dominated by the creosote bush (*Larrea tridentata*). Other important shrubs in this community include white bursage (*Ambrosia dumosa*), box thorn (*Lycium andersonii*), silver cholla (*Opuntia echinocarpa*), and occasional Joshua trees (*Yucca brevifolia*). This community typically occurs on well-drained soils in alluvial fans, bajadas, and upland slopes.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): Excellent Good Fair Poor

Immediate AND surrounding land use: solar array field, agriculture, wind power generation

Visible disturbances: Abandoned buildings, fallow agricultural lands

Threats:

Comments:

Determination: (check one or more, and fill in blanks)

Keyed (cite reference): _____
 Compared with specimen housed at: _____
 Compared with photo / drawing in: _____
 By another person (name): _____
 Other: _____

Photographs: (check one or more) Slide Print Digital
Plant / animal
Habitat
Diagnostic feature

May we obtain duplicates at our expense? yes no



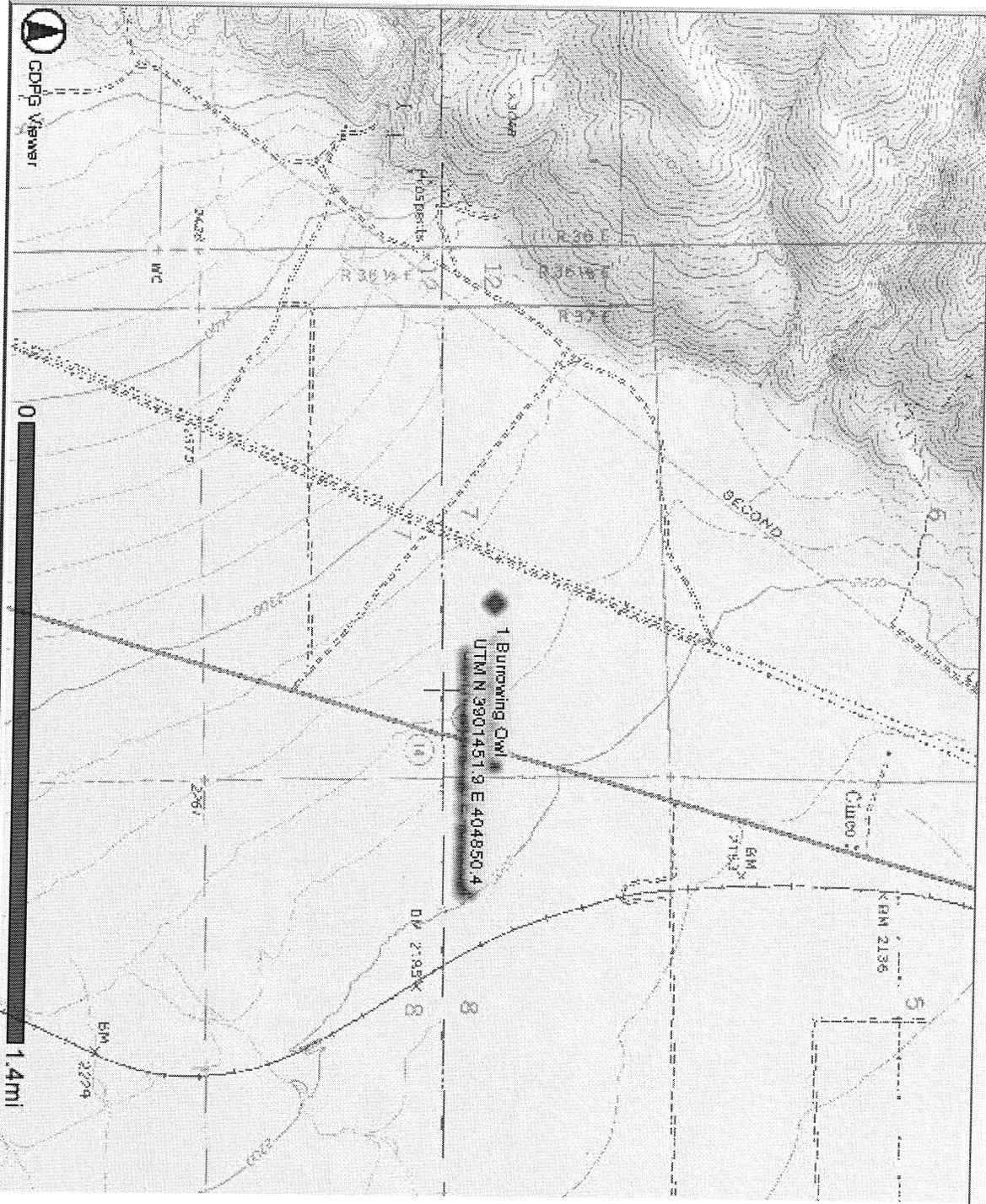
Burrowing Owl sighting

Info: Site available at <http://maps.dfg.ca.gov>

Author: **Barbra Calantias**
Date: **11/27/2007 4:51 PM**

Map Legend

- Western States
- Mexico





Burrowing Owl sighting

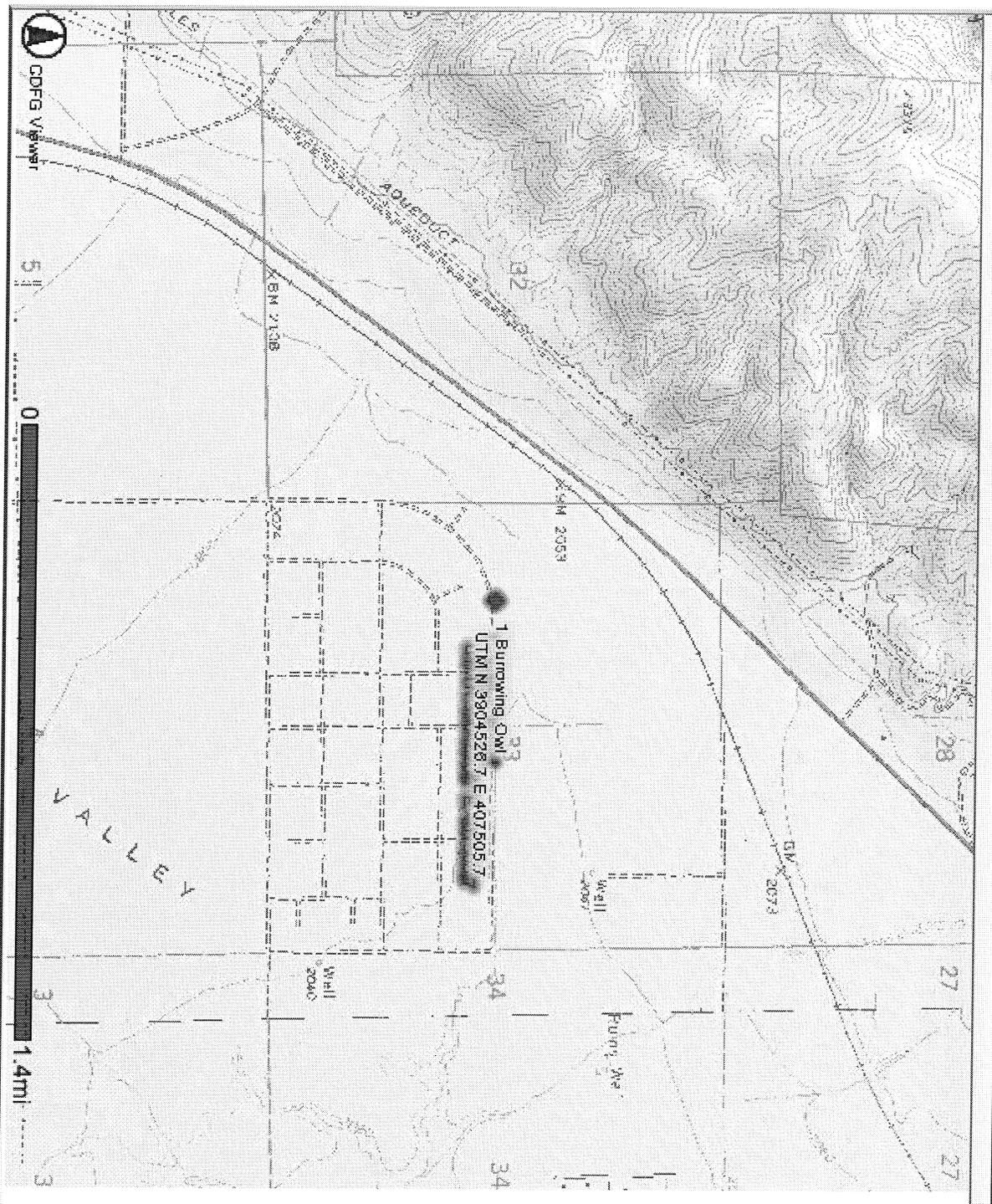
Info: Site available at <http://maps.dfg.ca.gov>

