

Appendix D

Biological Resources Technical Studies

Memorandum

Date: January 13, 2014

To: Mr. Ray Bransfield, USFWS

Cc: Peter Godfrey, BLM
Kim Marsden, BLM
Marisa Mitchell, Recurrent Energy

From: AECOM Staff

Subject: Golden Eagle (*Aquila chrysaetos*) Analysis for the Recurrent Energy Cinco Project, Kern County, California

Recurrent Energy (RE) (the Applicant) is proposing to construct the RE Cinco Project (Solar Facility Project), a nominal 60-megawatt commercial electric-power-generating project using photovoltaic (PV) technology, and a generation tie line connecting to the Los Angeles Department of Water and Power (LADWP) Barren Ridge substation (Gen-tie Project). These two projects are collectively referred to as the Projects and where they are located is known as the Project site. This document addresses the potential impacts to golden eagle (*Aquila chrysaetos*), a State of California fully protected species, from construction, operation, and decommissioning of the Projects. No golden eagle surveys were conducted for the Projects; however, golden eagle surveys were conducted in 2011 for the nearby Beacon PV project (CH2M Hill 2011), and those results are included in this analysis. Permission was received from LADWP to use the data from the Beacon PV project (now owned by LADWP) for the purposes of this analysis.

Project Location

The Projects would be located in unincorporated southeastern Kern County, approximately 6.5 miles northwest of the community of California City, approximately 12 miles northeast of the community of Mojave, and approximately 0.8 mile south of the Los Angeles Aqueduct. The 500-acre solar facility development area is located on one 594-acre privately owned parcel, which consists entirely of vacant land. The parcel is bisected by State Route (SR) 14, which also provides access to the parcel. Other features consist of a LADWP transmission corridor easement extending through the northeast corner of the parcel north and west of the solar facility development area, and Phillips Road, which extends through the southeast portion of the parcel and south and east of the solar facility development area.

Project Description

The Solar Facility Project involves development of an independent solar PV power-generating facility near the towns of California City and Mojave within Kern County,

California. The Solar Facility Project includes installation of solar PV panels and associated facilities, including a substation within the 500-acre development area; equipment pads; interior access roads; perimeter fencing; and construction storage, staging, and laydown areas. The Gen-tie Project would include a 230-kV transmission line and supporting features, including a maintenance access road, spur roads, and pull and splice sites.

The Gen-tie Project would be constructed within a right-of-way (ROW) on land owned by the federal government and administered by the Bureau of Land Management (BLM). Use of the federal land would involve issuance of a ROW grant to the Applicant by BLM.

The total Solar Facility Project disturbance area would be 500 acres, with approximately 94 acres left undeveloped, including the area east of SR-14, the small northwestern area west of the existing LADWP transmission corridor easement, and the riparian extent of the major drainage on the west edge of the property.

The separate Gen-tie Project impact acreage will depend on the configuration selected, but is estimated to include approximately 1.9 acres of permanent impacts and 9.8 acres of temporary impact based on the current conceptual design (see discussion below).

The Solar Facility Project would consist of the following components: (1) a solar field of PV panels mounted on steel and aluminum structures, (2) an electrical collection system that would aggregate the output from the PV panels and convert the electricity from direct current (DC) to alternating current (AC) via inverters, (3) a substation where the electrical output would be combined and its voltage increased by transformers, and (4) internal infrastructure such as roads, fences, and an operations and maintenance building.

The Gen-tie Project would be constructed predominantly on federally owned land administered by BLM, and would convey power from the solar project to the local power grid via a generation tie-line that would connect to the LADWP Barren Ridge Substation located approximately 1.75 miles from the Project site. The Gen-tie Project would consist of monopoles, access roads, and pull/splice sites. Lattice structures may be used on either side of Pine Tree Canyon Wash in place of monopoles to facilitate spanning the wash at a lower height and avoiding impacts to jurisdictional waters. This would also reduce the number of poles. The 150-foot-wide ROW for the Gen-tie Project would be approximately 1.9 miles long and encompass approximately 36.3 acres. The Gen-tie Project would consist of approximately 11 poles, with an average span of 400 feet between poles to accommodate structures and conductors and 2 lattice structures. All components associated with the Gen-tie Project would be located within the proposed 150-foot-wide ROW.

Survey Methodology

Four 1-day raptor surveys were conducted in May 2011 by biologists with Rincon Consultants to identify special status raptors, such as golden eagles, that may occur within the Project site and a 1-mile buffer (Rincon Consultants 2011). Surveys included a visual inspection of all potential nesting areas (e.g. towers, cliffs, Joshua trees). Biologists also

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surveyed for soaring individuals within the Project site and a 1-mile buffer. The entire Project site and buffer area were searched each visit with a focus in areas with the highest potential for raptors (e.g. cliffs, ridgelines, towers).

Golden eagle nest surveys were conducted June 2 through June 7, 2011, by CH2M HILL biologists for the Beacon PV project (CH2M HILL 2011). The project site for the Beacon PV project is located a few miles northeast of the Project site along SR-14. Golden eagle surveys included a 10-mile radius aerial survey of all potential golden eagle nesting areas (cliffs, trees, transmission towers, etc.) around the Beacon PV project. This 10-mile radius encompasses the Project site. Aerial surveys conducted for the Beacon PV project followed the U.S. Fish and Wildlife Service (USFWS) Interim Golden Eagle Inventory and Monitoring Protocols (Pagel et al. 2010).

Golden eagle nest surveys were conducted by aerial survey over 252,304 acres to look for new golden eagle nests and to verify the location and status of known golden eagle nests based on data from BLM. The details of the golden eagle nest survey methodology are documented in the CH2M HILL 2011 survey report, and summarized below.

Nest locations were recorded using resource-grade Trimble Geo XT handheld global positioning system (GPS) units; a Robinson 44 helicopter was used to conduct surveys. The survey area included the Beacon PV project site and a 10-mile radius. Map grids, each measuring approximately 5 by 4 miles, were established and overlaid over the survey map to assist with the aerial survey effort.

Transects between 0.25 and 0.5 mile apart were flown across each map grid, with greater focus in areas of suitable golden eagle nesting habitat and structures (rock outcrops, cliffs, large trees, transmission line towers). When a nest was located, the biologist recorded nest attribute data, including species, nest type, nest status, nest condition, nest height, substrate, substrate height, nest aspect, and GPS accuracy.

Results

No golden eagles were observed during the May 2011 raptor surveys of the Project site (Rincon Consultants 2011). The closest golden eagle nesting location as of spring and summer 2011 was approximately 3.5 miles to the north of the northern terminus of the Gentie Project, where it enters the LADWP Barren Ridge Substation (Figure 1). This location had three nests on a cliff located a few hundred feet from each other, all of which were recorded as inactive in 2011. The closest active golden eagle nest in 2011 was approximately 5 miles to the west of the Project site (CH2M HILL nest ID 31 or BLM Nest ID 4 in CH2M HILL 2011). This golden eagle nest was recorded as having two fledgling golden eagles in June 2011. This nest was located on a cliff approximately 200 feet above ground level, with a north aspect within Pine Tree Canyon. Since this nest site is west of the Project site with a north aspect and surrounding mountainous terrain, it is not possible for golden eagles to see the Project site from the nest location. The nest is on a north-facing aspect and located at an elevation of approximately 4,050 feet. There is a ridgeline between the

golden eagle nest and the Project site that is approximately 4,180 feet; therefore, it is not possible for a golden eagle at the nest location to see the Project site. In addition, noise attenuation from construction at this distance, and with the intervening topography, would be such that eagles located at this nest site would not hear noise generated at the Project site. There are additional active and inactive golden nests located farther away (more than 5 miles from the Project site), which are detailed in the CH2M HILL 2011 report and shown on Figure 2. Per USFWS Interim Golden Eagle Inventory and Monitoring Protocols (Pagel et al. 2010), aerial surveys including a 10-mile radius buffer around project sites are suggested. Additional nests within the 10-mile radius buffer are historically known based on data from the USFWS, BLM, and some of the nests were found by CH2M HILL during aerial surveys for the Beacon PV project (CH2M HILL 2011).

Discussion

Golden eagles are known to prey upon a variety of mammalian and avian species, as well as feed on carrion. One of the primary prey species for golden eagles throughout much of their range is black-tailed jackrabbits (*Lepus californicus*) (Kochert et al. 2002), which inhabit creosote bush (*Larrea tridentata*) scrub within the Mojave Desert. The primary vegetation community within the Project site is creosote bush scrub. Golden eagles forage over vast amounts of area depending on prey availability, and home ranges may extend from approximately 8.5 to 12.7 square miles during the breeding season (Kochert et al. 2002). Given the large amount of potential foraging area around the Project site, 500 acres is a relatively small portion. The surrounding habitat is mature creosote bush scrub where golden eagles would still be able to forage.

No golden eagles were observed within the Project site or on the nearby Beacon PV project site during surveys; however, they may occasionally forage within the Project site. The closest recorded active nest as of 2011 was approximately 5 miles west within Pine Tree Canyon with a north aspect. This nest location is unlikely to be negatively affected by project construction or operation due to the project distance, lack of direct line of sight, and mountainous terrain between the nest and the Project site.

The Solar Facility Project would use PV technology to create electricity; there is no need for evaporation ponds or other ponded water features that may attract wildlife species that golden eagles might prey on. The primary potential impacts to golden eagle would occur through an increase in available perching structures in the form of 13 new utility poles/towers within the Gen-tie Project. The attraction of utility poles to golden eagles would be a risk, as electrocutions are a leading cause of eagle mortality. However, this risk can be managed and minimized by constructing utility poles and towers according to Avian Power Line Interaction Committee (APLIC) construction standards (APLIC 2012), which would minimize the risk of electrocution. The monopole structures would not support nesting for golden eagles. The two lattice structures, if used to cross Pine Tree Creek Wash, would be designed/fitted to prevent golden eagles from nesting. In addition, electrical lines associated with the solar field would either be underground or designed in accordance with APLIC standards and made visible to minimize the potential for golden eagles to collide with those

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structures. Additionally the Gen-tie Project will be collocated within a BLM 368 corridor near two other high-voltage transmission lines. The location of the line adjacent to existing transmission lines would only marginally add to the risk of collision/electrocution from current baseline conditions.

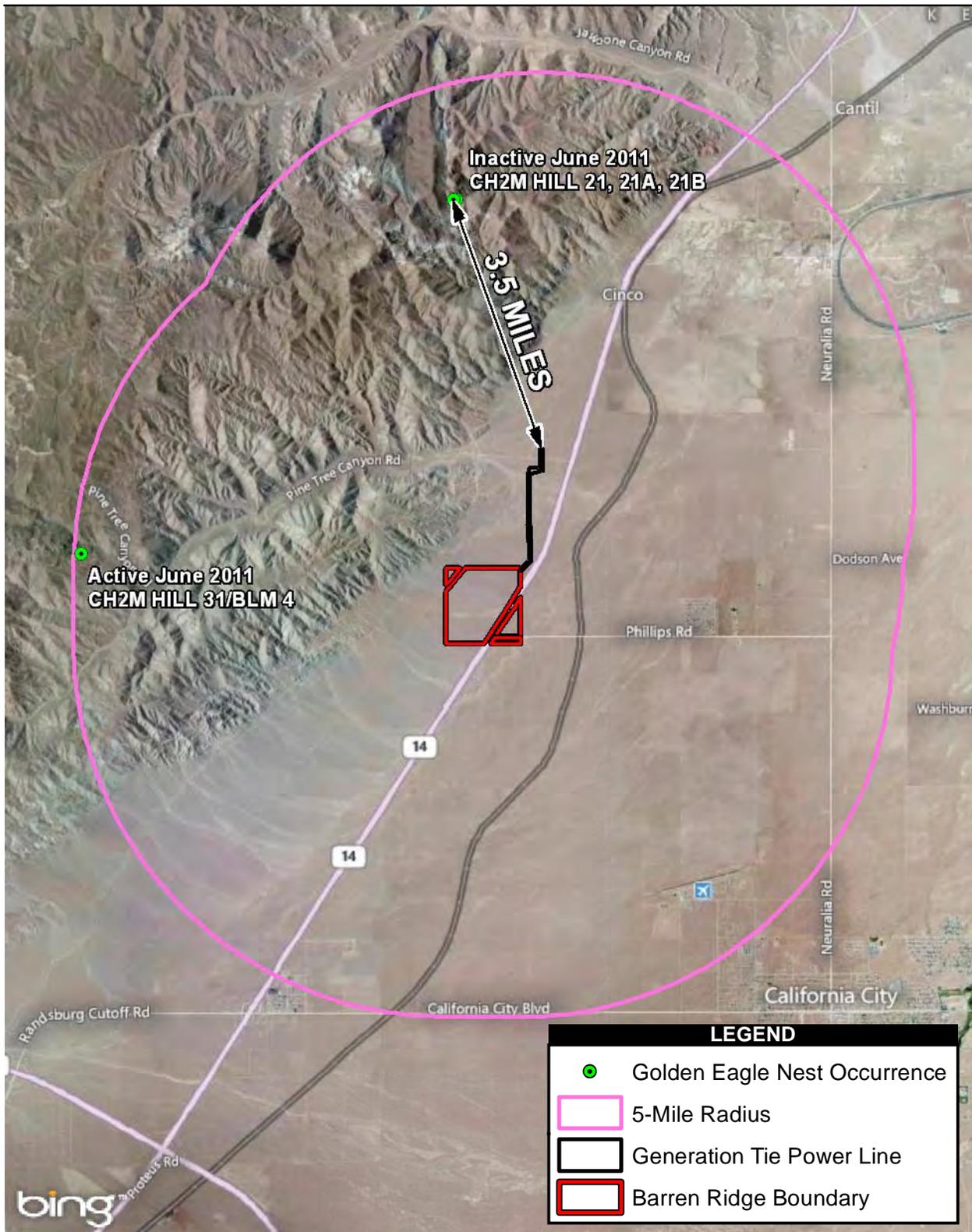
In conclusion, due to the small size of the Project in comparison to the large amount of available golden eagle foraging habitat, the collocation of the Gen-tie Project within an existing transmission corridor, compliance with APLIC standards, and the intervening topography in relation to the nearest potentially active nest site, the Project is not likely to result in take of golden eagles.

