



TETRA TECH EC, INC.

DOCKET

09-AFC-8

DATE JUN 18 2010

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June 18, 2010

California Energy Commission
Docket No. 09-AFC-8
1516 9th St.
Sacramento, CA 95814

Genesis Solar Energy Project - Docket Number 09-AFC-8

Docket Clerk:

Enclosed for filing with this letter is one hard copy and one electronic copy of the **Golden Eagle Risk Assessment for the Genesis Solar Energy Project**, dated June 2010.

This report summarizes data from a report developed by the Wildlife Research Institute (WRI) titled **Golden Eagle Surveys Surrounding Four Proposed Energy Developments in the Mojave Desert Region, California**, that will be docketed within the next two weeks, but is not yet available for public review.

Sincerely,

Tricia Bernhardt
Project Manager/Tetra Tech EC

cc: Mike Monasmith /CEC Project Manager





**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV**

**APPLICATION FOR CERTIFICATION FOR THE
GENESIS SOLAR ENERGY PROJECT**

Docket No. 09-AFC-8

**PROOF OF SERVICE
(Revised 6/7/10)**

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I, Tricia Bernhardt, declare that on June 18, 2010, I served and filed copies of the **Golden Eagle Risk Assessment for the Genesis Solar Energy Project** dated June, 2010. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: [http://www.energy.ca.gov/sitingcases/genesis_solar].

The documents have been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(Check all that Apply)

FOR SERVICE TO ALL OTHER PARTIES:

sent electronically to all email addresses on the Proof of Service list;

by personal delivery or by depositing in the United States mail at Sacramento, California with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses **NOT** marked "email preferred."

AND

FOR FILING WITH THE ENERGY COMMISSION:

sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (*preferred method*);

OR

depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION

Attn: Docket No. 09-AFC-8
1516 Ninth Street, MS-4
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I declare under penalty of perjury that the foregoing is true and correct.

Original Signed By:



Tricia Bernhardt

Golden Eagle Risk Assessment
Genesis Solar Energy Project
Riverside County, CA



Prepared By:



TETRA TECH EC, INC.

1750 SW Harbor Way, Suite 400
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Prepared For:

Genesis Solar, LLC

June 2010

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1. Project Description

Genesis Solar, LLC (Genesis Solar), a Delaware, limited liability company and wholly owned subsidiary of NextEra Energy Resources, LLC is proposing to develop a 250-megawatt (MW) solar electric generating plant on land managed by the Bureau of Land Management (BLM) in the desert of eastern Riverside County, California (Figure 1). Genesis Solar has applied for a 4,640-acre Right-of-Way (ROW) grant from the BLM for development of the Genesis Solar Energy Project (Project). Once constructed, the Project would permanently occupy approximately 1,768 acres within this area (Plant Site), plus approximately 84 acres for Linear Facilities. The total permanent Project footprint would be approximately 1,852 acres (collectively referred to as the Project Area).

During discussions among BLM, US Fish and Wildlife Service (USFWS), and Genesis Solar, USFWS expressed concerns about potential project-related impacts to golden eagles, which are known to be in the area. The golden eagle is protected by the Bald and Golden Eagle Protection Act (BGEPA). This law provides for the protection of the bald eagle and the golden eagle by prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit (16 U.S.C. 668(a); 50 CFR 22). "Take" includes pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb (16 U.S.C. 668c; 50 CFR 22.23). "Disturb" means to agitate or bother an eagle to a degree that causes, or is likely to cause, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior. The USFWS recently published a notice in the Federal Register that take permits would be available for eagles; however, the implementing guidelines have not yet been released.

In the absence of implementation guidelines, USFWS has asked that eagle risk assessments be conducted for projects that may impact golden eagles. Specifically, this document provides a risk assessment of Project development impacts on golden eagles based on project-specific facilities, a literature review, input from eagle biologists, and the results of two helicopter nest surveys. For this eagle risk assessment, USFWS has asked that a 10-mile buffer be used to evaluate the potential impacts of the Project because eagle territory size in xeric/dry environments is believed to extend up to 10 miles (Pagel et al. 2010, J. Pagel, pers. comm.). Therefore, all potential impacts are evaluated in the context of the 10-mile buffer.