Author: **Barbra Calantias**

Date: **11/27/2007 4:55 PM**

Map Legend

-  Western States
-  Mexico





Burrowing Owl sighting

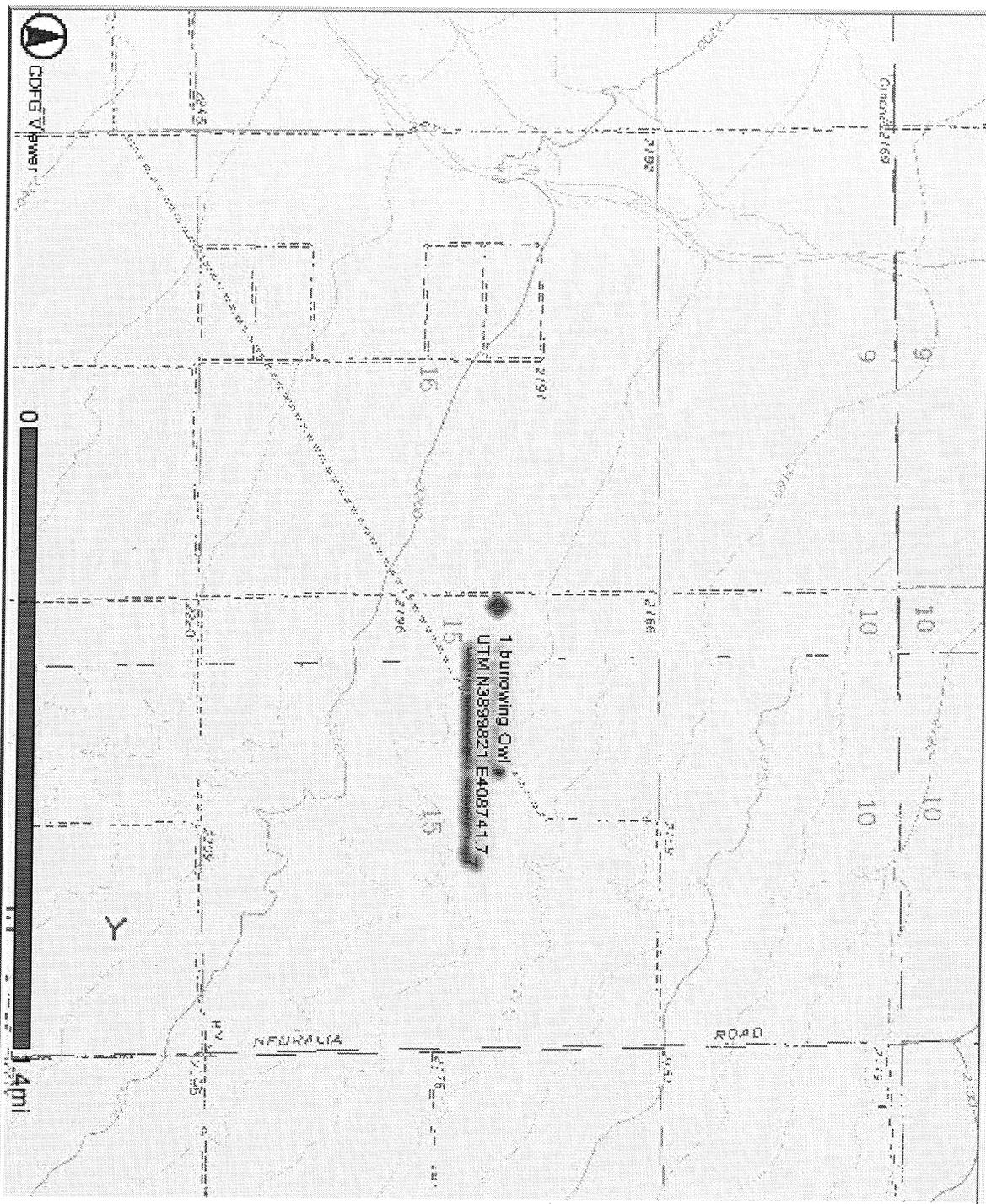
Info: Site available at <http://maps.dfg.ca.gov>

Author: **Peggy Wood**

Date: **12/3/2007 8:23 AM**

Map Legend

- Western States
- Mexico





Burrowing Owl sighting

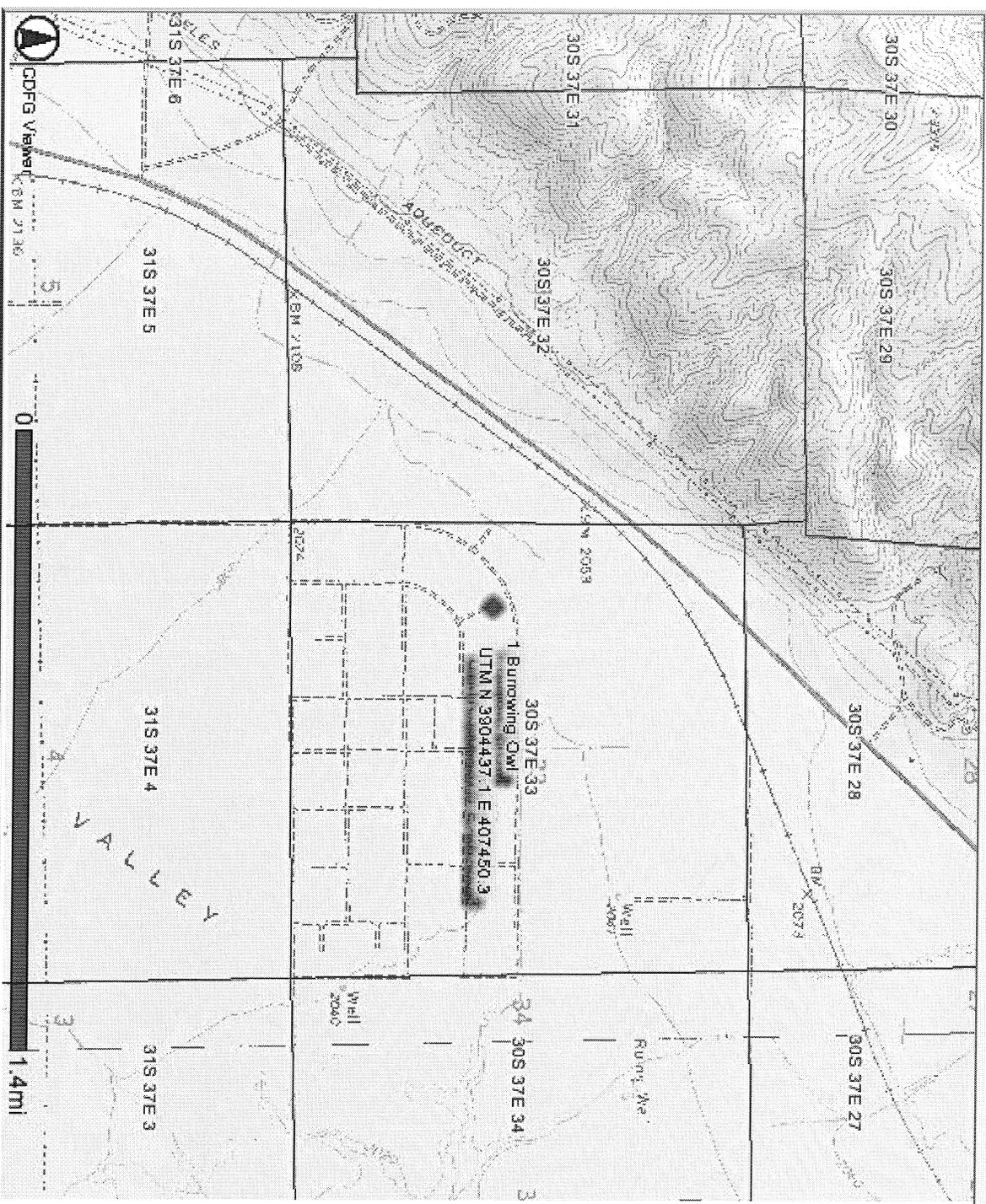
Info: Site available at <http://mmaps.dfg.ca.gov>