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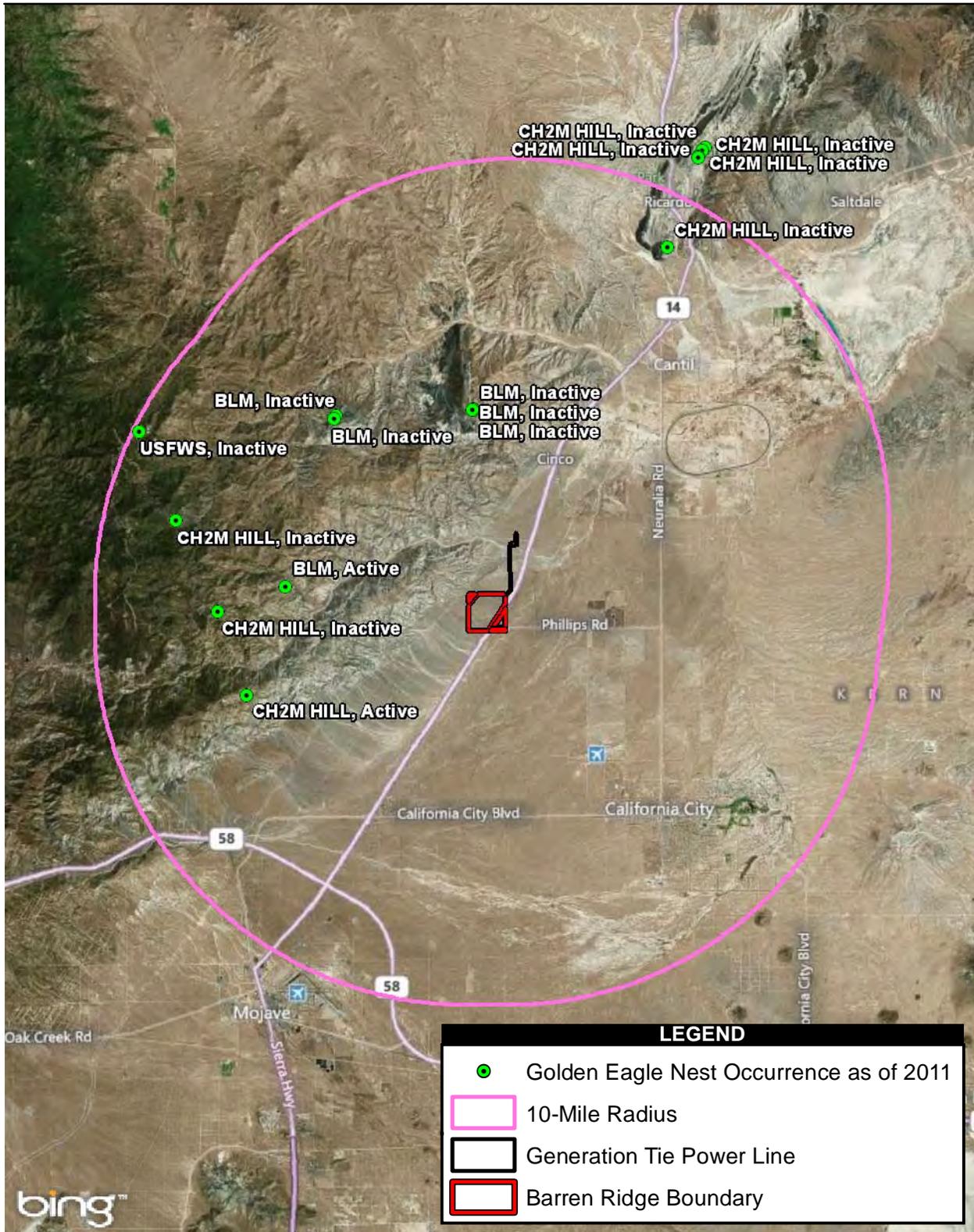
Attachments

- Figure 1 – Regional Golden Eagle Nest Occurrences 5-mile Radius
Figure 2 – Regional Golden Eagle Nest Occurrences 10-mile Radius



Source: RE Barren Ridge Solar One 2013; Sources: Esri, DeLorme, NAVTEQ, USGS, NRCAN, METI, iPC, TomTom © Harris Corp, Earthstar Geographics LLC Earthstar Geographics SIO © AND © 2013 Nokia © AND

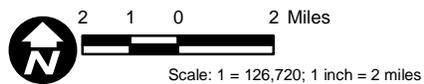
Figure 1
Regional Golden Eagle
Nest Occurrences 5-mile Radius



Source: RE Barren Ridge Solar One 2013; © Harris Corp, Earthstar Geographics LLC Earthstar Geographics SIO © AND © 2012 MapData Sciences Pty Ltd, PSMA © 2012 Zenrin
 Sources: Esri, DeLorme, NAVTEQ, USGS, NRCAN, METI, IPC, TomTom

Figure 2

**Regional Golden Eagle
 Nest Occurrences 10-mile Radius**



April 8, 2014

Marisa Mitchell
Recurrent Energy
300 California Street, 8th Floor
San Francisco, California 94104

**Subject: Report Summarizing Results of the RE Cinco Generation Tie-Line Project:
Alternative 2 Preferred Alignment**

Dear Ms. Mitchell:

This letter summarizes the results of the Alternative 2 Preferred Alignment gen-tie line (study area) of the RE Cinco Project (Project) habitat assessment conducted by AECOM Technology Corporation (AECOM). AECOM conducted this habitat assessment on behalf of Recurrent Energy in support of environmental documentation required by the Bureau of Land Management.

Project Description

The Project is located in unincorporated southeastern Kern County, approximately 6.5 miles northwest of the town of California City, approximately 12 miles northeast of the town of Mojave, and approximately 0.8 mile south of the Los Angeles Aqueduct (Figure 1). The Project includes development of a 230-kilovolt generation tie (gen-tie) line extending northeast from the RE Cinco photovoltaic solar electrical generation facility (separate project) to the Los Angeles Department of Water and Power (LADWP) Barren Ridge Switching Station located approximately 2 miles north from the solar site. The gen-tie line includes a 150-foot right-of-way (ROW) corridor; transmission towers and associated spur roads and necessary 450-foot pull site radii would be placed within this ROW corridor. All impacts associated with construction would occur within those areas (Figure 2). Access for the construction and operation of the gen-tie line would be from the existing LADWP maintenance road located west of the proposed alignment. The habitat assessment survey area included the a 2.1-mile-long corridor in addition to a 75-foot buffer of the entire corridor and all areas between the preferred alignment and the existing LADWP maintenance road south of the Pine Tree Canyon Wash (Figure 2).

Survey Area

Topography of the study area is moderately sloping (2% to 15% slopes), with elevation approximately 2,399 to 2,613 feet above mean sea level. A dry wash traverses the study area from the northwest to the southeast. Disturbed areas associated with human off-highway vehicle use, target shooting, and grazing are minimal but present throughout the study area.

Background Information

Desert tortoise (Mojave population) (*Gopherus agassizii*) Status

Desert tortoise (DT) habitat is found in a variety of dry habitats, from flats and slopes dominated by creosote (*Larrea tridentata*) in lower elevations to rocky slopes at higher elevations. DT habitat in higher elevations is typically characterized by blackbrush (*Coleogyne ramosissima*) and juniper (*Juniperus* spp.). The presence of friable soils allows for burrow excavation. Burrows are essential to the natural history of DT to provide cover from predators, nesting places, and refuge from extreme temperatures. Opportunistic use of other types of cover, such as rock cracks and overhangs, can also be utilized. The DT is most active April through May and September through October, primarily feeding on annual herbaceous vegetation, but also perennial grasses and woody vegetation. Nonnative species such as grasses and redstem filaree are also utilized.

The DT ranges from southern California east through southern Nevada and southeastern Utah, south through western Arizona and into northern Mexico. The U.S. Fish and Wildlife Service (USFWS) identifies the listed population as all DT north and west of the Colorado River, which includes all of California. In California, DT is found in the Mojave and Colorado Desert regions, from eastern Inyo County south through eastern Kern County.

Western burrowing owl (*Athene cunicularia hypugaea*) Status

Western burrowing owl (WBO) habitat consists of annual and perennial grasslands, deserts, and scrublands characterized by low-growing vegetation (Zarn 1974; California Burrowing Owl Consortium [CBOC] 1993). Suitable WBO habitat may also include trees and shrubs if the canopy covers less than 30% 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. WBO typically use burrows made by mammals, such as ground squirrels or badgers, but may also use man-made structures, such as cement culverts, riprap, cement asphalt or wood debris piles, or openings beneath cement or asphalt pavement. WBO may use a site for migratory stopovers, or year-round for breeding and foraging. Suitable habitat is considered occupied if there is an observation of at least one WBO, or WBO sign including molted feathers, cast pellets, prey remains, eggshell fragments, or feces around a burrow. WBO tend to exhibit high site fidelity, reusing the same site year after year.

WBO 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.

Mojave Ground Squirrel (*Xerospermophilus mojavensis*) Habitat Status

Mojave ground squirrel (MGS) occur in a variety of desert scrub habitats, including creosote bush scrub, Joshua tree (*Yucca brevifolia*) woodland, and saltbush scrub (*Atriplex* spp.) communities. The MGS is distinguished from the more common sympatric antelope ground squirrel (*Ammospermophilus leucurus*) by the absence of stripes or spots. MGS species is

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active during spring and summer months and spends most of the year (approximately 7 months) aestivating below ground (Leitner 2008). Their diet consists of seeds and vegetative parts of desert plants, such as creosote, winter fat (*Krascheninnikovia lanata*), spiny hop-sage (*Grayia spinosa*), saltbush, golden linanthus (*Linanthus aureus*), Mediterranean grass (*Schismus arabicus*), and box-thorn (*Lycium andersonii*) (Best 1995).

The MGS occurs in the Mojave Desert, in parts of Inyo, Kern, Los Angeles and San Bernardino Counties. Gustafson (1993) describes the species' range limits as Olancha (northwest), Avawatz Mountains (northeast), Palmdale (southwest), and Lucerne Valley (southeast).

Golden Eagle/Raptors Habitat Status

The golden eagle (*Aquila chrysaetos*) nests on cliffs and in canyons and large trees in open habitats. They prey on mammals in open scrub habitat and grasslands. They have wingspans up to 7 feet, and begin breeding in Southern California in January. Nest building and egg laying occur during February and March, and hatching and raising young until fledge occur April through June. This species occurs throughout the United States and is resident in Kern County.

Survey Methodology

A habitat assessment of the study area was conducted by AECOM biologists March 4 and 5, 2014. The habitat assessment intended to assess the existing habitat and vegetation of the survey area. The biologists evaluated the survey area for suitable habitat for sensitive plant and animal species (DT, WBO, MGS and raptors), and sensitive plant communities. AECOM biologists used meandering transects focusing on visual signs for biological resources for all sensitive species. These resources include tracks, burrows, scat, pellets, owl splash, carcasses, rare plants, etc. All data was recorded with a Global Positioning System Garmin 60 CSx.

For the purposes of this report, plant species are considered sensitive if they are (1) listed or proposed for listing by state or federal agencies as threatened or endangered; (2) on List 1B (considered endangered throughout its range) or List 2 (considered endangered in California but more common elsewhere) of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2001); or (3) considered rare, endangered, or threatened by the State of California or other local conservation organizations or specialists. Noteworthy plant species are considered those on List 3 (more information about the plant distribution and rarity needed) and List 4 (plants of limited distribution) of the CNPS Inventory. CNPS is a statewide resource conservation organization that has developed an inventory of California's sensitive plant species. The CNPS Listing is sanctioned by the California Department of Fish and Wildlife (previously California Department of Fish and Game [CDFG]) and essentially serves as an early warning list of potential candidate species for threatened or endangered status.

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Survey methods for special status plant species are based on the following resources: *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Species* (USFWS 2000); *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities* (CDFG 2009a); and *CNPS Botanical Survey Guidelines* (CNPS 2001).

Results

Vegetation Communities and Rare Plants

The Project study area is dominated by creosote bush scrub community (Figure 3). Creosote represented the most common shrub within the community. Associated shrubs and subshrubs include white burr sage (*Ambrosia dumosa*), cheesebush (*Ambrosia salsola*), Nevada ephedra (*Ephedra viridis*), Mojave indigo bush (*Psoralea arborescens*), California buckwheat (*Eriogonum fasciculatum* var. *polifolium*), scale broom (*Lepidospartum squamatum*), and spiny senna (*Senna armata*). Common herbaceous vegetation includes California poppy (*Eschscholzia minutiflora*), cryptantha (*Cryptantha* sp.), desert chicory (*Rafinesquia neomexicana*), desert dandelion (*Malacothrix glabrata*), and goldfields (*Lasthenia glabrata*).

Small portions of the survey area, located within the wash, were identified as southern alluvial fan scrub, creosote wash scrub, and desert saltbush scrub. Southern alluvial fan scrub is a wash-specific community with the association of scale broom. Associated shrubs and subshrubs were bladderpod (*Peritoma arborea*), cheesebush, and all-scale saltbush (*Atriplex polycarpa*). Saltbush scrub is dominated by all-scale saltbush, with subshrubs of box-thorn present.

Frequently occurring weed species present in all communities include redstem filaree (*Erodium cicutarium*) and Mediterranean grass. A list of all plant species found during surveys is available in Appendix A.

No special-status plants were detected during surveys. Phenology of sensitive annuals was not conducive to detection or to a determination of presence or absence on-site. A list of the potentially occurring special-status plant species is available in Appendix B.

Wildlife

Very few suitable WBO burrows or other features suitable for WBO occupation were identified in the study area. One WBO was observed during surveys, but no occupied burrow was identified in the vicinity of this occurrence. The owl flew to an unknown location following identification. Further, no whitewash, bone fragments, pellets, feathers, etc. were observed at other burrows suitable for WBO occupation.

Table 1 describes sensitive biological resources detected within the study area. Locations of the sensitive-species occurrences are depicted in Figure 4. All additional wildlife observations are listed in Appendix C

One live DT was found in proximity to a Class 1 (occupied) burrow. The male DT appeared healthy, had a long gular and visible chin gland, and was 250 millimeters in length. No visible shell damage was observed, though some shell wear was visible near the tail. A photo of this DT is shown in Figure 5. In addition, DT scat was observed at two locations in the study area. The scat was Class 3, with a compact feel and no sheen present. One Class 5 disarticulated carcass was found scattered over a 3-meter radius.

Table 1
Waypoints, Latitude/Longitude, and Notes of Potential Burrows and Sign

Type of Sign	Easting	Northing	Notes
Burrow 1	0404124	3899179	Class 1 DT burrow, fresh DT tracks, DT scat
WBO Live	0404152	3899196	Live WBO flushed; not seen again; no associated burrow
Carcass	0403948	3899139	Class 5 disarticulated DT carcass
DT Live	0404116	3899186	Male DT, 250 millimeters, healthy appearance
Burrow 2	0404024	3899208	Class 2 DT burrow with DT scat
DT Scat	0403726	3899214	Class 3 DT scat (3), compact, no sheen
DT Scat	0404048	3899076	Class 3 DT scat (2), compact, no sheen
Burrow 3	0402411	3897169	Class 5 DT burrow

Table 2 describes the dates, pertinent survey information, and any species or sign detected during the habitat assessment. Copies of field data sheets are provided in Appendix D.

Table 2
Dates, Times, Personnel, Weather Conditions, and Observations for Habitat Surveys

Survey #	Date	Time	Personnel	Weather	Observations
1	03/04/2014	0900-1600	Matt Kedziora Shelly Dayman	Start: 55 degrees Fahrenheit (°F), 100% clouds, wind 10 miles per hour (mph) End: 62°F, 80% clouds, wind 5 mph	One live DT and one live WBO, burrows, DT scat, carcass; no sensitive plant species seen
2	03/05/2014	0700-1300	Matt Kedziora Phil Brylski	Start: 48°F, 40% clouds, wind none End: 72°F, 45% clouds, wind none	One burrow; no sensitive plant species seen

Discussion

The Alternative 2 Preferred Alignment gen-tie line study area provides suitable habitat for DT, and DT was observed within the survey area. One occupied DT burrow, additional burrows suitable for DT use, and DT sign (scat and carcasses) were observed. Construction activities in the survey area may result in encounters with DT individuals and loss of suitable DT habitat.

The Alternative 2 Preferred Alignment gen-tie line study area includes suitable foraging habitat for WBO. One WBO was observed foraging, but no burrows with sign or occupied

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burrows were identified. Construction in the study area may result in loss of suitable WBO foraging habitat.

No trapping of MGS was conducted in the study area. Based on the presence of suitable habitat and the historic range and occurrences of the species in the immediate vicinity, MGS are presumed to occupy the survey area. Construction in the survey area will result in loss of suitable MGS habitat.

The Alternative 2 Preferred Alignment gen-tie line study area provides suitable foraging habitat for golden eagles and other raptors. Further, the Tehachapi Mountains, located to the west and north of the survey area, provide suitable nesting habitat. No special-status raptors were observed foraging or flying over or adjacent to the survey area during field surveys. Due to the ample availability of nesting and foraging habitat in the region, construction activities are not expected to directly affect or result in an incremental take of special-status raptors in the survey area. A separate golden eagle memo was prepared by AECOM to document information available on golden eagle presence in the area (AECOM 2013).

Although some perennial shrub species were blooming at the time of survey and evidence of some past flooding in numerous washes was present across the site, no sensitive plant species were found during the survey.

Certification Statement

Qualified AECOM biologists who conducted habitat assessment for the Project certify that the information in this survey report fully and accurately represents the work performed by AECOM biologists. If you have any questions or require additional information, feel free to contact me at (619) 233-1454.

Sincerely,



Jennifer Guigliano
Project Director

Attachments: Figure 1 – Regional Map
Figure 2 – Vicinity Map
Figure 3 – Vegetation Communities
Figure 4 – Biological Resources
Figure 5 – Desert Tortoise Found in Study Area
Appendix A – Observed Plant Species during Habitat Assessment
Appendix B – Potentially Occurring Special-Status Plant Species
Appendix C – Wildlife Species Detected during Habitat Assessment
Appendix D – Field Data Sheets

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FIGURES



Source: RE Cinco 2013; Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

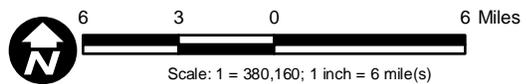
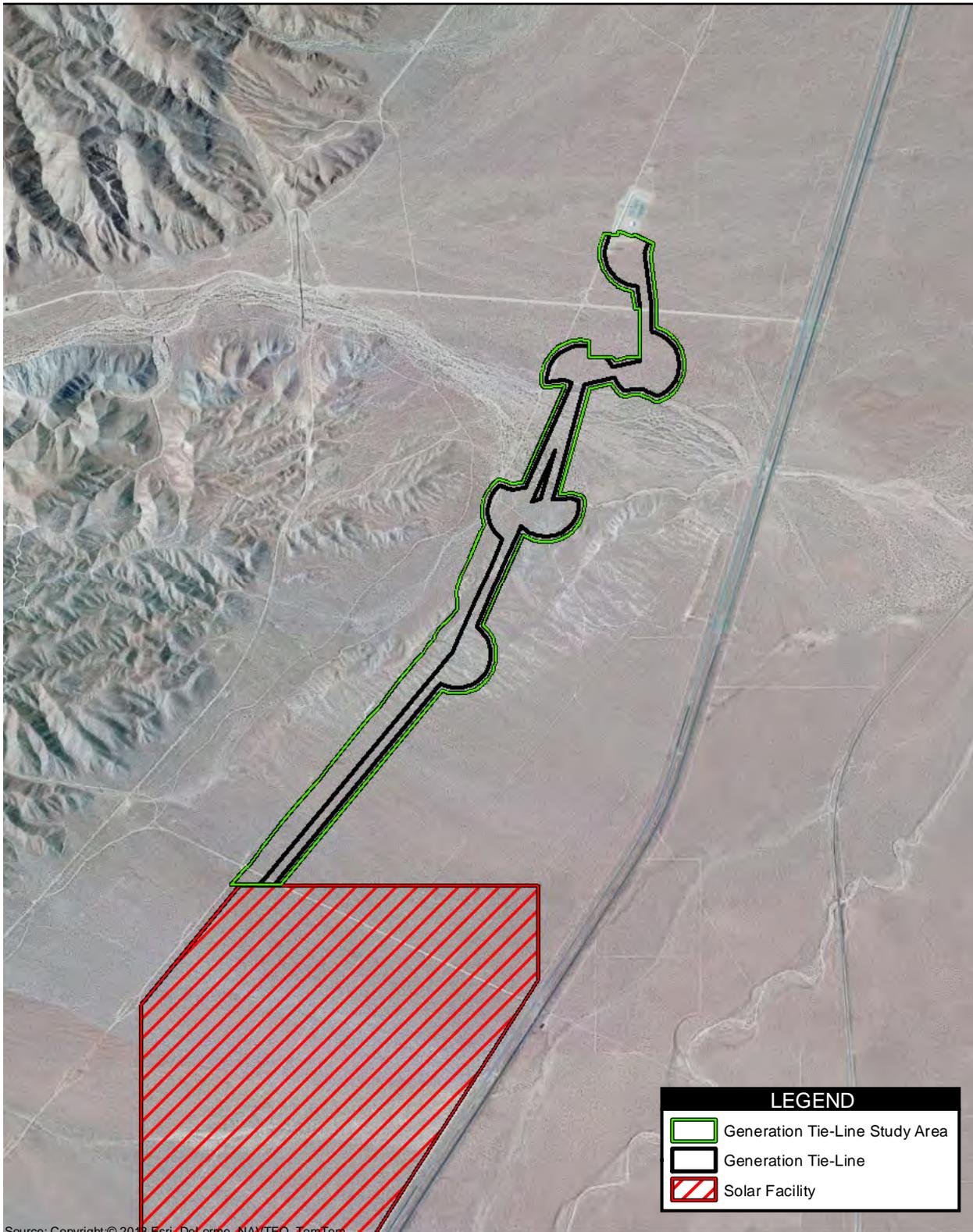


Figure 1
Regional Map

RE Cinco Generation Tie-Line Project - Habitat Assessment

Path: P:\2011\11280215_01_Recurrent_PV\06GIS\6.3_Layout\HabitatAssessment\Cinco_HA_Regional.mxd, 3/25/2014, steinb



LEGEND

-  Generation Tie-Line Study Area
-  Generation Tie-Line
-  Solar Facility

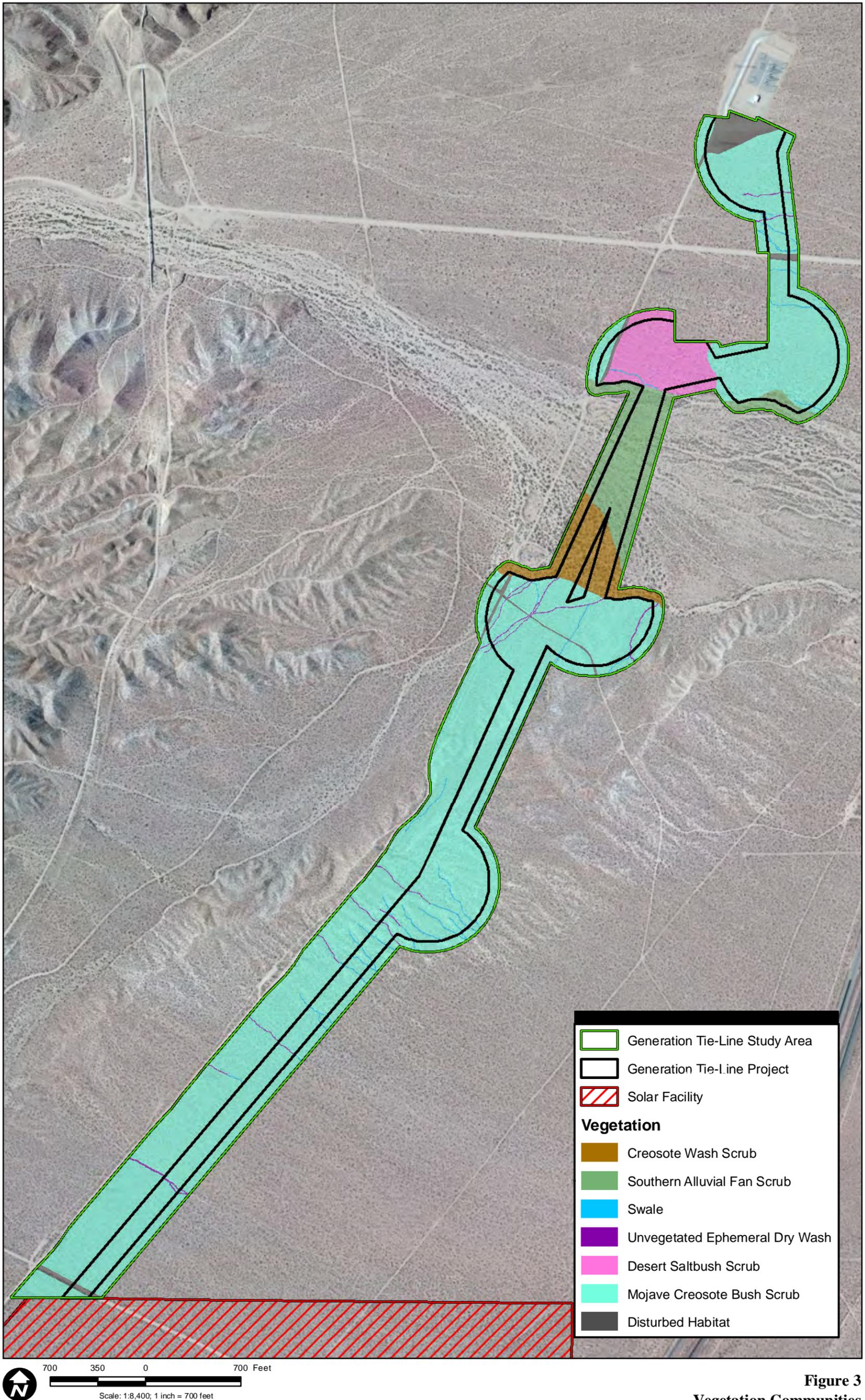
Source: Copyright: © 2013 Esri, DeLorme, NAVTEQ, TomTom
 Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community: RE Cinco 2013



Figure 2
Vicinity Map

RE Cinco Generation Tie-Line Project - Habitat Assessment

Path: P:\2011\11280215.01_Recurrent_PV\06GIS\6.3_Layout\HabitatAssessment\Cinco_HA_Vicinity.mxd, 3/25/2014, steinb



	Generation Tie-Line Study Area
	Generation Tie-Line Project
	Solar Facility
Vegetation	
	Creosote Wash Scrub
	Southern Alluvial Fan Scrub
	Swale
	Unvegetated Ephemeral Dry Wash
	Desert Saltbush Scrub
	Mojave Creosote Bush Scrub
	Disturbed Habitat

Figure 3
Vegetation Communities

Source: AECOM 2013; RE Cinco 2013; Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

RE Cinco Generation Tie-Line Project - Habitat Assessment

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Figure 4
Biological Resources

Source: AECOM 2013; RE Cinco 2013; Copyright:© 2013 Esri, DeLorme, NAVTEQ, TomTom
 Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

RE Cinco Generation Tie-Line Project - Habitat Assessment

Path: P:\2011\11280215.01_Recurrent_PV\06GIS\6.3_Layout\HabitatAssessment\Cinco_HA_BioResources.mxd, 3/25/2014, steinb

Date & Time: Tue Mar 4 11:19:35 PST 2014
Position: +035.23118° / -118.05360°
Altitude: 2407ft
Azimuth/Bearing: 114° S66E 2027mils (True)
Elevation Angle: -15.5°
Horizon Angle: -00.8°
Zoom: 2X
WDLMK003



Figure 5
Desert Tortoise Found in Study Area

APPENDIX A

OBSERVED PLANT SPECIES DURING HABITAT ASSESSMENT

Appendix A
Observed Plant Species
During Habitat Assessment

Family	Scientific Name	Common Name
AGAVACEAE	<i>Hesperoyucca whipplei</i>	
	<i>Yucca brevifolia</i>	JOSHUA TREE
ASTERACEAE	<i>Ambrosia acanthicarpa</i>	ANNUAL BUR-SAGE
	<i>Ambrosia dumosa</i>	WHITE BUR-SAGE
	<i>Ambrosia salsola</i>	COMMON BURROBRUSH, CHEESEBUSH
	<i>Ambrosia salsola</i> var. <i>salsola</i>	
	<i>Calycoseris parryi</i>	YELLOW TACK-STEM
	<i>Chaenactis xantiana</i>	FLESHY PINCUSHION
	<i>Encelia farinosa</i>	BRITTLEBUSH
	<i>Ericameria teretifolia</i>	GREEN or ROUND-LEAF RABBITBRUSH
	<i>Eriophyllum ambiguum</i>	
	<i>Eriophyllum wallacei</i>	WALLACE'S WOOLLY DAISY
	<i>Lasthenia gracilis</i>	COMMON GOLDFIELDS
	<i>Lepidospartum squamatum</i>	
	<i>Leptosyne bigelovii</i>	
	<i>Logfia depressa</i>	HIERBA LIMPIA
	<i>Malacothrix coulteri</i>	SNAKE'S-HEAD
	<i>Malacothrix glabrata</i>	DESERT DANDELION
<i>Rafinesquia neomexicana</i>	DESERT CHICORY	
<i>Stephanomeria pauciflora</i>	WIRE-LETTUCE	
BORAGINACEAE	<i>Amsinckia tessellata</i> var. <i>tessellata</i>	DESERT FIDDLENECK
	<i>Cryptantha angustifolia</i>	NARROW-LEAVED CRYPTANTHA
	<i>Cryptantha micrantha</i> var. <i>micrantha</i>	RED-ROOT CRYPTANTHA
	<i>Cryptantha nevadensis</i> var. <i>rigida</i>	RIGID CRYPTANTHA
	<i>Cryptantha pterocarya</i> var. <i>pterocarya</i>	WINGED-NUT CRYPTANTHA
	<i>Eucrypta micrantha</i>	
	<i>Pectocarya heterocarpa</i>	MIXED-NUT PECTOCARYA
	<i>Pectocarya linearis</i> subsp. <i>ferocula</i>	NARROW-TOOTHED PECTOCARYA
	<i>Pectocarya penicillata</i>	NORTHERN PECTOCARYA
	<i>Phacelia crenulata</i> var. <i>crenulata</i>	
	<i>Phacelia distans</i>	
	<i>Phacelia fremontii</i>	
	<i>Pholistoma membranaceum</i>	
<i>Plagiobothrys arizonicus</i>	ARIZONA POPCORNFLOWER	
BRASSICACEAE	<i>Brassica tournefortii</i>	
	<i>Caulanthus lasiophyllus</i>	CALIFORNIA MUSTARD
	<i>Descurainia pinnata</i>	
	<i>Descurainia pinnata</i> subsp. <i>brachycarpa</i>	