Author: **Peggy Wood**

Date: **12/3/2007 8:26 AM**

Map Legend

- PLSS (projected)
- Western States
- Mexico





Burrowing Owl sighting

Info: Site available at <http://maps.dfg.ca.gov>



Author: **Peggy Wood**
 Date: **12/3/2007 8:29 AM**

- Map Legend
- PLSS (projected)
 - Western States
 - Mexico



Burrowing Owl sighting

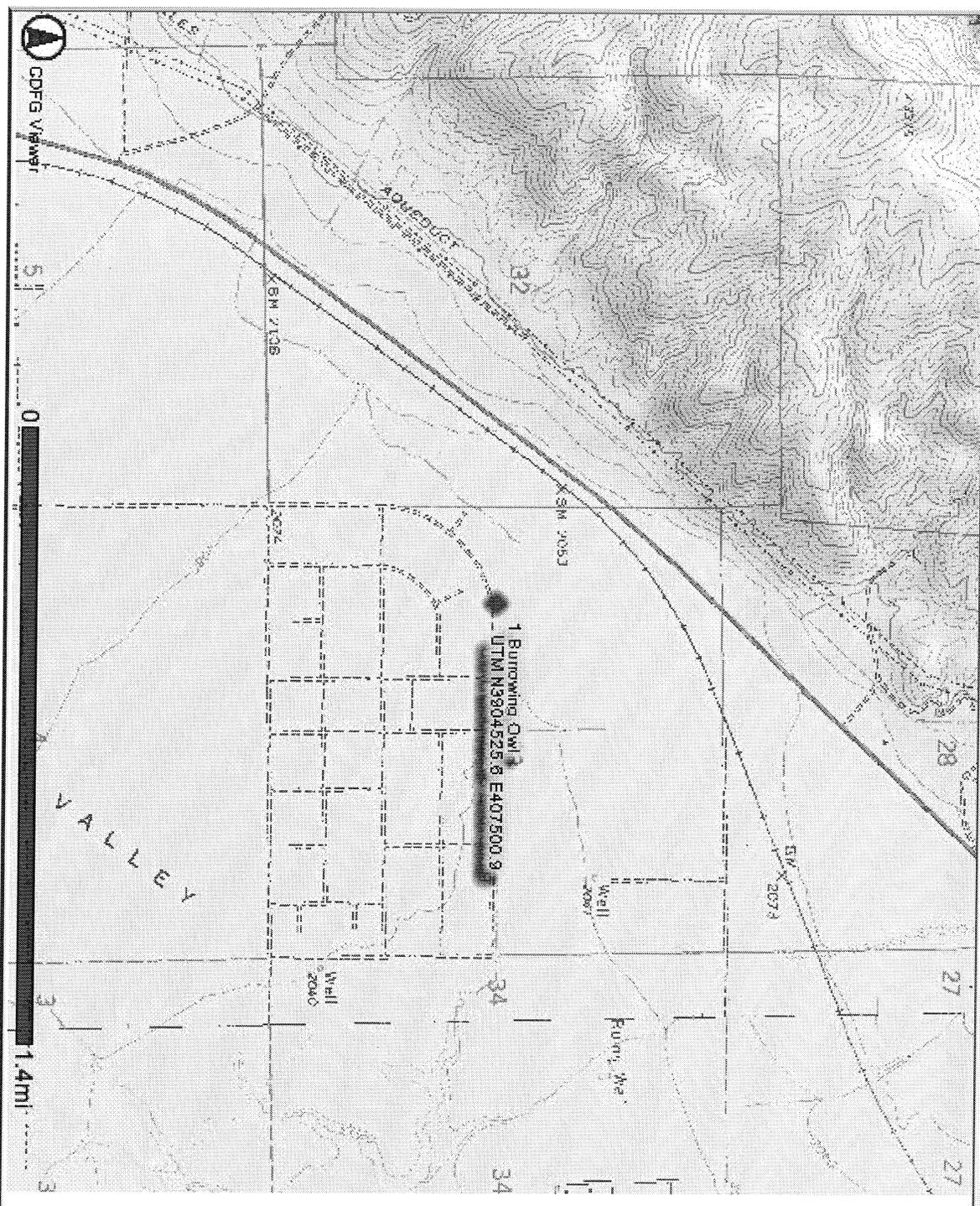
Info: Site available at <http://maps.dfg.ca.gov>

Author: **Barbra Calantas**

Date: **11/27/2007 4:46 PM**

Map Legend

- Western States
- Mexico



Mail to:
 California Natural Diversity Database
 Department of Fish and Game
 1807 13th Street, Suite 202
 Sacramento, CA 95814
 Fax: (916) 324-0475 email: CNDDDB@dfg.ca.gov

For Office Use Only

Source Code _____ Quad Code _____
 Elm Code _____ Occ. No. _____
 EO Index No. _____ Map Index No. _____

Date of Field Work (mm/dd/yyyy): 05/14/2007

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: Circus cyaneus

Common Name: Northern Harrier

Species Found? Yes No _____ If not, why? _____

Total No. Individuals 2 Subsequent Visit? yes no

Is this an existing NDDDB occurrence? _____ no unk.
Yes, Occ. #

Collection? If yes: _____
Number Museum / Herbarium

Reporter: Barbra Calantas

Address: 1420 Kettner Boulevard Suite 500
San Diego, CA 92101

E-mail Address: Barbra.Calantas@edaw.com

Phone: (619) 233-1454

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

2
 # adults # juveniles # larvae # egg masses # unknown

breeding wintering burrow site rookery nesting other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

County: Kern Landowner / Mgr.: Unknown

Quad Name: Cantil, CA Elevation: 2400 Feet

T 30S R 37E Sec 34, SE 1/4 of SE 1/4, Meridian: H M S Z
 Source of Coordinates (GPS, topo. map & type): GPS

T _____ R _____ Sec _____, _____ 1/4 of _____ 1/4, Meridian: H M S Z
 GPS Make & Model Garmin 5 GPSMAP76S

DATUM: NAD27 NAD83 WGS84
 Horizontal Accuracy 10 meters _____ meters/feet

Coordinate System: UTM Zone 10 UTM Zone 11 OR Geographic (Latitude & Longitude)

Coordinates: 410152, 3903856

Habitat Description (plant communities, dominants, associates, substrates/soils, aspects/slope):

The dominant plant community in the survey area is Mojave Creosote Bush Scrub, which is an open shrub community dominated by the creosote bush (*Larrea tridentata*). Other important shrubs in this community include white bursage (*Ambrosia dumosa*), box thorn (*Lycium andersonii*), silver cholla (*Opuntia echinocarpa*), and occasional Joshua trees (*Yucca brevifolia*). This community typically occurs on well-drained soils in alluvial fans, bajadas, and upland slopes.

Other rare taxa seen at THIS site on THIS date:
 (separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): Excellent Good Fair Poor

Immediate AND surrounding land use: solar array field, agriculture, wind power generation

Visible disturbances: Abandoned buildings, fallow agricultural lands

Threats: _____

Comments: _____

Determination: (check one or more, and fill in blanks)

Keyed (cite reference): _____

Compared with specimen housed at: _____

Compared with photo / drawing in: _____

By another person (name): _____

Other: _____

Photographs: (check one or more) Slide Print Digital

Plant / animal

Habitat

Diagnostic feature

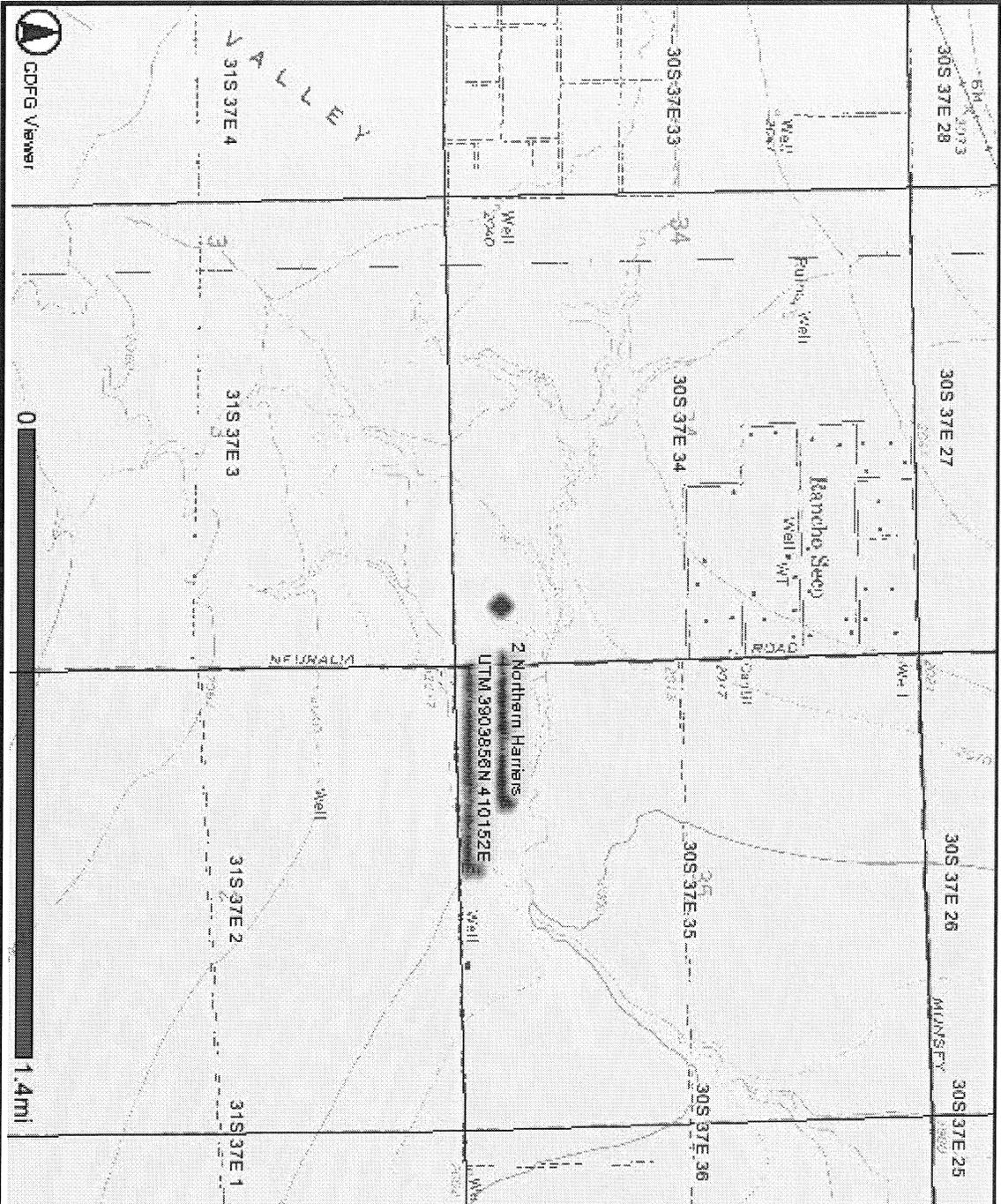
May we obtain duplicates at our expense? yes no



Northern Harrier Sighting

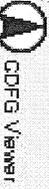
Info: Site available at <http://imaps.dfg.ca.gov>

Author: Lance Woolley
Date: 11/21/2007 2:36 PM



Map Legend

- PLSS (projected)
- Western States
- Mexico



Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814
Fax: (916) 324-0475 email: CNDDDB@dfg.ca.gov

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work (mm/dd/yyyy): 05/10/2007

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Toxostoma lecontei*

Common Name: Le Conte's Thrasher

Species Found? Yes No _____ If not, why?
Total No. Individuals 2 Subsequent Visit? yes no
Is this an existing NDDDB occurrence? _____ no unk.
Yes, Occ. # _____
Collection? If yes: _____
Number _____ Museum / Herbarium _____