Family	Scientific Name	Common Name
	<i>Descurainia pinnata</i> subsp. <i>glabra</i>	
	<i>Lepidium flavum</i>	
	<i>Lepidium fremontii</i>	
	<i>Tropidocarpum gracile</i>	
CACTACEAE	<i>Cylindropuntia echinocarpa</i>	SILVER or GOLDEN CHOLLA
CHENOPODIACEAE	<i>Atriplex polycarpa</i>	ALLSCALE SALTBUSSH
	<i>Krascheninnikovia lanata</i>	WINTER FAT
CLEOMACEAE	<i>Peritoma arborea</i> var. <i>angustata</i>	
EPHEDRACEAE	<i>Ephedra viridis</i>	GREEN EPHEDRA
FABACEAE	<i>Acmispon strigosus</i>	
	<i>Psoralea arborescens</i> var. <i>arborescens</i>	
	<i>Senna armata</i>	SPINY SENNA
GERANIACEAE	<i>Erodium cicutarium</i>	REDSTEM FILAREE
LAMIACEAE	<i>Salvia columbariae</i>	CHIA
	<i>Scutellaria mexicana</i>	BLADDER-SAGE
LOASACEAE	<i>Mentzelia albicaulis</i>	
	<i>Mentzelia obscura</i>	
MALVACEAE	<i>Eremalche exilis</i>	WHITE MALLOW
	<i>Sphaeralcea ambigua</i> var. <i>ambigua</i>	APRICOT MALLOW
MONTIACEAE	<i>Calyptidium monandrum</i>	
NYCTAGINACEAE	<i>Mirabilis laevis</i> var. <i>villosa</i>	
ONAGRACEAE	<i>Camissonia campestris</i> subsp. <i>campestris</i>	
	<i>Chylisma claviformis</i> ssp. <i>claviformis</i>	
PAPAVERACEAE	<i>Eschscholzia californica</i>	CALIFORNIA POPPY
	<i>Eschscholzia minutiflora</i>	
POACEAE	<i>Bromus madritensis</i> ssp. <i>madritensis</i>	FOXTAIL CHESS, MADRID BROME
	<i>Bromus madritensis</i> ssp. <i>rubens</i>	RED BROME
	<i>Bromus tectorum</i>	CHEAT GRASS, DOWNY CHESS
	<i>Schismus barbatus</i>	
POLEMONIACEAE	<i>Gilia brecciarum</i> ssp. <i>brecciarum</i>	
	<i>Gilia stellata</i>	STAR GILIA
	<i>Gilia transmontana</i>	TRANSMONTANE GILIA
POLYGONACEAE	<i>Chorizanthe brevicornu</i> var. <i>brevicornu</i>	BRITTLE SPINEFLOWER
	<i>Chorizanthe watsonii</i>	WATSON'S SPINEFLOWER
	<i>Eriogonum gracillimum</i>	
	<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	MOJAVE DESERT CALIFORNIA BUCKWHEAT
	<i>Eriogonum pusillum</i>	YELLOW TURBANS (Group 2)
SOLANACEAE	<i>Lycium cooperi</i>	
THEMIDACEAE	<i>Dichelostemma capitatum</i> ssp. <i>capitatum</i>	
ZYGOPHYLLACEAE	<i>Larrea tridentata</i>	

APPENDIX B

POTENTIALLY OCCURRING SPECIAL-STATUS PLANT SPECIES

Appendix B
Potentially Occurring
Special-Status Plant Species

Species	Sensitivity Status	Natural History	Potential Occurrence Status
Spanish needle onion (<i>Allium shevockii</i>)	CNPS List 1B.3	Perennial bulbiferous herb. It occurs in rocky areas in pinyon and juniper woodland and upper montane coniferous forest. Flowers May to June.	Low potential for occurrence due to lack of suitable woodland and forest habitat.
Alkali mariposa lily (<i>Calochortus striatus</i>)	CNPS List 1B.2	Herbaceous perennial geophyte with large pink, radially striped flowers. It occurs in alkali seeps and seasonally moist locations. Flowers April to June.	Low potential for occurrence due to lack of suitable alkali seep habitat.
Kern County evening primrose (<i>Camissonia kernensis</i> ssp. <i>kernensis</i>)	CNPS List 4.3	Annual herb on sandy, gravelly, granitic soils. Found in chaparral, Joshua tree woodland, and pinyon and juniper woodlands. Flowers March to May.	Low potential for occurrence due to lack of suitable woodland or chaparral habitat.
White pygmy-poppy (<i>Canbya candida</i>)	CNPS 4.2	Annual herb on sandy and gravelly soils. Found in Joshua tree woodland, Mojavean desert scrub, and pinyon and juniper woodlands. Flowers March to June.	High potential to occur in desert scrub habitat on-site.
Mohave paintbrush (<i>Castilleja plagiotoma</i>)	CNPS List 4.3	Perennial herb (hemiparasitic) found in great basin scrub (alluvial), Joshua tree woodland, lower montane coniferous forest, and pinyon and juniper woodland. Flowers April – June.	Moderate potential to occur in desert scrub in the alluvial washes on-site.
Death Valley sandmat (<i>Chamaesyce vallis-mortae</i>)	CNPS List 4.2	Perennial herb found in sandy or gravelly soils in Mojavean desert scrub. Flowers May to October.	High potential to occur on-site in desert scrub.
Mojave spineflower (<i>Chorizanthe spinosa</i>)	CNPS List 4.2	Small ephemeral annual on sandy and gravelly soils. Sometimes in alkaline areas, chenopod scrub, Joshua tree woodland, Mojavean desert scrub, playas. Flowers April to June.	Moderate potential to occur in desert scrub habitat on-site.
Kern Canyon clarkia (<i>Clarkia xantiana</i> ssp. <i>parviflora</i>)	CNPS List 4.2	Annual herb often found in sandy, sometimes rocky slopes or roadsides. Prefers chaparral, cismontane woodland, great basin scrub, and valley and foothill grassland. Flowers May to June.	Moderate potential to occur in sandy or rocky soils in desert scrub habitat on-site.

Species	Sensitivity Status	Natural History	Potential Occurrence Status
Streambank spring beauty (<i>Claytonia parviflora</i> ssp. <i>grandiflora</i>)	CNPS List 4.2	Annual herb found in rocky soils in cismontane woodland habitat. Flowers February to May.	Low potential to occur on-site due to lack of cismontane woodland habitat.
Desert springparsley (<i>Cymopterus deserticola</i>)	CNPS List 1B.2	Low growing herbaceous perennial with silvery parsley like leaves and a ball shaped inflorescence. Found in sandy soils in Joshua tree woodland and Mojavean desert scrub. Flowers March to May.	High potential to occur in the desert scrub on-site.
Red Rock tarplant (<i>Deinandra arida</i>)	State Threatened July 1982 CNPS List 1B.2	Annual herb found in clay and volcanic tuff in Mojavean desert scrub. Flowers April to November.	Moderate potential to occur in the rocky desert scrub and wash habitats on-site.
Mohave tarplant (<i>Deinandra mohavensis</i>)	State Endangered Aug 1981 CNPS List 1B.3	Annual in vernal moist and alkali areas in drainages. Flowers July to October.	Moderate to low potential to occur in the washes on-site. No vernal moist spring habitat is present on-site.
Recurved larkspur (<i>Delphinium recurvatum</i>)	CNPS List 1B.2	Slender herbaceous perennial to nearly 3 feet tall with delicate pale blue flowers growing in deeper fine soil with grasses and herbs. Flowers March to June	Low potential to occur on-site due to lack of grasslands.
Limestone dudleya (<i>Dudleya abramsii</i> ssp. <i>calicicola</i>)	CNPS List 4.3	Perennial succulent herb found in carbonate soils in chaparral and pinyon and juniper woodland. Flowers April to June.	Low potential to occur on-site due to lack of chaparral and woodland habitats.
Tracy's eriastrum (<i>Eriastrum tracyi</i>)	State Rare CNPS List 3.2	Annual herb found in chaparral and cismontane woodland. Flowers May to July.	Low potential to occur on-site due to lack of chaparral and woodland habitats.
Mohave woolly sunflower (<i>Eriophyllum mohavense</i>)	CNPS List 1B.2	Small ephemeral annual on sandy and gravelly soil in Mojavean desert scrub, chenopod scrub and playas. Flowers March to May.	Moderate potential to occur on-site in desert scrub habitat.
Kern buckwheat (<i>Eriogonum kennedyi</i> var. <i>pinicola</i>)	CNPS List 1B.1	Perennial herb 2 to 6 inches tall in open places on clay soil. Found in chaparral and pinyon and juniper woodland. Flowers May to June.	Low potential to occur on-site due to lack of chaparral and woodland habitats.
Red Rock Canyon monkeyflower (<i>Erythranthe rhodopetra</i>)	CNPS List 1B.2	Annual herb found in sandy, canyon washes and Mojavean desert scrub. Flowers March to April.	High potential to occur on-site in Pine Tree Canyon wash and moderate potential in smaller washes on-site.
Red Rock poppy (<i>Eschscholzia minutiflora</i> ssp. <i>twisselmannii</i>)	CNPS List 1B.2	Yellow flowered annual about a foot or more tall that occurs on volcanic tuff material. Flowers March to May.	Moderate potential to occur on-site in soils with volcanic tuff.
Pale-yellow layia (<i>Layia heterotricha</i>)	CNPS List 1B.1	Annual herb found in alkaline or clay soils in	Low potential to occur on-site due to the lack of

Species	Sensitivity Status	Natural History	Potential Occurrence Status
		cismontane woodland, pinyon and juniper woodland and grasslands.	woodlands, coastal scrub, and grassland.
Sage-like Loeflingia (<i>Loeflingia squarrosa</i> var. <i>artemisiarum</i>)	CNPS List 2B.2	Minute annual with spine tipped leaves on sandy soil and dunes. Jepson Manual does not recognize variety but CNPS does. Flowers April to May.	Moderate potential to occur in sandy soils.
Solitary blazing star (<i>Mentzelia eremophila</i>)	CNPS List 4.2	Annual herb found in Mojavean desert scrub. Flowers March to May.	High potential to occur in desert scrub on-site.
Creamy blazing star (<i>Mentzelia tridentata</i>)	CNPS List 1B.3	Annual with somewhat thick dark green leaves and cream colored flowers on coarse rock gravel. Found in Mojavean desert scrub. Flowers March to May.	High potential to occur in desert scrub on-site.
Tehachapi monardella (<i>Monardella linoides</i> ssp. <i>oblonga</i>)	CNPS List 1B.3	Perennial rhizomatous herb found in lower montane coniferous forest, pinyon and juniper woodland, and upper montane coniferous forest. Flowers June to August.	Low potential to occur on-site due to lack of woodland and forest habitat.
Large-flowered nemacladus (<i>Nemacladus secundiflorus</i> var. <i>secundiflorus</i>)	CNPS List 4.3	Annual herb found in gravelly openings in chaparral and valley and foothill grassland. Flowers April to June.	Low potential to occur on-site due to lack of chaparral and grassland habitats.
Bakersfield cactus (<i>Opuntia basilaris</i> var. <i>treleasei</i>)	CNPS List 1B.1	Perennial stem succulent. Found in sandy or gravelly areas of chenopod scrub, cismontane woodland, and valley and foothill grassland.	Moderate potential to occur on-site in desert scrub habitat.
Fragile pentachaeta (<i>Pentachaeta fragilis</i>)	CNPS List 4.3	Annual herb found in foothill woodlands. Flowers March to June.	Low potential to occur on-site due to lack of woodland habitat.
Adobe yampah (<i>Perideridia pringlei</i>)	CNPS List 4.3	Perennial herb found in chaparral and foothill woodland. Flowers April to June.	Low potential to occur on-site due to lack of woodland and chaparral habitat.
Hubby's phacelia (<i>Phacelia hubbyi</i>)	CNPS List 4.2	Annual herb found on gravelly or rocky slopes in chaparral or coastal scrub. Flowers April to June.	Low potential to occur on-site due to lack of coastal scrub and chaparral habitat.
Charlotte's Phacelia (<i>Phacelia nashiana</i>)	CNPS List 1B.2	Low growing annual with somewhat thick leaves and deep blue flowers growing on gravelly and talus slopes. Flowers March to June.	Moderate potential to occur on-site. Known from the general vicinity of the site and its surroundings
Mojave fish-hook cactus (<i>Sclerocactus polyancistrus</i>)	CNPS List 4.2	Perennial stem succulent found in Mojave desert scrub and pinyon and juniper woodland.	Moderate potential to occur on-site in desert scrub.

APPENDIX C

WILDLIFE SPECIES DETECTED DURING HABITAT ASSESSMENT

Appendix C

Wildlife Species Detected During Habitat Assessment

Scientific Names	Common Names
Reptiles and Amphibians	
Order Testudines	
Family Emydidae	
<i>Gopherus agassizii</i>	desert tortoise
Birds	
Order Acciptriformes	
Family Cathartidae	
<i>Cathartes aura</i>	turkey vulture
Order Strigiformes	
Family Strigidae	
<i>Athene cunicularia hypogea</i>	burrowing owl
Order Passeriformes	
Family Corvidae	
<i>Corvus corax</i>	common raven
Family Alaudidae	
<i>Eremophila alpestris actia</i>	California horned lark
Family Emberizidae	
<i>Amphispiza belli</i>	sage sparrow
<i>Zonotrichia leucophrys</i>	white-crowned sparrow
Family Hirundinidae	
<i>Zonotrichia leucophrys</i>	barn swallow
Mammals	
Order Lagomorpha	
Family Leporidae	
<i>Lepus californicus</i>	black-tailed jackrabbit

APPENDIX D
FIELD DATA SHEETS

WILDLIFE SURVEY DATA SHEET

Project: RE Cinco Location: Preferred alt
gentle

Date: 3/4/14

Page 1 of 2

GPS Unit	Surveyor(s)	GPS Unit	Surveyor(s)
GBBMD6	MKE, SOA		

	Time	Temp (°F)	Wind (mph)	Precip.	Cloud Cover (%)
Start	0900	55	10	0	100
End	1600	62	5	0	80

Potential Burrows or Nests:

Burrow or Nest ID (GPS IDENT Code*)	GPS Easting	GPS Northing	Species Present (Circle)	Burrow complex? ¹	Burrow Dimension H x W x D (in.)	Burrow Suitable for (Circle) and Status ¹ (Circle):	Sign Present (Circle) WW=whitewash, Pell=Pellets, Feath=feathers, Claw=claw marks, Trk=tracks, Car=carcass, Oth=other	Description and Comments, **Note Class of any DT sign**
WDBSD001	0404124	3899179	WBO	Y (N) NA	10x18x mk	WBO - A, PA, S, NS	WBO - WW (Pell) Feath Trk Oth	class 1 - fresh DT tracks 2 scat (1 eroded 1 w/ no sheet but compact) - 2 pellets outside but unlikely for WBO w/veg overhead
			AB			AB - A, PA, S, NS	AB - Claw Trk, Scat, Carc, Oth	
			DKF			DKF - A, PA, S, NS	DKF - Claw Trk Scat Carc Oth	
			DT			DT - A, PA, S, NS	DT - Trk Scat Car Egg shell, Oth	
			Nest			Nest - A, PA, Inact	Nest - Eggs, Chicks, Oth	
			None			N/A	None	
WBLMK001	0404152	3899196	WBO	Y (N) NA	NA	WBO - A, PA, S, NS	WBO - WW Pell Feath Trk Oth	five WBO flushed, no burrow nearby
			AB			AB - A, PA, S, NS	AB - Claw Trk, Scat, Carc, Oth	
			DKF			DKF - A, PA, S, NS	DKF - Claw Trk Scat Carc Oth	
			DT			DT - A, PA, S, NS	DT - Trk Scat Car Egg shell, Oth	
			Nest			Nest - A, PA, Inact	Nest - Eggs, Chicks, Oth	
			None			N/A	None	
WDCMK002	0403948	3899139	WBO	Y (N) NA	NA	WBO - A, PA, S, NS	WBO - WW Pell Feath Trk Oth	class 5 disarticulated and scattered.
			AB			AB - A, PA, S, NS	AB - Claw Trk, Scat, Carc, Oth	
			DKF			DKF - A, PA, S, NS	DKF - Claw Trk Scat Carc Oth	
			DT			DT - A, PA, S, NS	DT - Trk Scat Car Egg shell, Oth	
			Nest			Nest - A, PA, Inact	Nest - Eggs, Chicks, Oth	
			None			N/A	None	
WOLMK003	0404116	3899186	WBO	Y (N) NA	NA	WBO - A, PA, S, NS	WBO - WW Pell Feath Trk Oth	250 mm, male, long gula visible chin glands appears healthy, no shell damage but some wear large tail.
			AB			AB - A, PA, S, NS	AB - Claw Trk, Scat, Carc, Oth	
			DKF			DKF - A, PA, S, NS	DKF - Claw Trk Scat Carc Oth	
			DT			DT - A, PA, S, NS	DT - Trk Scat Car Egg shell, Oth	
			Nest			Nest - A, PA, Inact	Nest - Eggs, Chicks, Oth	
			None			N/A	None	

(No Sun)

Incidental Species Observations/Notes:

Barn Swallow, wOSP, black-tailed jack rabbit, co ra, TVVU

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., GBBSD001). See last page for nomenclature and codes.

¹Burrow Status: A = Active (occupancy is confirmed by visual detection of species or sign indicates recent use), PA = Potentially Active (species occupancy not confirmed, but sign indicates possible use), Suitable (no evidence of recent use by species, but burrow is suitable), NS = Not Suitable (burrow not suitable for this species), Inact = inactive nest present.

WILDLIFE SURVEY DATA SHEET

Project: RE Cinco Location: preferred Alt gentie Date: 3/2/14

Page 2 of 2

GPS Unit	Surveyor(s)	GPS Unit	Surveyor(s)
GARMING	MKE SDA		

	Time	Temp (°F)	Wind (mph)	Precip.	Cloud Cover (%)
Start	0700	55	10	0	100
End	1600	62	5	0	80

Potential Burrows or Nests:

Burrow or Nest ID (GPS IDENT Code*)	GPS Easting	GPS Northing	Species Present (Circle)	Burrow complex?¹	Burrow Dimension H x W x D (in.)	Burrow Suitable for (Circle) and Status¹ (Circle):	Sign Present (Circle) WW=whitewash, Pell=Pellets, Feath=feathers, Claw=claw marks, Trk=tracks, Car=carcass, Oth=other	Description and Comments, **Note Class of any DT sign**
WDBMK004	0404024	3899208	WBO	Y (N) NA	4x8x unk	WBO - A, PA, (S) NS	WBO - WW Pell Feath Trk Oth	shit ton of scat - filled class 3 scat compact, no sheen class 2 burrow.
			AB			AB - A, PA, S, (NS)	AB - Claw Trk, Scat, Carc, Oth	
			DKF			DKF - A, PA, S, (NS)	DKF - Claw Trk Scat Carc Oth	
			DT			DT - A, PA, (S) NS	DT - Trk (Scat) Car Egg shell, Oth	
			Nest			Nest - A, PA, Inact	Nest - Eggs, Chicks, Oth	
			(None)			N/A	None	
			Other			Other	Other	
WDSS0002	0403726	3899214	WBO	Y N (NA)		WBO - A, PA, S, NS	WBO - WW Pell Feath Trk Oth	3 pieces compact, no sheen class 3
			AB			AB - A, PA, S, NS	AB - Claw Trk, Scat, Carc, Oth	
			DKF			DKF - A, PA, S, NS	DKF - Claw Trk Scat Carc Oth	
			DT			DT - A, PA, S, NS	(DT) - Trk (Scat) Car Egg shell, Oth	
			Nest			Nest - A, PA, Inact	Nest - Eggs, Chicks, Oth	
			None			(N/A)	None	
			Other			Other	Other	
WDSS0003	0404048	3899076	WBO	Y N (NA)		WBO - A, PA, S, NS	WBO - WW Pell Feath Trk Oth	2 pieces compact no sheen class 3
			AB			AB - A, PA, S, NS	AB - Claw Trk, Scat, Carc, Oth	
			DKF			DKF - A, PA, S, NS	DKF - Claw Trk Scat Carc Oth	
			DT			DT - A, PA, S, NS	(DT) - Trk (Scat) Car Egg shell, Oth	
			Nest			Nest - A, PA, Inact	Nest - Eggs, Chicks, Oth	
			None			(N/A)	None	
			Other			Other	Other	
			WBO	Y N NA		WBO - A, PA, S, NS	WBO - WW Pell Feath Trk Oth	
			AB			AB - A, PA, S, NS	AB - Claw Trk, Scat, Carc, Oth	
			DKF			DKF - A, PA, S, NS	DKF - Claw Trk Scat Carc Oth	
			DT			DT - A, PA, S, NS	DT - Trk Scat Car Egg shell, Oth	
			Nest			Nest - A, PA, Inact	Nest - Eggs, Chicks, Oth	
			None			N/A	None	
			Other			Other	Other	

Incidental Species Observations/Notes:

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., GBBSD001). See last page for nomenclature and codes.
 ¹Burrow Status: A = Active (occupancy is confirmed by visual detection of species or sign indicates recent use), PA = Potentially Active (species occupancy not confirmed, but sign indicates possible use), S = Suitable (no evidence of recent use by species, but burrow is suitable), NS = Not Suitable (burrow not suitable for this species), Inact = inactive nest present.

WILDLIFE SURVEY DATA SHEET

Project: RE Cinco

Location: PROTECTED ALT
GRITIE

Date: 2/5/14

Page 1 of 1

GPS Unit	Surveyor(s)	GPS Unit	Surveyor(s)
GARMIN 6	MIKE		

	Time	Temp (°F)	Wind (mph)	Precip.	Cloud Cover (%)
Start	0630	48	0	0	40
End	1230	72	0	0	45

Potential Burrows or Nests:

Burrow or Nest ID (GPS IDENT Code*)	GPS Easting	GPS Northing	Species Present (Circle)	Burrow complex?¹	Burrow Dimension H x W x D (in.)	Burrow Suitable for (Circle) and Status¹ (Circle):	Sign Present (Circle) WW=whitewash, Pell=Pellets, Feath=feathers, Claw=claw marks, Trk=tracks, Car=carcass, Oth=other	Description and Comments, **Note Class of any DT sign**
WMAMK005	0402411	3897169	WBO	Y <input checked="" type="radio"/> NA	5x5x unk	WBO - A, PA, <input checked="" type="radio"/> NS	WBO - WW Pell Feath Trk Oth	OLD (white) SCAT ON APRON, BUT MUCH TOO SMALL for den. May have been filled in over time
			AB			AB - A, PA, S, <input checked="" type="radio"/> NS	AB - Claw Trk, Scat, Carc, Oth	
			DKF			DKF - A, PA, <input checked="" type="radio"/> NS	DKF - Claw Trk <input checked="" type="radio"/> Scat Carc Oth	
			DT			DT - A, PA, <input checked="" type="radio"/> NS	DT - Trk Scat Car Egg shell, Oth	
			Nest			Nest - A, PA, Inact	Nest - Eggs, Chicks, Oth	
			<input checked="" type="radio"/> None			N/A	<input checked="" type="radio"/> None	
			Other			Other	Other	
			WBO	Y N NA		WBO - A, PA, S, NS	WBO - WW Pell Feath Trk Oth	
			AB			AB - A, PA, S, NS	AB - Claw Trk, Scat, Carc, Oth	
			DKF			DKF - A, PA, S, NS	DKF - Claw Trk Scat Carc Oth	
			DT			DT - A, PA, S, NS	DT - Trk Scat Car Egg shell, Oth	
			Nest			Nest - A, PA, Inact	Nest - Eggs, Chicks, Oth	
			None			N/A	None	
			Other			Other	Other	
			WBO	Y N NA		WBO - A, PA, S, NS	WBO - WW Pell Feath Trk Oth	
			AB			AB - A, PA, S, NS	AB - Claw Trk, Scat, Carc, Oth	
			DKF			DKF - A, PA, S, NS	DKF - Claw Trk Scat Carc Oth	
			DT			DT - A, PA, S, NS	DT - Trk Scat Car Egg shell, Oth	
			Nest			Nest - A, PA, Inact	Nest - Eggs, Chicks, Oth	
			None			N/A	None	
			Other			Other	Other	
			WBO	Y N NA		WBO - A, PA, S, NS	WBO - WW Pell Feath Trk Oth	
			AB			AB - A, PA, S, NS	AB - Claw Trk, Scat, Carc, Oth	
			DKF			DKF - A, PA, S, NS	DKF - Claw Trk Scat Carc Oth	
			DT			DT - A, PA, S, NS	DT - Trk Scat Car Egg shell, Oth	
			Nest			Nest - A, PA, Inact	Nest - Eggs, Chicks, Oth	
			None			N/A	None	
			Other			Other	Other	

Incidental Species Observations/Notes:

sag S, HOLA, CORA

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., GBBS001). See last page for nomenclature and codes.

¹Burrow Status: A = Active (occupancy is confirmed by visual detection of species or sign indicates recent use), PA = Potentially Active (species occupancy not confirmed, but sign indicates possible use), S = Suitable (no evidence of recent use by species, but burrow is suitable), NS = Not Suitable (burrow not suitable for this species), Inact = inactive nest present.



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August 27, 2014

Marisa Mitchell
300 California Street, 7th Floor
San Francisco, California 94104

Subject: Rare Plant Survey Report for the RE Cinco Solar Project, Kern County

Dear Ms. Mitchell:

AECOM has prepared this rare plant survey letter report to document the results of the focused special-status plant species surveys on the RE Cinco project site.

The project area is located on vacant undisturbed lands in Eastern Kern County. The site is located approximately 6.5 miles northwest of the community of California City, approximately 12 miles northeast of the community of Mojave, and approximately 0.8-mile south of the Los Angeles Aqueduct (Figure 1). The biological survey area associated with the project includes a 100-foot buffer beyond the proposed impact footprint (Figure 2). A list of the special-status plant species that were identified as having some potential to occur within the project area is included as Attachment A.

The RE Cinco Solar Project (Project) includes installation of a 60-megawatt (MW) solar photovoltaic (PV) power-generating facility (Solar Facility) and an associated new 230 kilovolt (kV) generator intertie transmission line (Gen-tie Line) (Figure 3). The Solar Facility will be located on 500 acres of a 594-acre private parcel, and the Gen-tie Line will be located within a 2.0-mile-long right-of-way (ROW) across lands owned by a combination of the Los Angeles Department of Water and Power (LADWP), private land owners, and the federal government, the latter managed by the U.S. Bureau of Land Management (BLM) (Figure 1). Figure 2 depicts the boundary enclosed by fencing, the site layout, the parcel boundary of the lands controlled by RE Barren Ridge I, LLC and the action area.

The project site elevation ranges from 2,420 to 2,670 feet above mean sea level (msl). Existing land uses adjacent to the project site consist predominantly of vacant/undeveloped land. The BLM 368 utility corridor is located west of the site, running generally north to south.

For the purposes of this report, plant species are considered sensitive if they are (1) listed or proposed for listing by state or federal agencies as threatened or endangered; (2) on List 1B (considered endangered throughout its range) or List 2 (considered endangered in California but more common elsewhere) of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2010); or (3) considered rare, endangered, or threatened by the state of California (2007) or other local conservation organizations or specialists. Noteworthy plant species are considered to be those on List 3 (more information about the plant distribution and rarity needed) and List 4 (plants of limited distribution) of the CNPS Inventory. The CNPS is a statewide resource conservation

organization that has developed an inventory of California's sensitive plant species. The CNPS Listing is sanctioned by the California Department of Fish and Wildlife (CDFW) and essentially serves as an early warning list of potential candidate species for threatened or endangered status.

Methods

Rare plant surveys were conducted by AECOM botanists during the various blooming periods for targeted species including fall 2013, early spring 2014, and late spring 2014. Previous surveys and reports from the project area were also reviewed and incorporated into this letter report, including a field reconnaissance survey (Rincon 2011a) and Supplemental Biological Results (Rincon 2011b).

A Fall focused rare plant survey was conducted on October 21, 22, and 23, 2013 after summer/fall rains by AECOM botanists, Bonnie Hendricks, Fred Sproul, and Lance Woolley. Although several perennial shrub species were blooming at the time of survey and evidence of substantial flooding in numerous washes was present across the site, the rain received during the summer/fall season of 2013 was not sufficient for a significant response from the annual plants. Early Spring focused rare plant surveys were conducted for the site on March 3, 4, 5, 11, 12, and 13 in 2014 by AECOM botanists Erin Bergman, Bonnie Hendricks, Fred Sproul, and Lance Woolley. Late spring focused rare plant surveys were conducted for the site on June 12 and 13 by Bonnie Hendricks and Matthew Kedziora.

AECOM botanists visited known localities of potential rare plants within the area, including CNDDDB previously recorded locales for Red Rock tarplant (*Deinandra arida*) and Mohave tarplant (*Deinandra mohavensis*) both state-listed species. A search was conducted for the known reference populations of these-late spring to fall blooming species to determine their blooming status at the time of the fall survey 2013 and again in late spring 2014.

Survey methods for special status plant species are based on the following resources: 1) Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants (USFWS 2000); Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (CDFG 2009); and California Native Plant Society (CNPS) Botanical Survey Guidelines (CNPS 2001).

During the fall survey period, AECOM botanists surveyed for special-status plant species that have potential to occur within or near the survey areas. The fall and late spring survey efforts focused on the desert dry wash, swale, and alluvial fan scrub habitats where the state-listed tarplant species had a potential to occur.

The surveys covered the RE Barren Ridge property west of SR-14 (500-acre project area), Areas not to be developed in the northwest and southeast portions of the parcel (94 acres) and a 100-foot buffer area immediately surrounding the project, and the generation tie line right-of-way and a 75-foot buffer of that corridor. The survey of the buffer zone is intended to

adequately address any potential indirect effects of the proposed projects on existing vegetation communities or special-status plants.

The surveys were conducted using transects spaced approximately 30 meters apart, or as dictated by visibility on the ground to ensure visual coverage of the project footprint. Surveys were also conducted within the buffer area; however, the survey effort within these areas was reduced as compared to the project footprint, including meandering transects of varying widths within areas of suitable habitat (i.e., intuitive controlled [Whiteaker 1999]) and a focus on areas of the buffer with historically documented occurrences of special-status plant species. Field data collected for special-status plant species occurrences includes habitat type, location (Universal Transverse Mercator [UTM] coordinates), number of plants, onsite population extent, observed phenology(ies), possible threats to the population, associated plant species, and other ecological data as determined to be relevant.