Reporter: Suellen Lynn
Address: 1420 Kettner Boulevard Suite 500
San Diego, CA 92101
E-mail Address: Suellen.Lynn@edaw.com
Phone: (619) 233-1454

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

2
adults # juveniles # larvae # egg masses # unknown
 breeding wintering burrow site rookery nesting other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

County: Kern Landowner / Mgr.: _____
Quad Name: _____ Elevation: _____
T _____ R _____ Sec _____, _____ ¼ of _____ ¼, Meridian: H M S Source of Coordinates (GPS, topo. map & type): GPS
T _____ R _____ Sec _____, _____ ¼ of _____ ¼, Meridian: H M S GPS Make & Model Garmin2 GPSMAP76S
DATUM: NAD27 NAD83 WGS84 Horizontal Accuracy 10 meters meters/feet
Coordinate System: UTM Zone 10 UTM Zone 11 **OR** Geographic (Latitude & Longitude)
Coordinates: _____

Habitat Description (plant communities, dominants, associates, substrates/soils, aspects/slope):

The dominant plant community in the survey area is Mojave Creosote Bush Scrub, which is an open shrub community dominated by the creosote bush (*Larrea tridentata*). Other important shrubs in this community include white bursage (*Ambrosia dumosa*), box thorn (*Lycium andersonii*), silver cholla (*Opuntia echinocarpa*), and occasional Joshua trees (*Yucca brevifolia*). This community typically occurs on well-drained soils in alluvial fans, bajadas, and upland slopes.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): Excellent Good Fair Poor

Immediate AND surrounding land use:

Visible disturbances: solar array field, agriculture, wind power generation

Threats: Abandoned buildings, fallow agricultural lands

Comments:

Determination: (check one or more, and fill in blanks)

- Keyed (cite reference): _____
 Compared with specimen housed at: _____
 Compared with photo / drawing in: _____
 By another person (name): _____
 Other: _____

Photographs: (check one or more) Slide Print Digital

Plant / animal
Habitat
Diagnostic feature

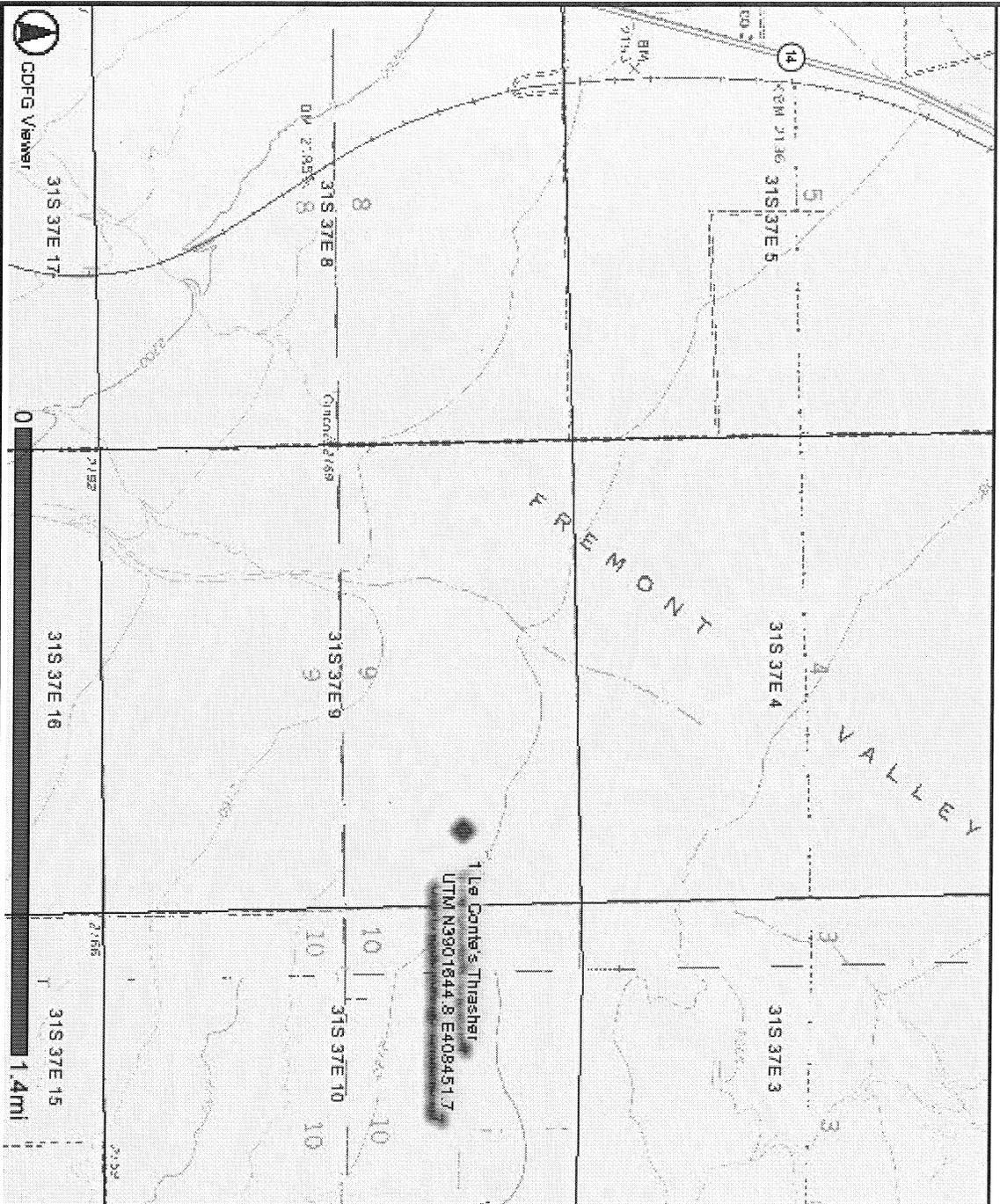
May we obtain duplicates at our expense? yes no



Le Conte's Thrasher sighting

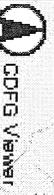
Info: Site available at <http://imaps.dfg.ca.gov>

Author: Suellen Lynn
Date: 11/27/2007 9:13 AM



Map Legend

- Highways**
- Interstate
 - US Highway
 - State Highway
 - PLSS (projected)
 - Western States
 - Mexico

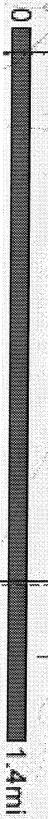
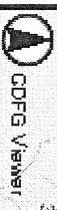
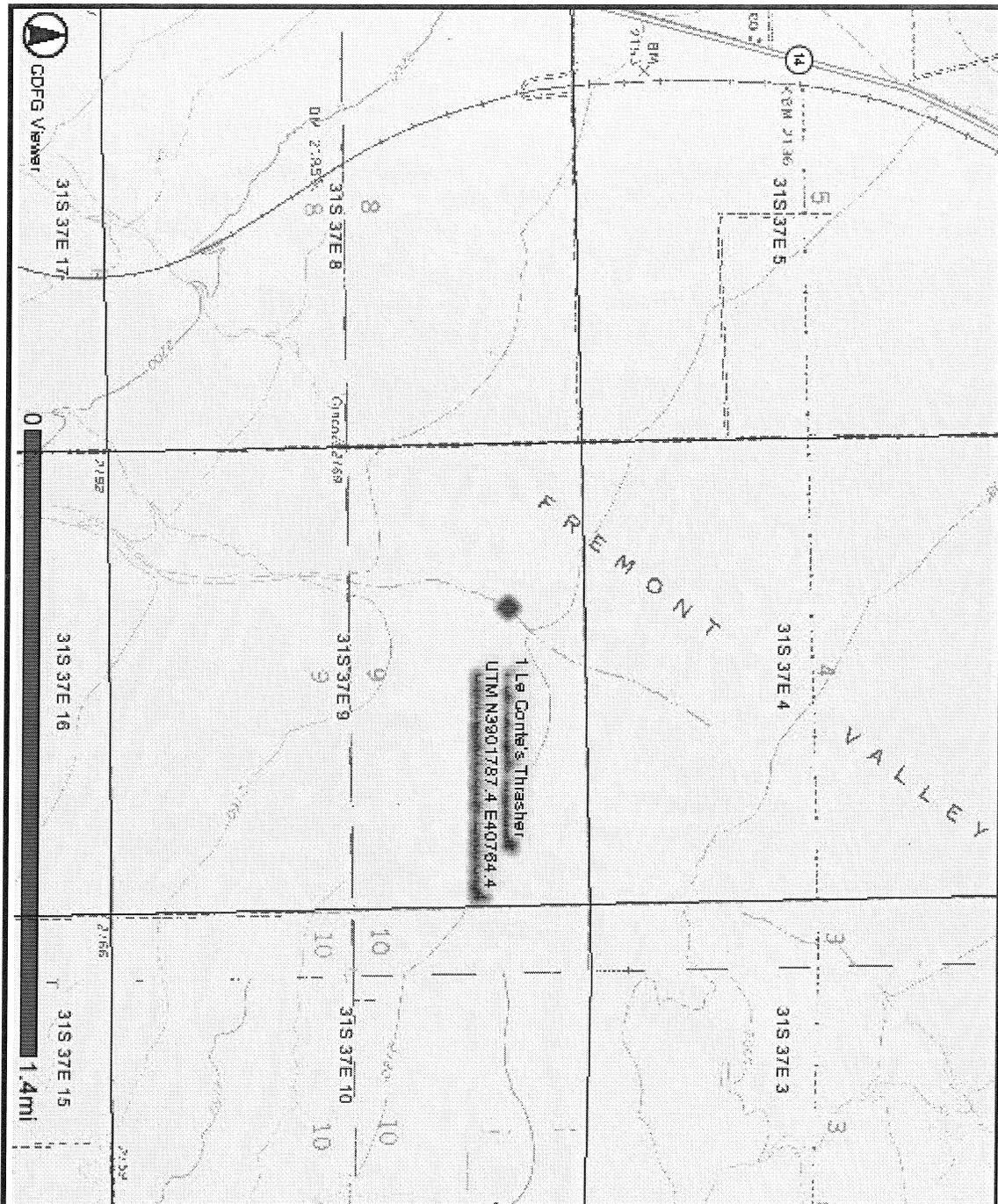