Results

The project area is situated on a gently sloping landscape containing loose, sandy soil. It supports Mohave creosote bush scrub, desert alluvial wash scrub, and desert saltbush scrub vegetation communities (Figure 4). Some of the most dominant plant species on-site include creosote bush (*Larrea tridentata*) and white bur-sage (*Ambrosia dumosa*). These species uniformly covered the survey area. Common spring annual plants included bristly fiddleneck (*Amsinckia tessellata*), fleshy pincushion (*Chaenactis xantiana*), desert chicory (*Rafinesquia neomexicana*), common goldfields (*Lasthenia gracilis*), rancher's fiddleneck (*Amsinckia menziesii* var. *intermedia*), Bigelow's coreopsis (*Coreopsis bigelovii*), woolly daisy (*Eriophyllum wallacei*), desert dandelion (*Malacothrix glabrata*), white fiesta flower (*Pholistoma membranaceum*), and chia (*Salvia columbariae*), among others.

Rare Plant Surveys

Although most herbaceous ephemeral plant species had already completed their blooming cycle during the 2013 fall rare plant surveys, perennials were still detectable at this time and several shrub species were blooming. Numerous native annual plant species were blooming during the early spring surveys and fewer in late spring. Rare plant species that had a potential to occur on site were the focus of these surveys and are listed in Attachment A with their sensitivity status, habitat requirements, blooming period, and potential to occur onsite.

No special status plant species were detected in the Project Area during fall, early spring, and late spring focused surveys. A complete floral inventory of plant species was compiled based on the focused surveys and keying out of all unknown species in the proposed Solar Facility (Attachment B.1) and Gen-Tie Line (Attachment B.2).

Mohave tarplant, a state-listed endangered species, was detected in mid-October at a known reference location off-site in Short Canyon. Approximately 200 Mohave tarplant individuals were detected at the Short Canyon reference location in a spring-fed meadow; however, these individuals had finished blooming and were brown and desiccated at that time. Therefore, it was determined that the phenology of these two species during the fall

2013 survey period was not conducive to detection at that time or to a determination of presence or absence on-site. Spring 2014 surveys were timed to target these two species in addition to the other potentially occurring special status plant species.

Red Rock tarplant was also the subject of focused searches for reference populations to determine optimal timing for rare plant surveys. Despite focused searches in mid-October by AECOM botanists this state-listed endangered species was not located. There was evidence of recent flooding throughout the wash system at the reference site, which could have removed any late-blooming plants that may have emerged. A search in late spring at another reference site in Red Rock Canyon finally verified the presence and blooming status of Red Rock tarplant. Specifically, on May 29, 2014 David Charlton visited a known reference population area in Red Rock Canyon and looked for sites with favorable habitat; seeps adjacent to springs. No moist soil was observed but a single individual was observed. This plant was much smaller than normal but contained two flowers. This finding verified that, if plants germinated this year for either species, they should be easily identified by the flowers through early June.

As with the fall and early spring surveys, no special status plant species were detected in the Project Area during the late spring focused searches for State-endangered tarplant species.

Vegetation Communities

In accordance with the vegetation classification system presented in Sawyer and Keeler-Wolf (1995), upland vegetation communities present within the Project Area include Mojave creosote bush scrub and desert saltbush scrub. In addition, the Project Area contains four types of aquatic features delineated as state jurisdictional waters (AECOM 2011; AECOM 2012; AECOM 2014). Aquatic-related habitats have been classified according to both the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) and *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). State waters on-site consist of unvegetated swales within the upland habitat, unvegetated ephemeral dry wash, creosote wash scrub, and southern alluvial fan scrub (xeric riparian habitat) associated with drainages on the Project Area. Vegetation communities within the action area are shown in Figure 4.

Mojave Creosote Bush Scrub

This floristic association corresponds to Mojave creosote bush scrub (Holland 1986) and is the equivalent of the creosote bush – white burr sage association described by Sawyer and Keeler-Wolf (1995). Mojave creosote bush scrub occurs throughout the Project Area and is dominated by creosote bush and white bur-sage. Less common associated shrubs and subshrubs are Nevada ephedra (*Ephedra nevadensis*), California buckwheat (*Eriogonum fasciculatum* var. *poliofolium*), cheesebush (*Hymenoclea salsola*), winterfat (*Krascheninnikovia lanata*), and Anderson's desert thorn (*Lycium andersonii*). Cacti present include Wiggins' cholla (*Cylindropuntia echinocarpa*). Common herbaceous plants include

fiddleneck (*Amsinckia* sp.), filaree (*Erodium* sp.), chia (*Salvia columbariae*), and angled stem buckwheat.

Creosote Wash Scrub

Creosote wash scrub is a wash dependent community identical in floral composition to Mojave creosote bush scrub (see above). This community occurs only where Mojave creosote bush scrub is present in an alluvial fan or ephemeral stream. Vegetation in this community is frequently larger and more robust than the associated non-wash dependent community.

Southern Alluvial Fan Scrub

In the Project Area, this vegetation is indicated by a dominance of scale-broom (*Lepidospartum squamatum*) and occasionally Mojave indigo bush (*Psoralea arborescens*), allscale saltbrush (*Atriplex polycarpa*), and creosote bush. Southern alluvial fan scrub is a wash dependent vegetation community and it occurs within (or presents) the jurisdictional lateral extent for state waters. The extent of state waters represented by southern alluvial fan scrub was delineated within the ephemeral wash features including locations with the association of scale-broom. This is usually at the head of the ephemeral dry wash banks and/or where scale-broom becomes approximately one percent or less of absolute cover, and/or the ephemeral dry wash becomes unvegetated (e.g., supporting approximately 5 percent or less absolute cover of mixed saltbush scrub/Mojave creosote bush scrub). Within the Gen-tie Line corridor, the Pine Creek wash supports areas of southern alluvial fan scrub abutting and between unvegetated ephemeral dry wash channels.

Desert Saltbush Scrub

Desert Saltbush Scrub occurs in an upland area where Allscale (*Atriplex polycarpa*) becomes co-dominant with adjoining Mojave Creosote Bush Scrub. This plant association compares closely with the Holland plant community described as Sierra-Tehachapi Saltbush Scrub (36310) but includes Creosote Bush and White Bur-Sage (1986).

Unvegetated Ephemeral Dry Wash

The unvegetated ephemeral dry wash within the Project Area primarily does not support wash-dependent vegetation and is generally barren. Within this category, there are generally no sporadic occurrences of scale-broom or other wash-dependent species individuals. The unvegetated ephemeral dry washes occurring within the Project Area are generally linear; however, the southeast ephemeral dry wash does present some sinuosity. The largest unvegetated ephemeral dry wash does abate into the landscape within the Project Area and forms into an unvegetated swale complex at its eastern terminus. The unvegetated ephemeral dry wash features within the gen-tie alignment are entirely within the Pine Creek wash. This wash presents significant sinuosity, though it narrows where its course passes under SR-14.

Unvegetated Swales

The unvegetated swale features occurring within the project site are mostly interspersed with mixed saltbush scrub and Mojave creosote bush scrub and represent the smaller drainage features that have little vegetation mostly due to periodic inundation and scouring. The unvegetated swales occurring within the project site and the Gen tie-line exist as multiple linear features forming a significant component of a larger drainage network. The swale features range from approximately 1 to 5 feet in width and collectively compose limited braided series of drainages within the project site. They are generally interspersed on the southern two thirds of the Solar Facility and the northern quarter of the Gen Tie-Line where the flow from Pine Tree Canyon traversed the area.

Invasive, Nonnative Species

A few invasive or nonnative plant species are present on-site. Mediterranean grass (*Schismus barbatus*) and redstem filaree (*Erodium cicutarium*) were observed throughout the survey area, as well as red brome (*Bromus madritensis*) less commonly. Sahara mustard (*Brassica tournefortii*) and cheat grass (*Bromus tectorum*) were observed in a man-made drainage ditch parallel to SR-14 at the eastern edge of the Solar Facility.

Noteworthy Features

Creosote bush (*Larrea tridentata*) clones were observed during surveys. Clones are formed when a plant grows from a central point and expands outward while the center wood eventually dies and decays leaving a hollow center and the surrounding stems continue to expand outward. As the years pass, the ring expands at the rate that the stems of the plant expand in diameter. Measures of one Creosote bush clone in Lucern Valley in the Mojave Desert indicates that it is 11,700 years old, potentially representing the original colonizers of the desert at the end of the pluvial periods in California associated with the global glacial activity (Vasek 1980).

Creosote bush clonal rings occur on the project site in the northern third of the generation tie-line alignment along a zone from northwest to southeast. Sizes range from moderately small (seven by eight feet) to relatively large including up to roughly 42 feet by 22 feet in size, which may represent several thousand years of growth.

Joshua tree (*Yucca brevifolia*) occurs sporadically in the project vicinity and three small individuals were detected within the Gen Tie-Line right-of way area, but would not be impacted by project development as the gen-tie structures would span Pine Tree Canyon Wash (Figure 5).

Discussion

No special-status plant species were located during the focused rare plant surveys of the Project Area, and thus no impacts to sensitive plant species are anticipated as a result of project construction. Several large creosote rings would be impacted by implementation of the project.

August 27, 2014
Page 7

A number of incidental observations were made of sensitive wildlife species during the rare plant surveys. These include desert tortoise (one live, one dead), western burrowing owl (burrow with pellets), and desert kit fox observations of the animals and their sign (burrows, scat, and/or tracks). Bobcat scat and coyote scat were also detected within the Project Area. These observations were recorded with GPS and are displayed on Figure 5.

Please feel free to contact me with any questions or further clarification.

Sincerely,

A handwritten signature in black ink, appearing to read "Bonnie J. Hendricks". The signature is fluid and cursive, with a large, stylized initial "B".

Bonnie J. Hendricks
Senior Ecologist

Attachments:

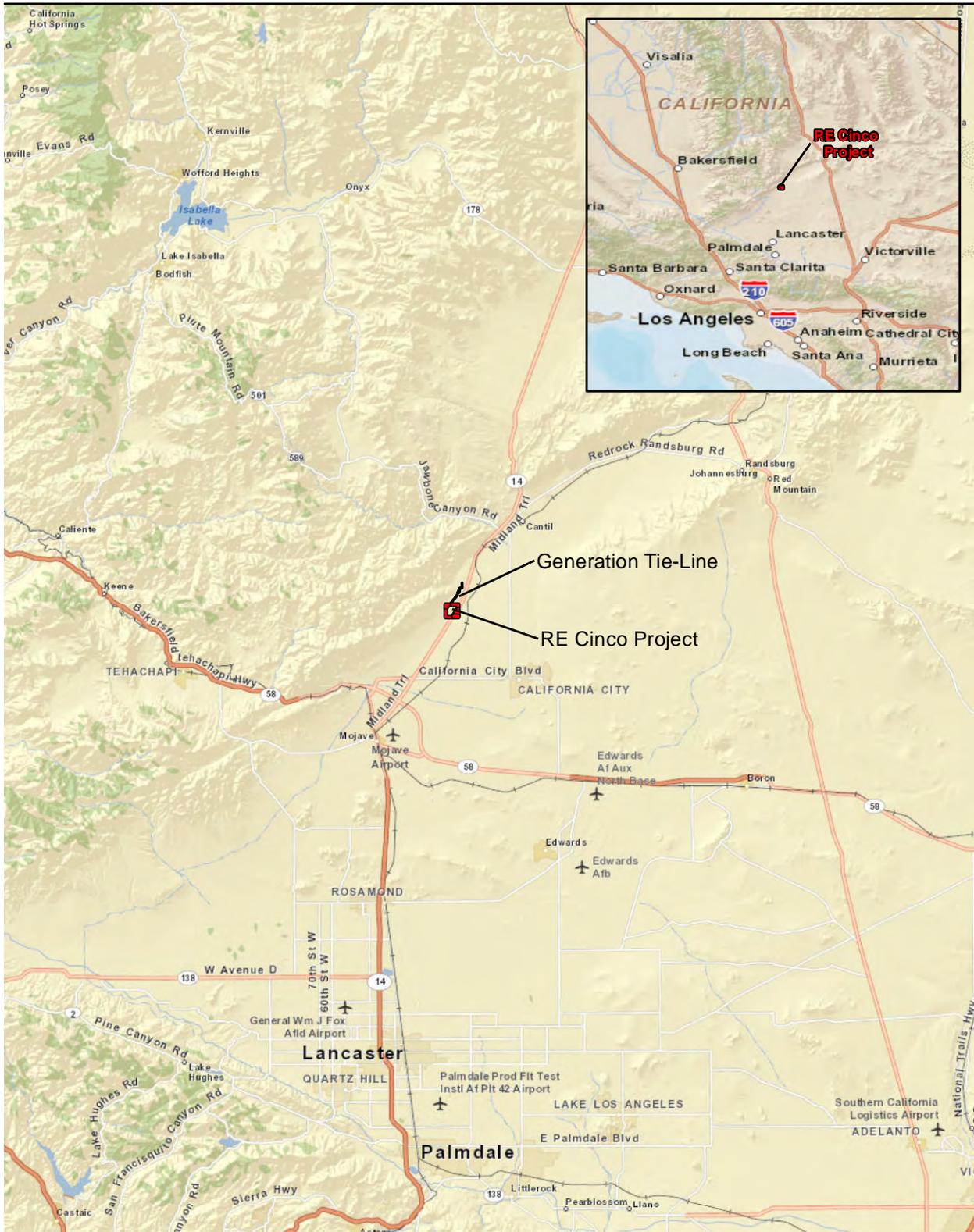
- Figure 1 – Regional Location Map
- Figure 2 – Species Survey Area
- Figure 3 – Proposed Project Elements
- Figure 4 – Vegetation Communities Occurring within the Biological Survey Area
- Figure 5 – Incidental Wildlife Species and Plant Occurrences Observed within the Biological Survey Area
- Attachment A – Potentially Occurring Special-Status Plant Species
- Attachment B.1 – Floral Species Detected in Proposed Solar Facility
- Attachment B.2 – Floral Species Detected in Proposed Gen Tie-Line

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FIGURES



Source: RE Cinco 2013; AECOM 2013; Sources: Esri, DeLorme, HERE, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom

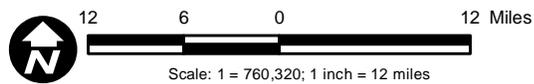


Figure 1
Regional Location Map

RE Cinco Project - Rare Plant Survey Report

Path: P:\2011\11280215_01_Recurrent_PV\06GIS\6.3_Layout\Rare_Plant\Cinco\Cinco Rare Plant Regional Map.mxd, 7/14/2014, irelandm

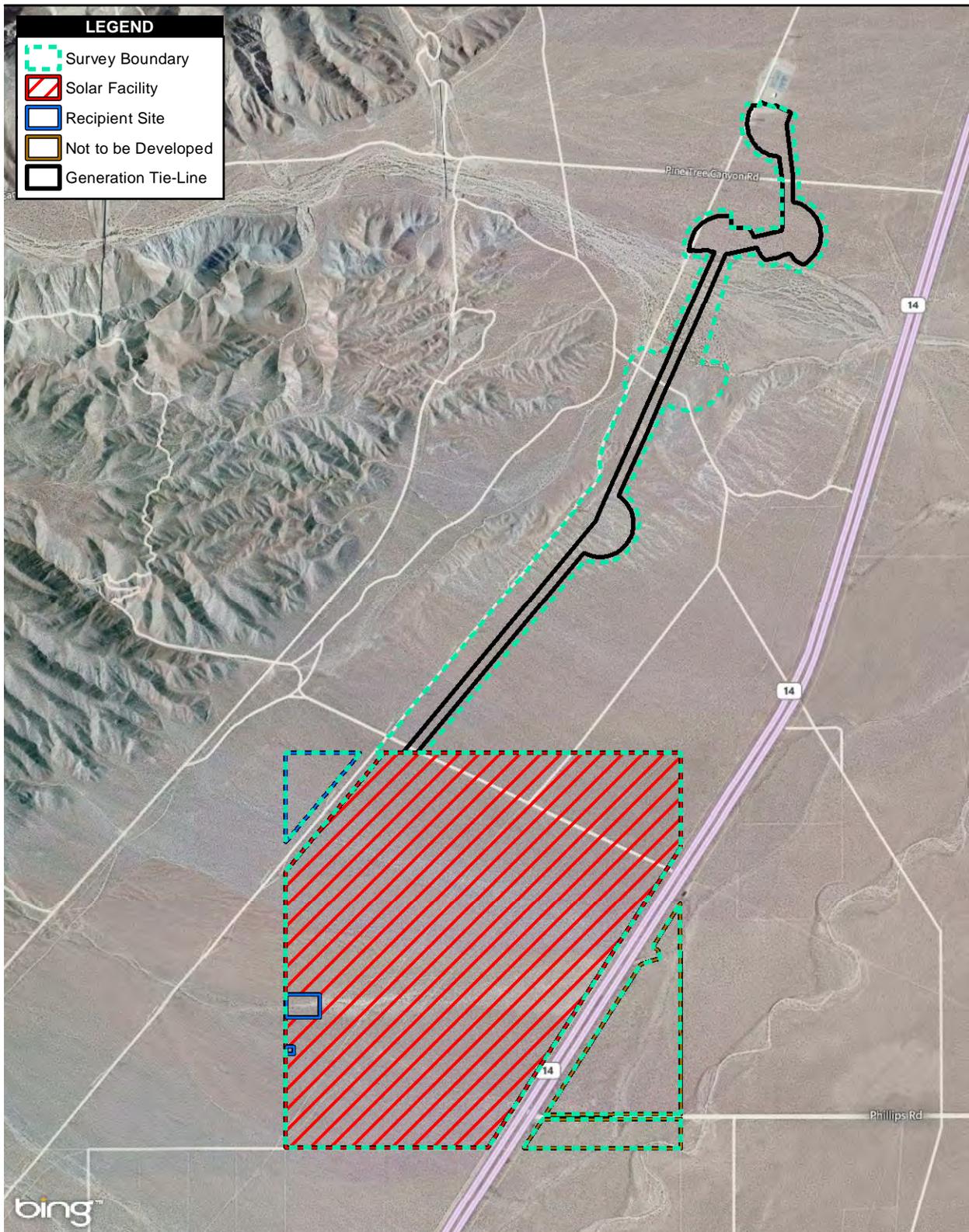
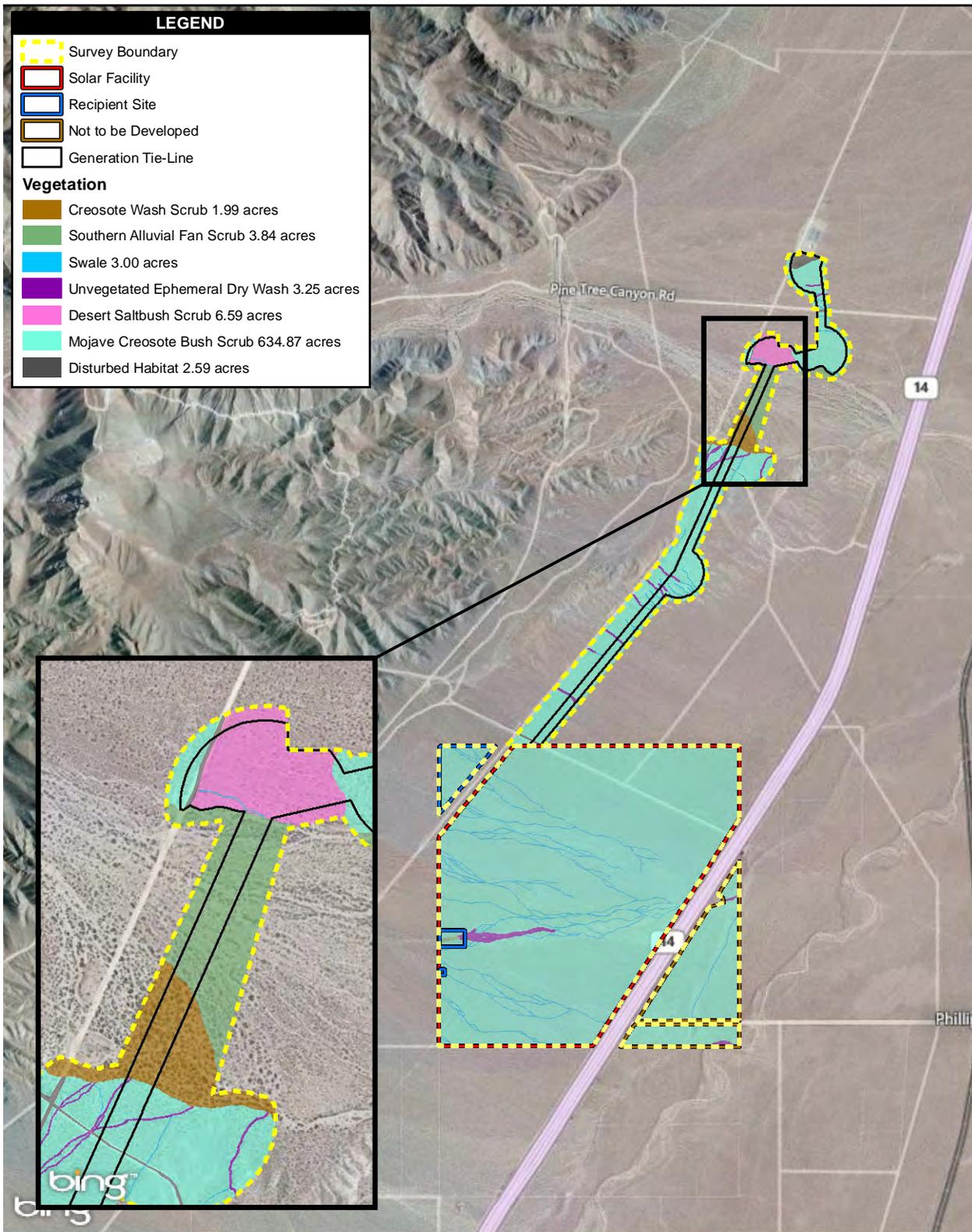


Figure 2
Species Survey Area



Source: Image courtesy of USGS Image courtesy of the Nevada State Mapping Advisory Committee © 2014 Microsoft Corporation © 2014 Nokia © AND ; RE Cinco 2013; AECOM 2013

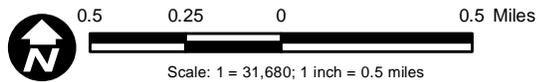


Figure 4
Vegetation Communities

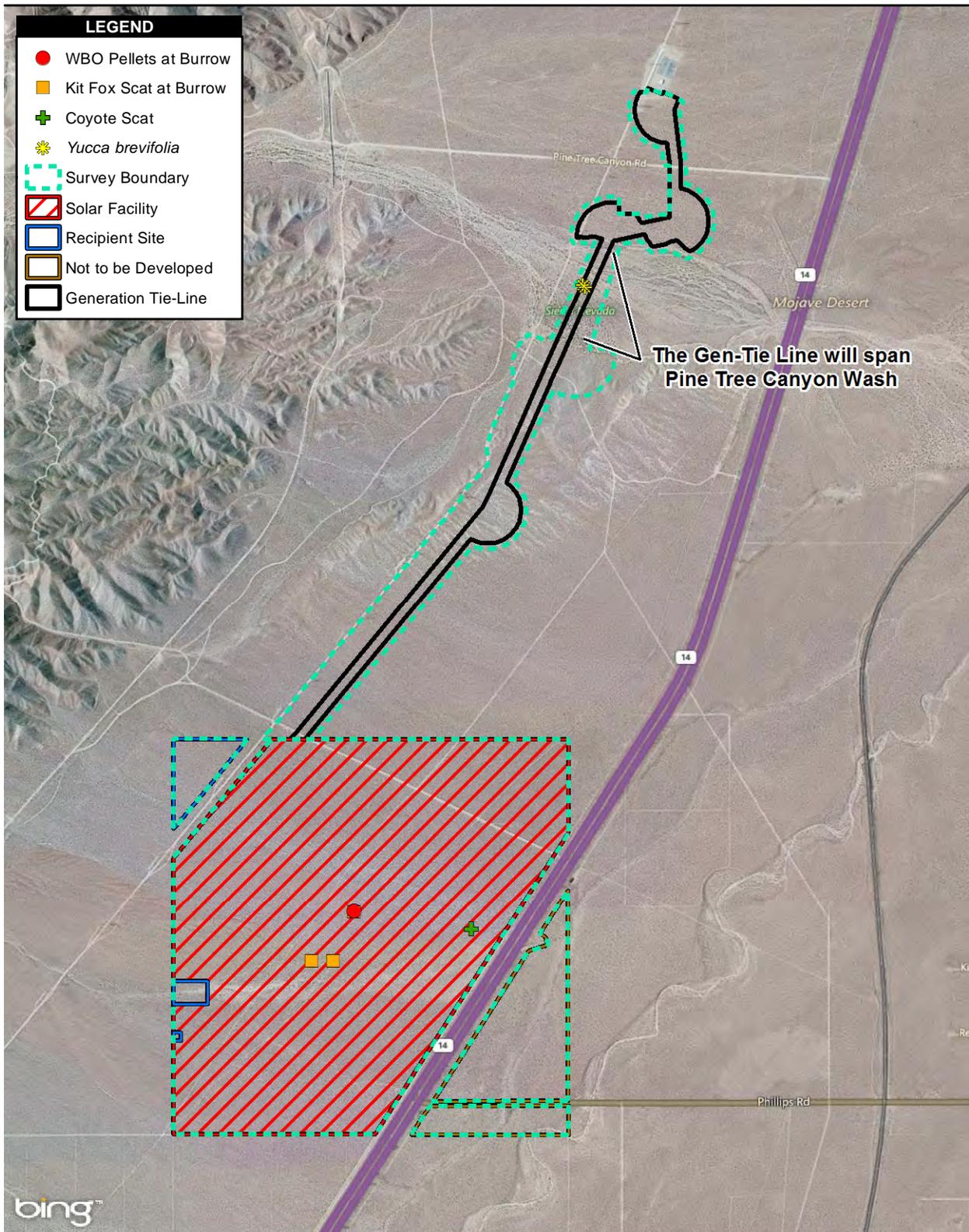


Figure 5
Species Observations

ATTACHMENT A

**POTENTIALLY OCCURRING SPECIAL STATUS PLANT
SPECIES**

Attachment A
Sensitive Plant Species with Potential to Occur on the RE Cinco
Proposed Solar Facility or Gen Tie-Line

Species	Sensitivity Status	Natural History	Potential Occurrence Status
Spanish needle onion (<i>Allium shevockii</i>)	CNPS List 1B.3	Perennial bulbiferous herb. It occurs in rocky areas in pinyon and juniper woodland and upper montane coniferous forest. Flowers May to June.	Low potential for occurrence due to lack of suitable woodland and forest habitat.
Alkali mariposa lily (<i>Calochortus striatus</i>)	CNPS List 1B.2	Herbaceous perennial geophyte with large pink, radially striped flowers. It occurs in alkali seeps and seasonally moist locations. Flowers April to June.	Low potential for occurrence due to lack of suitable alkali seep habitat.
Kern County evening primrose (<i>Camissonia kernensis</i> ssp. <i>kernensis</i>)	CNPS List 4.3	Annual herb on sandy, gravelly, granitic soils. Found in chaparral, Joshua tree woodland, and pinyon and juniper woodlands. Flowers March to May.	Low potential for occurrence due to lack of suitable woodland or chaparral habitat.
White pygmy-poppy (<i>Canbya candida</i>)	CNPS 4.2	Annual herb on sandy and gravelly soils. Found in Joshua tree woodland, Mojavean desert scrub, and pinyon and juniper woodlands. Flowers March to June.	Moderate potential to occur in desert scrub habitat on-site.
Mohave paintbrush (<i>Castilleja plagiotoma</i>)	CNPS List 4.3	Perennial herb (hemiparasitic) found in great basin scrub (alluvial), Joshua tree woodland, lower montane coniferous forest, and pinyon and juniper woodland. Flowers April – June.	Moderate potential to occur in desert scrub in the alluvial washes on-site.
Death Valley sandmat (<i>Chamaesyce vallis-mortae</i>)	CNPS List 4.2	Perennial herb found in sandy or gravelly soils in Mojavean desert scrub. Flowers May to October.	Moderate potential to occur on-site in desert scrub.
Mojave spineflower (<i>Chorizanthe spinosa</i>)	CNPS List 4.2	Small ephemeral annual on sandy and gravelly soils. Sometimes in alkaline areas, chenopod scrub, Joshua tree woodland, Mojavean desert scrub, playas. Flowers April to June.	Moderate potential to occur in desert scrub habitat on-site.
Kern Canyon clarkia (<i>Clarkia xantiana</i> ssp. <i>parviflora</i>)	CNPS List 4.2	Annual herb often found in sandy, sometimes rocky slopes or roadsides. Prefers chaparral, cismontane woodland, great basin scrub, and valley and foothill grassland. Flowers May to June.	Moderate potential to occur in sandy or rocky soils in desert scrub habitat on-site.