Le Conte's Thrasher sighting

Info: Site available at <http://imaps.dfg.ca.gov>

Author: Suellen Lynn
Date: 11/27/2007 9:28 AM



Map Legend

- Highways
- Interstate
- US Highway
- State Highway
- PLSS (projected)
- Western States
- Mexico

Mail to:
 California Natural Diversity Database
 Department of Fish and Game
 1807 13th Street, Suite 202
 Sacramento, CA 95814
 Fax: (916) 324-0475 email: CNDDDB@dfg.ca.gov

For Office Use Only

Source Code _____ Quad Code _____
 Elm Code _____ Occ. No. _____
 EO Index No. _____ Map Index No. _____

Date of Field Work (mm/dd/yyyy): 05/11/2007

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Falco peregrinus*

Common Name: Peregrine Falcon

Species Found? Yes No _____ If not, why?
 Total No. Individuals 1 Subsequent Visit? yes no
 Is this an existing NDDB occurrence? _____ no unk.
 Yes, Occ. # _____
 Collection? If yes: _____
 Number _____ Museum / Herbarium _____

Reporter: Suellen Lynn
 Address: 1420 Kettner boulevard Suite 500
 E-mail Address: Suellen.Lynn@edaw.com
 Phone: (619) 233-1454

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

1
 # adults # juveniles # larvae # egg masses # unknown
 breeding wintering burrow site rookery nesting other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

County: Kern Landowner / Mgr.: _____
 Quad Name: _____ Elevation: _____
 T _____ R _____ Sec _____, _____ ¼ of _____ ¼, Meridian: H M S Source of Coordinates (GPS, topo. map & type): GPS
 T _____ R _____ Sec _____, _____ ¼ of _____ ¼, Meridian: H M S GPS Make & Model Garmin 2 GPSMAP76S
DATUM: NAD27 NAD83 WGS84 Horizontal Accuracy _____ meters/feet
Coordinate System: UTM Zone 10 UTM Zone 11 OR Geographic (Latitude & Longitude)
 Coordinates: _____

Habitat Description (plant communities, dominants, associates, substrates/soils, aspects/slope):

The dominant plant community in the survey area is Mojave Creosote Bush Scrub, which is an open shrub community dominated by the creosote bush (*Larrea tridentata*). Other important shrubs in this community include white bursage (*Ambrosia dumosa*), box thorn (*Lycium andersonii*), silver cholla (*Opuntia echinocarpa*), and occasional Joshua trees (*Yucca brevifolia*). This community typically occurs on well-drained soils in alluvial fans, bajadas, and upland slopes.

Other rare taxa seen at THIS site on THIS date:
 (separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): Excellent Good Fair Poor

Immediate AND surrounding land use:

Visible disturbances: solar array field, agriculture, wind power generation

Threats: Abandoned buildings, fallow agricultural lands

Comments:

Determination: (check one or more, and fill in blanks)

Keyed (cite reference): _____
 Compared with specimen housed at: _____
 Compared with photo / drawing in: _____
 By another person (name): _____
 Other: _____

Photographs: (check one or more) Slide Print Digital

Plant / animal
 Habitat
 Diagnostic feature

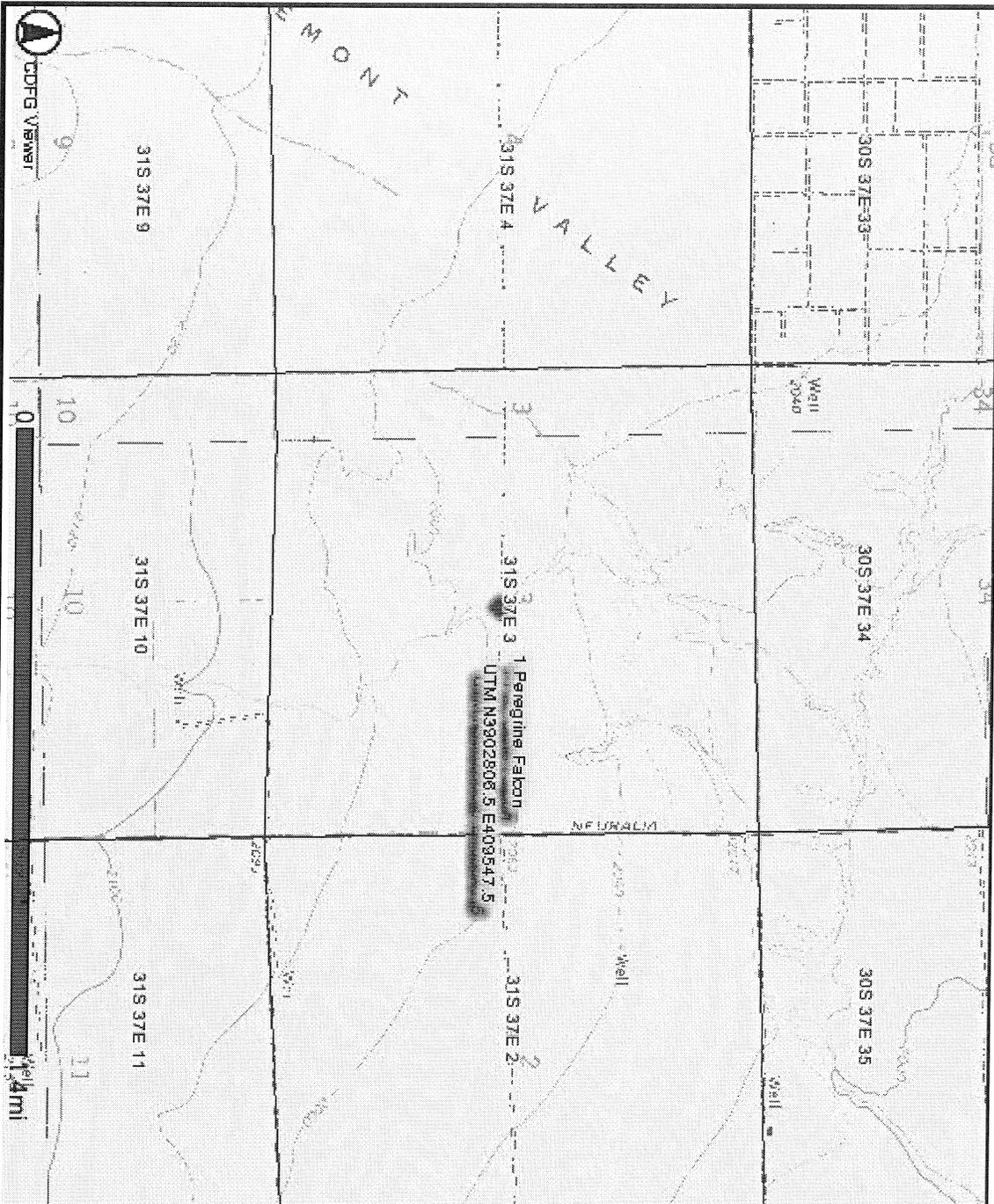
May we obtain duplicates at our expense? yes no



Peregrine Falcon sighting

Info: Site available at <http://imaps.dfg.ca.gov>

Author: Suellen Lynn
Date: 11/27/2007 9:34 AM



Map Legend

- Highways**
 - Interstate
 - US Highway
 - State Highway
 - PLSS (projected)
 - Western States
 - Mexico

Mail to:
 California Natural Diversity Database
 Department of Fish and Game
 1807 13th Street, Suite 202
 Sacramento, CA 95814
 Fax: (916) 324-0475 email: CNDDDB@dfg.ca.gov

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Source Code _____ Quad Code _____
 Elm Code _____ Occ. No. _____
 EO Index No. _____ Map Index No. _____

Date of Field Work (mm/dd/yyyy): 07/12/2007

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Lanius ludovicianus*

Common Name: Loggerhead Shrike

Species Found? Yes No _____ If not, why? _____
 Total No. Individuals 1 Subsequent Visit? yes no
Is this an existing NDDB occurrence? _____ no unk.
 Yes, Occ. # _____
 Collection? If yes: _____
 Number _____ Museum / Herbarium _____

Reporter: Andrea CurryLow
Address: 1420 Kettner Boulevard Suite 500
San Diego, CA 92101
E-mail Address: Andrea.Currylow@edaw.com
Phone: (619) 233-1454

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

1
 # adults # juveniles # larvae # egg masses # unknown
 breeding wintering burrow site rookery nesting other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

County: Kern Landowner / Mgr.: _____
 Quad Name: _____ Elevation: _____
 T _____ R _____ Sec _____, _____ ¼ of _____ ¼, Meridian: H M S Source of Coordinates (GPS, topo. map & type): GPS
 T _____ R _____ Sec _____, _____ ¼ of _____ ¼, Meridian: H M S GPS Make & Model Garmin 5 GPSMAP76S
DATUM: NAD27 NAD83 WGS84 Horizontal Accuracy 10 meters meters/feet
Coordinate System: UTM Zone 10 UTM Zone 11 **OR** Geographic (Latitude & Longitude)
Coordinates: _____

Habitat Description (plant communities, dominants, associates, substrates/soils, aspects/slope):
 The dominant plant community in the survey area is Mojave Creosote Bush Scrub, which is an open shrub community dominated by the creosote bush (*Larrea tridentata*). Other important shrubs in this community include white bursage (*Ambrosia dumosa*), box thorn (*Lycium andersonii*), silver cholla (*Opuntia echinocarpa*), and occasional Joshua trees (*Yucca brevifolia*). This community typically occurs on well-drained soils in alluvial fans, bajadas, and upland slopes.

Other rare taxa seen at THIS site on THIS date:
 (separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): Excellent Good Fair Poor
 Immediate AND surrounding land use: solar array field, agriculture, wind power generation
 Visible disturbances: Abandoned buildings, fallow agricultural lands
 Threats: _____
 Comments: _____

Determination: (check one or more, and fill in blanks)

Keyed (cite reference): _____
 Compared with specimen housed at: _____
 Compared with photo / drawing in: _____
 By another person (name): _____
 Other: _____

Photographs: (check one or more) Slide Print Digital

Plant / animal
 Habitat
 Diagnostic feature

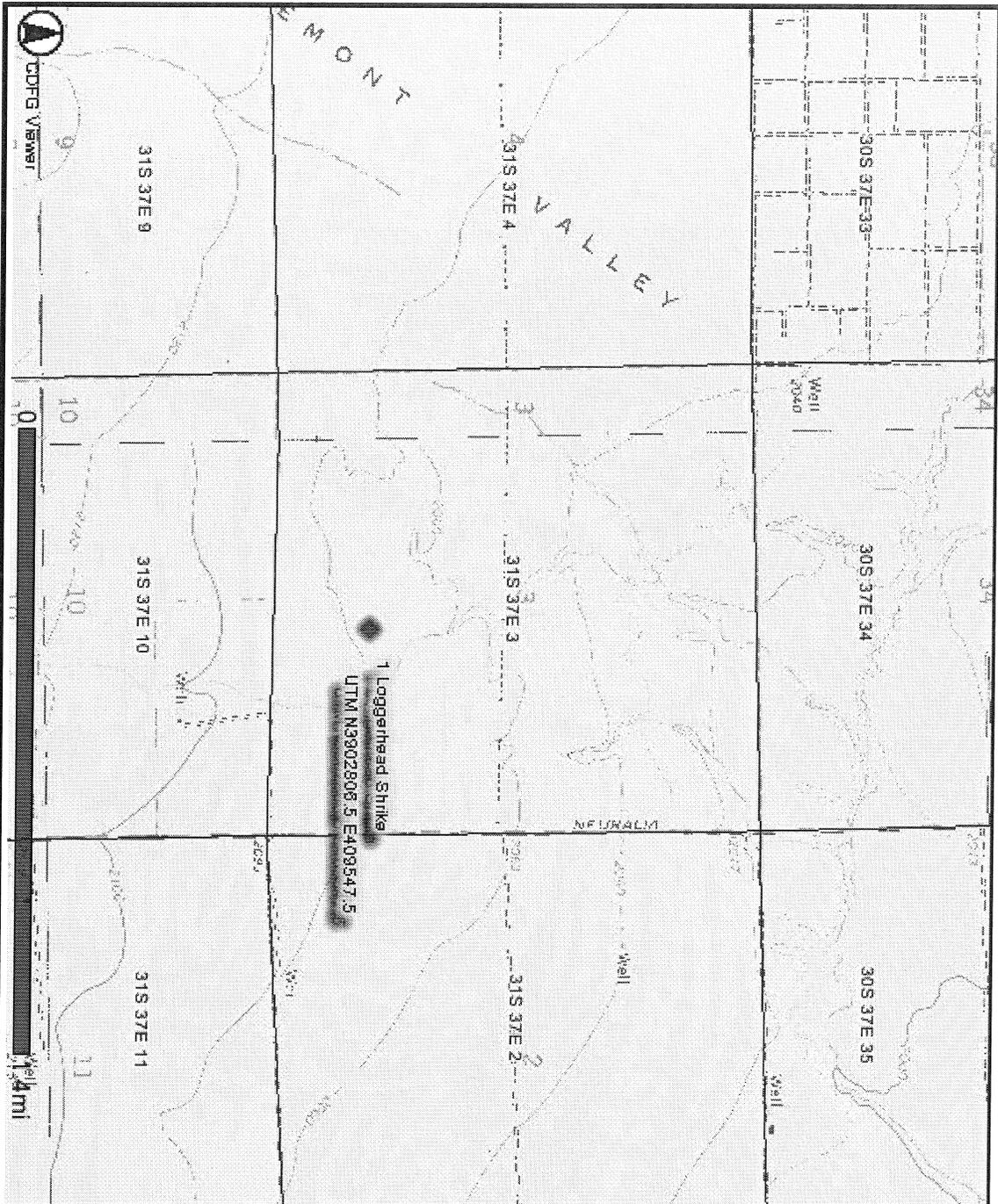
May we obtain duplicates at our expense? yes no



Loggerhead Shrike sighting

Info: Site available at <http://imaps.dfg.ca.gov>

Author: Andrea CurryLow
Date: 11/27/2007 9:52 AM



Map Legend

- Highways
- Interstate
- US Highway
- State Highway
- PLSS (projected)
- Western States
- Mexico

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814

Fax: (916) 324-0475 email: CNDDDB@dfg.ca.gov

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work (mm/dd/yyyy): 05/10/2007

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Gopherus agassizii*

Common Name: Desert Tortoise

Species Found? Yes No _____
If not, why? _____

Reporter: Peggy Wood

Address: 1133 N. Cedarwood drive
Bozeman, MT 59715

E-mail Address: pegwood@mtwest.net

Phone: (435) 881-6444

Total No. Individuals 6 Subsequent Visit? yes no

Is this an existing NDDDB occurrence? _____ no unk.
Yes, Occ. # _____

Collection? If yes: _____
Number _____ Museum / Herbarium _____

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

6
adults # juveniles # larvae # egg masses # unknown
 breeding wintering burrow site rookery nesting other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

County: Kern Landowner / Mgr.: _____

Quad Name: _____ Elevation: _____

T _____ R _____ Sec _____, _____ 1/4 of _____ 1/4, Meridian: H M S Source of Coordinates (GPS, topo. map & type): GPS

T _____ R _____ Sec _____, _____ 1/4 of _____ 1/4, Meridian: H M S GPS Make & Model Garmin 2 GPSMAP76

DATUM: NAD27 NAD83 WGS84 Horizontal Accuracy 10 meters _____ meters/feet

Coordinate System: UTM Zone 10 UTM Zone 11 OR Geographic (Latitude & Longitude)

Coordinates: _____

Habitat Description (plant communities, dominants, associates, substrates/soils, aspects/slope):

The dominant plant community in the survey area is Mojave Creosote Bush Scrub, which is an open shrub community dominated by the creosote bush (*Larrea tridentata*). Other important shrubs in this community include white bursage (*Ambrosia dumosa*), box thorn (*Lycium andersonii*), silver cholla (*Opuntia echinocarpa*), and occasional Joshua trees (*Yucca brevifolia*). This community typically occurs on well-drained soils in alluvial fans, bajadas, and upland slopes.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): Excellent Good Fair Poor

Immediate AND surrounding land use:

Visible disturbances: solar array field, agriculture, wind power generation

Threats: Abandoned buildings, fallow agricultural lands

Comments:

Determination: (check one or more, and fill in blanks)

- Keyed (cite reference): _____
- Compared with specimen housed at: _____
- Compared with photo / drawing in: _____
- By another person (name): _____
- Other: _____

Photographs: (check one or more)