Species	Sensitivity Status	Natural History	Potential Occurrence Status
Streambank spring beauty (<i>Claytonia parviflora</i> ssp. <i>grandiflora</i>)	CNPS List 4.2	Annual herb found in rocky soils in cismontane woodland habitat. Flowers February to May.	Low potential to occur on-site due to lack of cismontane woodland habitat.
Desert springparsley (<i>Cymopterus deserticola</i>)	CNPS List 1B.2	Low growing herbaceous perennial with silvery parsley like leaves and a ball shaped inflorescence. Found in sandy soils in Joshua tree woodland and Mojavean desert scrub. Flowers March to May.	Low potential to occur in the desert scrub on-site.
Red Rock tarplant (<i>Deinandra arida</i>)	State Threatened July 1982 CNPS List 1B.2	Annual herb found in clay and volcanic tuff in Mojavean desert scrub. Flowers April to November.	Moderate potential to occur in the rocky desert scrub and wash habitats on-site.
Mohave tarplant (<i>Deinandra mohavensis</i>)	State Endangered Aug 1981 CNPS List 1B.3	Annual in vernal moist and alkali areas in drainages. Flowers July to October.	Moderate to low potential to occur in the washes on-site. No vernal moist spring habitat is present on-site.
Recurved larkspur (<i>Delphinium recurvatum</i>)	CNPS List 1B.2	Slender herbaceous perennial to nearly 3 feet tall with delicate pale blue flowers growing in deeper fine soil with grasses and herbs. Flowers March to June	Low potential to occur on-site due to lack of grasslands.
Limestone dudleya (<i>Dudleya abramsii</i> ssp. <i>calicicola</i>)	CNPS List 4.3	Perennial succulent herb found in carbonate soils in chaparral and pinyon and juniper woodland. Flowers April to June.	Low potential to occur on-site due to lack of chaparral and woodland habitats.
Tracy's eriastrum (<i>Eriastrum tracyi</i>)	State Rare CNPS List 3.2	Annual herb found in chaparral and cismontane woodland. Flowers May to July.	Low potential to occur on-site due to lack of chaparral and woodland habitats.
Mohave woolly sunflower (<i>Eriophyllum mohavense</i>)	CNPS List 1B.2	Small ephemeral annual on sandy and gravelly soil in Mojavean desert scrub, chenopod scrub and playas. Flowers March to May.	Moderate potential to occur on-site in desert scrub habitat.
Kern buckwheat (<i>Eriogonum kennedyi</i> var. <i>pinicola</i>)	CNPS List 1B.1	Perennial herb 2 to 6 inches tall in open places on clay soil. Found in chaparral and pinyon and juniper woodland. Flowers May to June.	Low potential to occur on-site due to lack of chaparral and woodland habitats.
Red Rock Canyon monkeyflower (<i>Erythranthe rhodopetra</i>)	CNPS List 1B.2	Annual herb found in sandy, canyon washes and Mojavean desert scrub. Flowers March to April.	Moderate potential to occur on-site in Pine Tree Canyon wash and moderate potential in smaller washes on-site.
Red Rock poppy (<i>Eschscholzia minutiflora</i> ssp. <i>twisselmannii</i>)	CNPS List 1B.2	Yellow flowered annual about a foot or more tall that occurs on volcanic tuff material. Flowers March to May.	Moderate potential to occur on-site in soils with volcanic tuff.
Pale-yellow layia (<i>Layia heterotricha</i>)	CNPS List 1B.1	Annual herb found in alkaline or clay soils in	Low potential to occur on-site due to the lack of

Species	Sensitivity Status	Natural History	Potential Occurrence Status
		cismontane woodland, pinyon and juniper woodland and grasslands.	woodlands, coastal scrub, and grassland.
Sage-like Loeflingia (<i>Loeflingia squarrosa</i> var. <i>artemisiarum</i>)	CNPS List 2B.2	Minute annual with spine tipped leaves on sandy soil and dunes. Jepson Manual does not recognize variety but CNPS does. Flowers April to May.	Moderate potential to occur in sandy soils.
Solitary blazing star (<i>Mentzelia eremophila</i>)	CNPS List 4.2	Annual herb found in Mojavean desert scrub. Flowers March to May.	High potential to occur in desert scrub on-site.
Creamy blazing star (<i>Mentzelia tridentata</i>)	CNPS List 1B.3	Annual with somewhat thick dark green leaves and cream colored flowers on coarse rock gravel. Found in Mojavean desert scrub. Flowers March to May.	High potential to occur in desert scrub on-site.
Tehachapi monardella (<i>Monardella linoides</i> ssp. <i>oblonga</i>)	CNPS List 1B.3	Perennial rhizomatous herb found in lower montane coniferous forest, pinyon and juniper woodland, and upper montane coniferous forest. Flowers June to August.	Low potential to occur on-site due to lack of woodland and forest habitat.
Large-flowered nemacladus (<i>Nemacladus secundiflorus</i> var. <i>secundiflorus</i>)	CNPS List 4.3	Annual herb found in gravelly openings in chaparral and valley and foothill grassland. Flowers April to June.	Low potential to occur on-site due to lack of chaparral and grassland habitats.
Bakersfield cactus (<i>Opuntia basilaris</i> var. <i>treleasei</i>)	CNPS List 1B.1	Perennial stem succulent. Found in sandy or gravelly areas of chenopod scrub, cismontane woodland, and valley and foothill grassland.	Moderate potential to occur on-site in desert scrub habitat.
Fragile pentachaeta (<i>Pentachaeta fragilis</i>)	CNPS List 4.3	Annual herb found in foothill woodlands. Flowers March to June.	Low potential to occur on-site due to lack of woodland habitat.
Adobe yampah (<i>Perideridia pringlei</i>)	CNPS List 4.3	Perennial herb found in chaparral and foothill woodland. Flowers April to June.	Low potential to occur on-site due to lack of woodland and chaparral habitat.
Hubby's phacelia (<i>Phacelia hubbyi</i>)	CNPS List 4.2	Annual herb found on gravelly or rocky slopes in chaparral or coastal scrub. Flowers April to June.	Low potential to occur on-site due to lack of coastal scrub and chaparral habitat.
Charlotte's Phacelia (<i>Phacelia nashiana</i>)	CNPS List 1B.2	Low growing annual with somewhat thick leaves and deep blue flowers growing on gravelly and talus slopes. Flowers March to June.	Moderate potential to occur on-site. Known from the general vicinity of the site and its surroundings
Mojave fish-hook cactus (<i>Sclerocactus polyancistrus</i>)	CNPS List 4.2	Perennial stem succulent found in Mojave desert scrub and pinyon and juniper woodland.	Moderate potential to occur on-site in desert scrub.

ATTACHEMENT B

FLORAL SPECIES DETECTED DURING PROJECT SURVEYS

Attachment B.1 Plant Species Observed within the RE Cinco Proposed Solar Facility

Scientific Name	Common Name
EUDICOTS	
<i>Ambrosia dumosa</i>	White bur-sage
<i>Ambrosia salsola</i> var. <i>salsola</i>	Common burrobrush, cheesebush
<i>Amsinckia intermedia</i>	Common fiddleneck
<i>Amsinckia tessellata</i>	Desert fiddleneck
<i>Brassica tournefortii</i>	Sahara mustard
<i>Calycoseris parryi</i>	Yellow tack-stem
<i>Camassonia claviformis</i>	Brown-eyed primrose
<i>Chaenactis xantiana</i>	Fleshy pincushion
<i>Chorizanthe brevicornu</i> var. <i>brevicornu</i>	Brittle spineflower
<i>Chorizanthe</i> sp.	Spineflower
<i>Chorizanthe spinosa</i>	Mojave spineflower
<i>Chorizanthe watsonii</i>	Watson's spineflower
<i>Cryptantha micrantha</i> var. <i>micrantha</i>	Red-root cryptantha
<i>Cryptantha nevadensis</i> var. <i>rigida</i>	Rigid cryptantha
<i>Cylindropuntia echinocarpa</i>	Silver or golden cholla
<i>Descurainia pinnata</i>	Western tansy mustard
<i>Eremalche exilis</i>	White mallow
<i>Ericameria teretifolia</i>	Green or round-leaf rabbitbrush
<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	Mojave desert california buckwheat
<i>Eriogonum pusillum</i>	Yellow turbans (group 2)
<i>Eriogonum</i> sp.	Buckwheat
<i>Eriophyllum ambiguum</i> var. <i>paleaceum</i>	Annual woolly sunflower
<i>Erodium cicutarium</i>	Redstem filaree
<i>Eschscholzia minutiflora</i>	Pygmy poppy
<i>Eucrypta micrantha</i>	Desert eucrypta
<i>Gilia brecciarum</i> subsp. <i>brecciarum</i>	Nevada gilia
<i>Gilia scopulorum</i>	Rock gilia
<i>Gilia stellata</i>	Star gilia
<i>Gilia transmontana</i>	Transmontane gilia
<i>Guillenia lasiophylla</i>	California mustard
<i>Larrea tridentata</i>	Creosote bush
<i>Lasthenia gracilis</i>	Common goldfields
<i>Lepidium fremontii</i>	Desert allysum
<i>Lepidium</i> sp.	Peppergrass
<i>Lepidospartum squamatum</i>	Scale broom
<i>Leptosyne bigelovii</i>	Bigelow coreopsis
<i>Lupinus</i> sp.	Lupine
<i>Lycium cooperi</i>	Cooper's box thorn
<i>Malacothrix coulteri</i>	Snake's-head
<i>Malacothrix glabrata</i>	Desert dandelion
<i>Mentzelia</i> sp.	Mentzelia
<i>Mirabilis laevis</i> var. <i>villosa</i>	Wishbone bush

<i>Pectocarya heterocarpa</i>	Mixed-nut pectocarya
<i>Phacelia distans</i>	Common phacelia, wild heliotrope
<i>Pholistoma membranaceum</i>	White fiesta flower
<i>Plagiobothrys arizonicus</i>	Arizona popcornflower
<i>Psorothamnus arborescens var. arborescens</i>	Johnson's indigobush
<i>Scutellaria mexicana</i>	Bladder-sage
<i>Senna armata</i>	Spiny senna
<i>Sphaeralcea ambigua var. ambigua</i>	Apricot mallow
<i>Stephanomeria pauciflora</i>	Wire-lettuce
<i>Tropidocarpum gracile</i>	Dobie pod
GYMNOSPERMS	
<i>Ephedra viridis</i>	Green ephedra
MONOCOTS	
<i>Bromus madritensis subsp. madritensis</i>	Foxtail chess, madrid brome
<i>Bromus tectorum</i>	Cheat grass, downy chess
<i>Dichelostemma capitatum subsp. capitatum</i>	Blue dicks, wild hyacinth
<i>Hesperoyucca whipplei</i>	Our Lord's candle
<i>Schismus barbatus</i>	Mediterranean grass
<i>Yucca brevifolia</i>	Joshua tree

Attachment B.2 Plant Species Observed within the RE Cinco Proposed Gen Tie-Line

Scientific Name	Common Name
EUDICOTS	
<i>Acmispon strigosus</i>	Strigose lotus
<i>Ambrosia acanthicarpa</i>	Annual bur-sage
<i>Ambrosia dumosa</i>	White bur-sage
<i>Ambrosia salsola</i>	Common burrobrush, cheesebush
<i>Amsinckia tessellata</i> var. <i>tessellata</i>	Desert fiddleneck
<i>Amsinckia menziesii</i>	Small-flowered fiddleneck
<i>Atriplex polycarpa</i>	Allscale saltbush
<i>Calycoseris parryi</i>	Yellow tack-stem
<i>Calyptridium monandrum</i>	Common pussypaws
<i>Camissonia campestris</i> subsp. <i>campestris</i>	Mohave suncup
<i>Caulanthus lasiophyllus</i>	California mustard
<i>Chaenactis xantiana</i>	Fleshy pincushion
<i>Chorizanthe brevicornu</i> var. <i>brevicornu</i>	Brittle spineflower
<i>Chorizanthe spinosa</i>	Mojave spineflower
<i>Chorizanthe watsonii</i>	Watson's spineflower
<i>Chylismia claviformis</i> subsp. <i>claviformis</i>	Brown-eyed primrose
<i>Cryptantha angustifolia</i>	Narrow-leaved cryptantha
<i>Cryptantha micrantha</i> var. <i>micrantha</i>	Red-root cryptantha
<i>Cryptantha nevadensis</i> var. <i>rigida</i>	Rigid cryptantha
<i>Cryptantha pterocarya</i> var. <i>pterocarya</i>	Winged-nut cryptantha
<i>Cryptantha</i> sp.	Cryptantha
<i>Cylindropuntia echinocarpa</i>	Silver or golden cholla
<i>Descurainia pinnata</i>	Western tansy mustard
<i>Encelia farinosa</i>	Brittlebush
<i>Eremalche exilis</i>	White mallow
<i>Eriogonum pusillum</i>	Yellow turbans
<i>Eriophyllum wallacei</i>	Wallace's woolly daisy
<i>Erodium cicutarium</i>	Redstem filaree
<i>Eschscholzia californica</i>	California poppy
<i>Eschscholzia minutiflora</i>	Pygmy poppy
<i>Eucrypta micrantha</i>	Desert eucrypta
<i>Gilia brecciarum</i> subsp. <i>brecciarum</i>	Nevada gilia
<i>Gilia stellata</i>	Star gilia
<i>Gilia transmontana</i>	Transmontane gilia
<i>Krascheninnikovia lanata</i>	Winter fat
<i>Larrea tridentata</i>	Creosote bush
<i>Lasthenia gracilis</i>	Common goldfields
<i>Lepidium fremontii</i>	Desert allysum
<i>Lepidospartum squamatum</i>	Scale broom
<i>Leptosyne bigelovii</i>	Bigelow coreopsis
<i>Logfia depressa</i>	Hierba limpia
<i>Lupinus</i> sp.	Lupine

<i>Lycium cooperi</i>	Cooper's box thorn
<i>Malacothrix coulteri</i>	Snake's-head
<i>Malacothrix glabrata</i>	Desert dandelion
<i>Mentzelia albicaulis</i>	Small-flowered blazing star
<i>Mentzelia obscura</i>	Pacific blazing star
<i>Mirabilis laevis</i> var. <i>villosa</i>	Wishbone bush
<i>Nemacaulis denudata</i>	Cotton heads, woolly heads
<i>Pectocarya linearis</i> subsp. <i>ferocula</i>	Narrow-toothed pectocarya
<i>Pectocarya penicillata</i>	Northern pectocarya
<i>Peritoma arborea</i> var. <i>angustata</i>	Bladder pod
<i>Phacelia crenulata</i> var. <i>crenulata</i>	Cleft-leaf wild heliotrope
<i>Phacelia distans</i>	Common phacelia, wild heliotrope
<i>Phacelia fremontii</i>	Fremont's phacelia
<i>Plagiobothrys arizonicus</i>	Arizona popcornflower
<i>Psoralea arborescens</i> var. <i>arborescens</i>	Johnson's indigobush
<i>Rafinesquia neomexicana</i>	Desert chicory
<i>Salvia columbariae</i>	Chia
<i>Scutellaria mexicana</i>	Bladder-sage
<i>Senna armata</i>	Spiny senna
<i>Sphaeralcea ambigua</i> var. <i>ambigua</i>	Apricot mallow
<i>Stephanomeria pauciflora</i>	Wire-lettuce
<i>Tropidocarpum gracile</i>	Dobie pod
GYMNOSPERMS	
<i>Ephedra viridis</i>	Green ephedra
MONOCOTS	
<i>Bromus madritensis</i> subsp. <i>madritensis</i>	Foxtail chess, madrid brome
<i>Bromus madritensis</i> subsp. <i>rubens</i>	Red brome
<i>Dichelostemma capitatum</i> subsp. <i>capitatum</i>	Blue dicks, wild hyacinth
<i>Hesperoyucca whipplei</i>	Our Lord's candle
<i>Schismus barbatus</i>	Mediterranean grass
<i>Yucca brevifolia</i>	Joshua tree