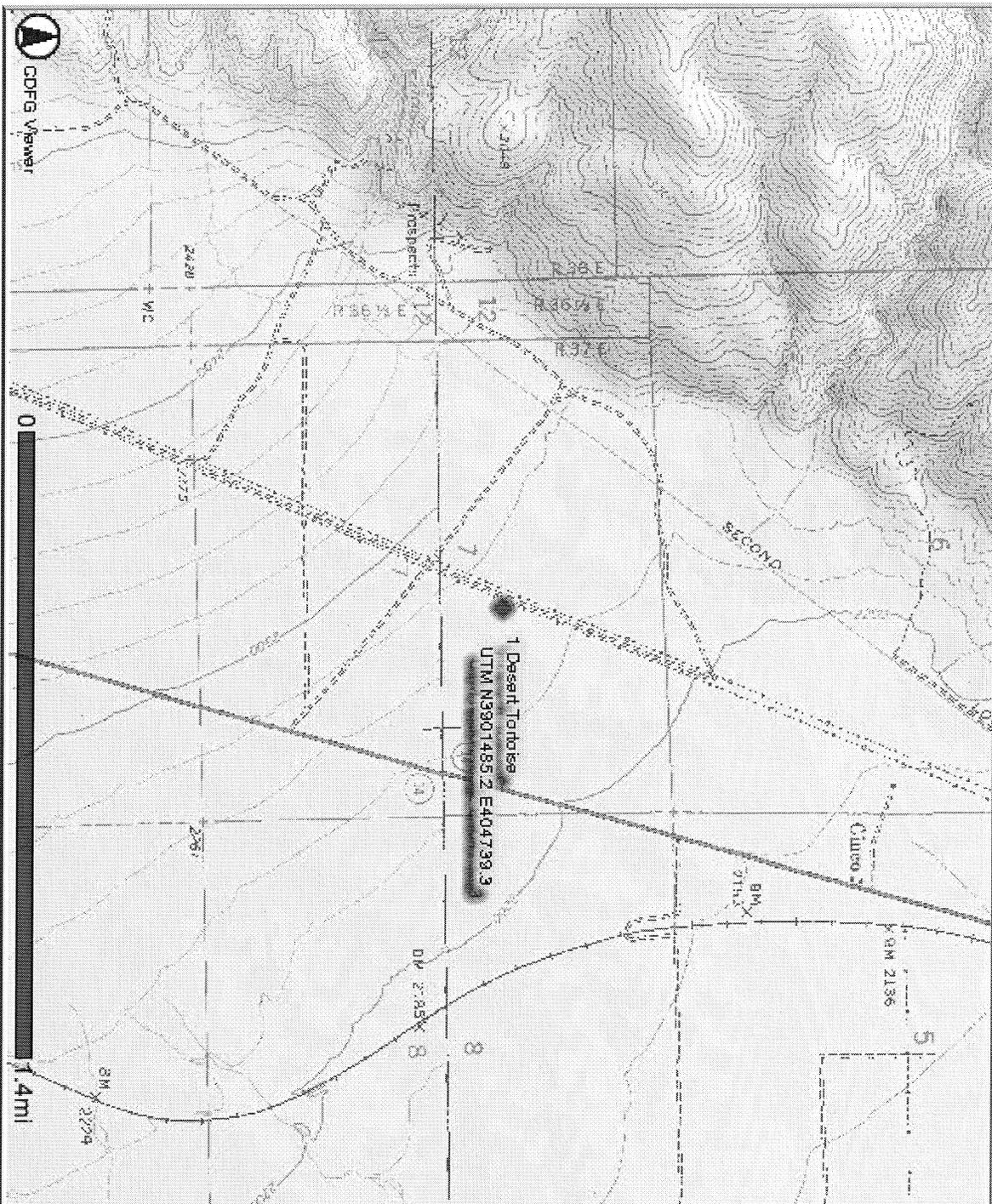
	Slide	Print	Digital
Plant / animal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Habitat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diagnostic feature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

May we obtain duplicates at our expense? yes no



Desert Tortoise sighting

Info: Site available at <http://maps.dfg.ca.gov>



Author: **Suellen Lynn**

Date: **11/27/2007 3:59 PM**

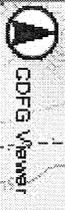
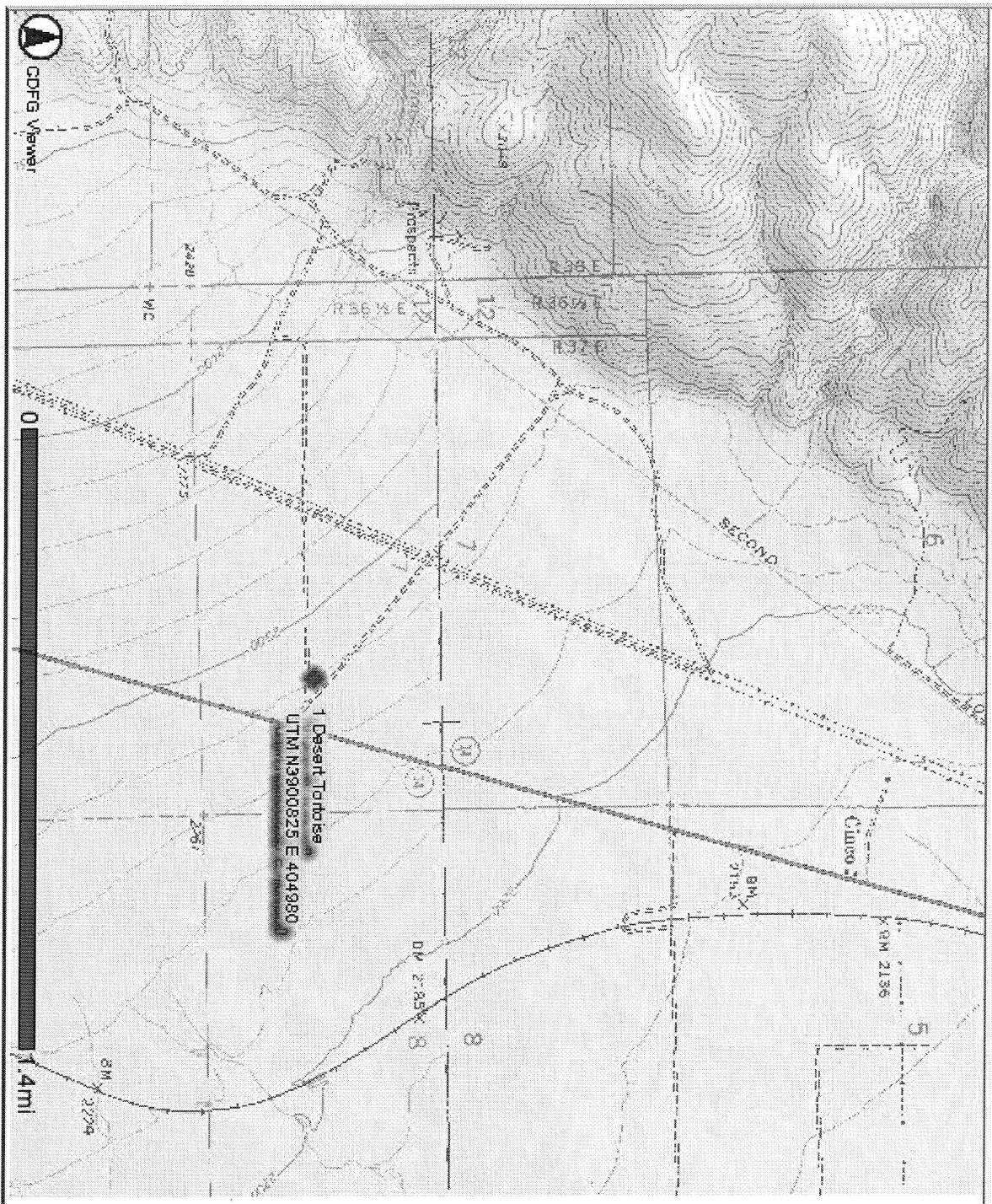
Map Legend

- Western States
- Mexico



Desert Tortoise sighting

Info: Site available at <http://maps.dfg.ca.gov>



Author: Peggy Wood
 Date: 11/27/2007 4:04 PM

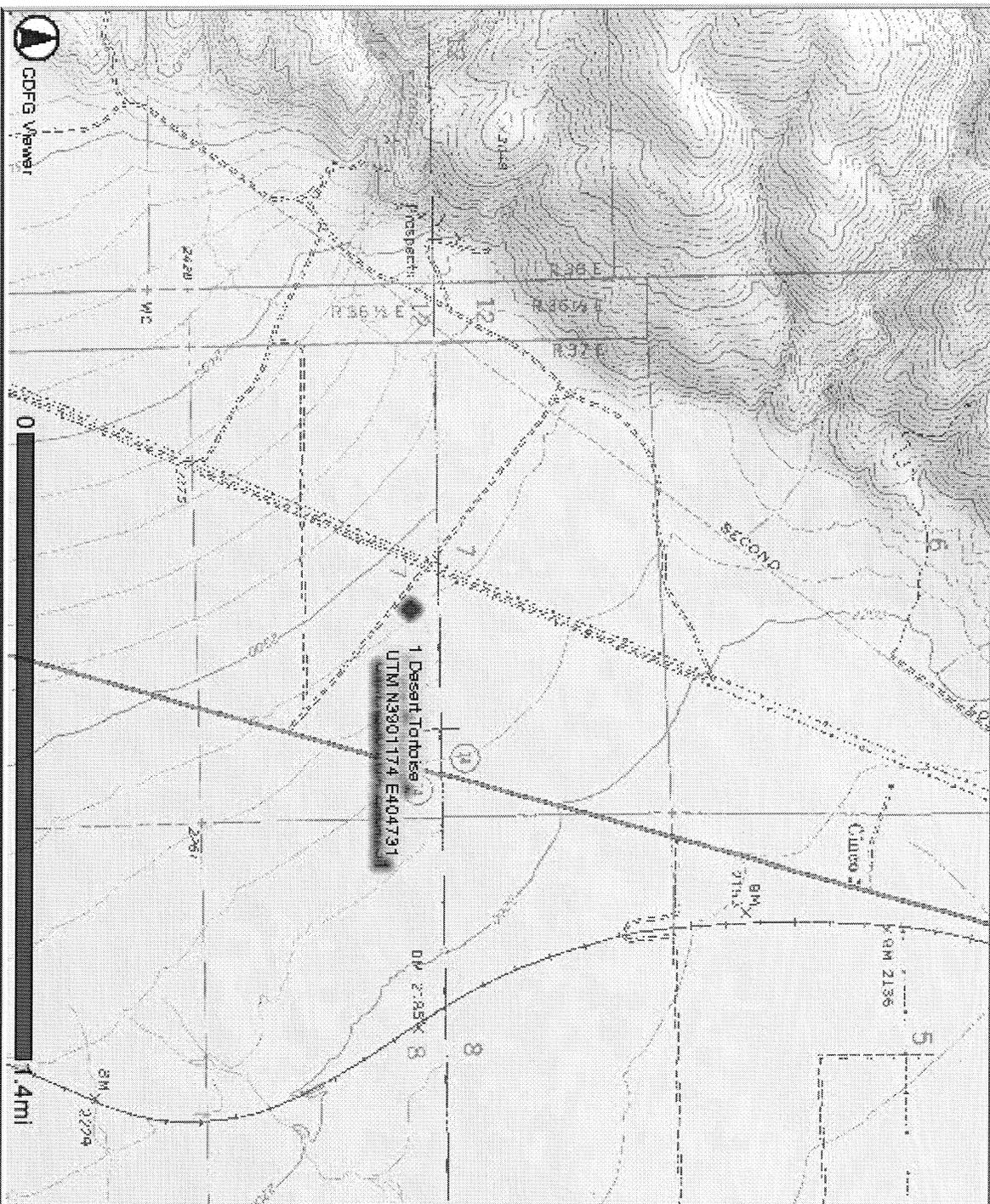
- Western States
- Mexico

Map Legend



Desert Tortoise sighting

Info: Site available at <http://maps.dfg.ca.gov>



Author: Peggy Wood
Date: 11/27/2007 4:07 PM

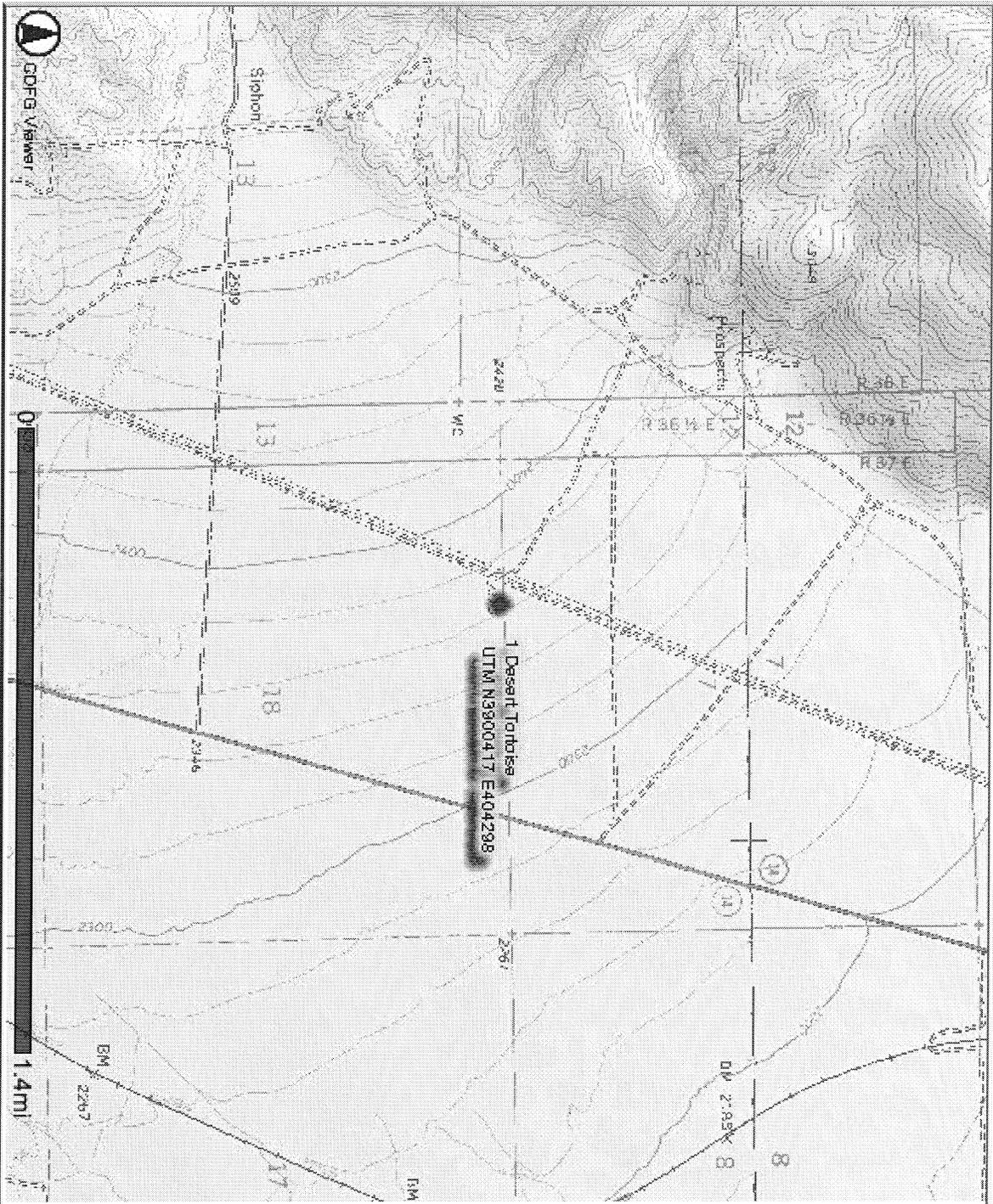
Map Legend

- Western States
- Mexico



Desert Tortoise sighting

Info: Site available at <http://maps.dfg.ca.gov>



Author: Peggy Wood
Date: 11/27/2007 4:10 PM

Map Legend

- Western States
- Mexico



Desert Tortoise sighting

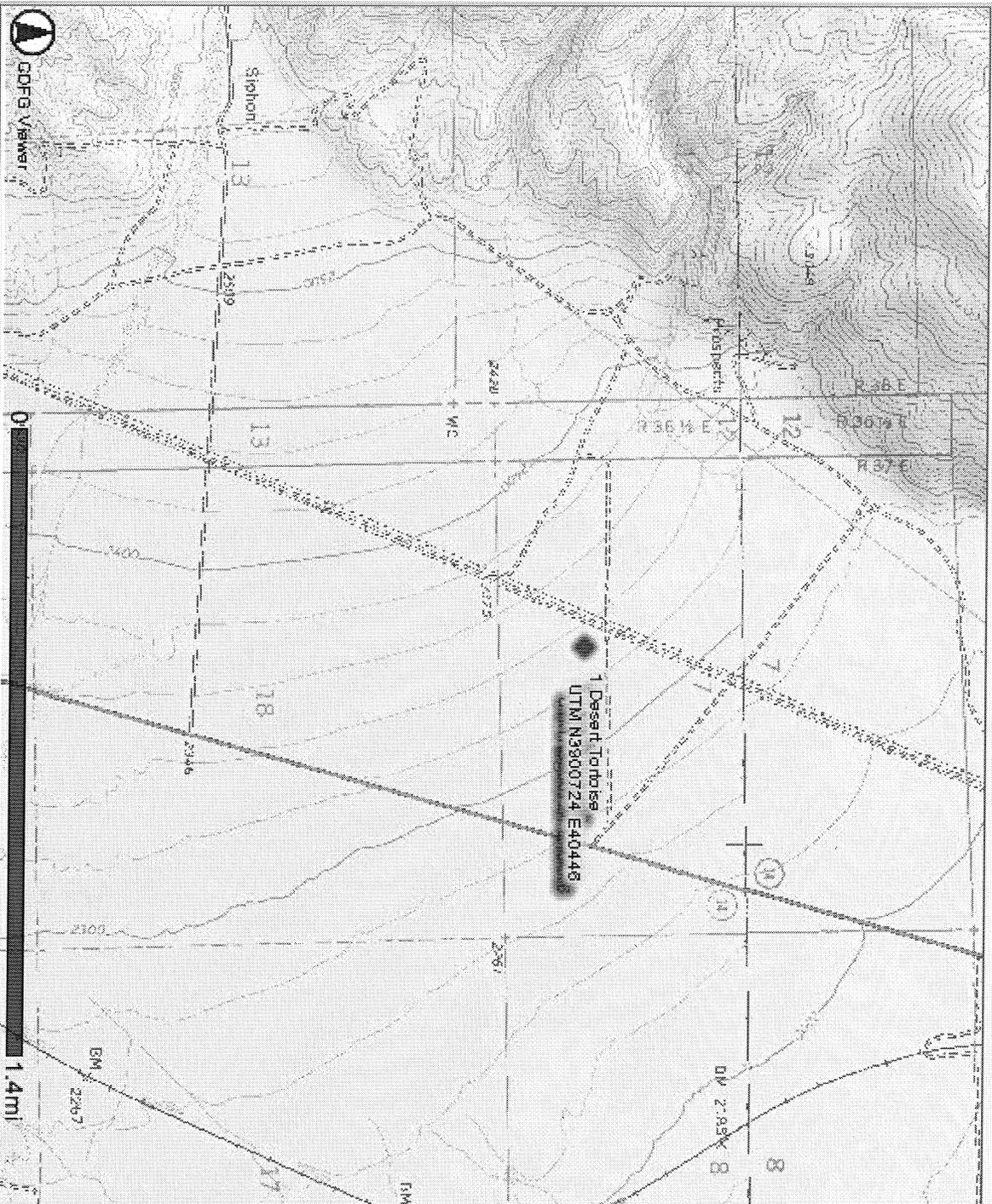
Info: Site available at <http://jmaps.dfg.ca.gov>

Author: Peggy Wood

Date: 11/27/2007 4:16 PM

Map Legend

-  Western States
-  Mexico





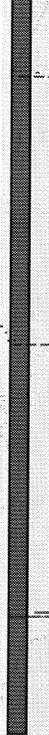
Desert Tortoise sighting

Info: Site available at <http://maps.dfg.ca.gov>



GDG Viewer

0



1.4mi

Author: **Peggy Wood**

Date: **11/27/2007 4:35 PM**

Map Legend

- Western States
- Mexico