2. Project Description

The Project is a concentrated solar electric generating facility. It consists of two independent concentrated solar electric generating facilities (a.k.a. power plants or plants) with a nominal net electrical output of 125 MW each, for a total net electrical output of 250 MW. Electrical power would be produced using steam turbine generators fed from solar steam generators (SSG). The SSG receives heated heat transfer fluid from solar

thermal equipment comprised of arrays of parabolic mirrors that collect energy from the sun.

The Project proposes to use a wet cooling tower for power plant cooling. Water for cooling tower makeup, process water makeup, and other industrial uses such as mirror washing would be supplied from wells within the Project Area, which will also be used to supply water for employee use (e.g., drinking, showers, sinks, and toilets). Project cooling water blowdown will be piped to lined, onsite evaporation ponds. The ponds will be sized to retain approximately seven years' worth of solids and will be cleaned out periodically during the life of the Project to ensure the solids do not reach a depth greater than approximately three feet. Dewatered residues from the ponds will be sent to an appropriate off-site landfill as non-hazardous waste.

A transmission line, access road, and natural gas and water pipelines will be co-located in one linear corridor to serve the Plant Site. This corridor would exit the facility to the south and would be approximately 6.5 miles long. The generation tie-line would extend an additional mile, cross Interstate 10 (I-10), and tie into the Blythe Energy Project Transmission Line (BEPTL). The generation tie-line would use the existing pole structures of the BEPTL to interconnect with the proposed Colorado River Substation to the east.

3. Environmental Setting

The Project is located in Chuckwalla Valley, immediately north of Ford Dry Lake in the Colorado region of the Sonoran Desert. This region is sparsely vegetated and characterized by broad valleys interspersed with mountain ranges and dry lakes. Summer temperatures routinely reach above 100°F (June–September) and annual average precipitation in the Blythe, California area is less than 4 inches. On average, August receives the most rainfall (WRCC 2008). The Project is in the watershed of the McCoy and Palen Mountains; site drainage is by sheet flow and percolation. Topography is relatively level, with elevations between approximately 360 and 450 feet above mean sea level.

The vegetation within the Project area is characterized by two main vegetation types: Sonoran Creosote Bush Scrub and Stabilized and Partially Stabilized Sand Dunes (Holland 1986). Sonoran Creosote Bush Scrub represents the majority of the Project Area, except where Stabilized and Partially Stabilized Sand Dunes are found in the eastern portion of the ROW and along the northern portions of the Linear Facility routes.

The Project Area is undeveloped and is currently undisturbed, although the area has been used for grazing and recreation in the past. The Project overlaps the Ford Dry Lake grazing allotment, which has been used in the past for primarily sheep grazing. The area has not been used for grazing for over 10 years and was made unavailable for grazing in 2002 (BLM 2007). Ford Dry Lake was formerly open to the public for off-highway vehicle (OHV) use, but it has since been closed and current access is restricted to existing

roadways. Access to the area is poor, limited to four-wheel-drive roads located on the western end of the ROW.

Although GIS vegetation layers are available for the areas within 10 miles of the Project Area, ground truthing has shown that while the general classes are representative of what is present (e.g., Sonoran Creosote Bush Scrub, Desert Dunes, and Desert Dry Wash), actual locations of the different vegetation types are not accurately represented in the GIS data. Therefore, vegetation maps are not provided in this risk assessment.

4. Collection and Synthesis of Biological Data

4.1. Eagle nest surveys

Helicopter surveys for golden eagle nests were conducted by the Wildlife Research Institute following USFWS protocols (Pagel et al. 2010). The initial surveys were conducted on March 25-26 and April 2-3 2010 (WRI 2010). WRI found three golden eagle nests within the 10-mile buffer of the Project Area; one inactive nest in the McCoy Mountains (8.26 miles from the Plant Site) and two nests within the Palen Mountains (nests are co-located 9.8 miles from the Plant Site)., one inactive and one with evidence that some new material may have been recently added to the nest though no eagles were observed using the nest. These nests likely represent two eagle territories, one in the McCoy's and one in the Palen Mountains. The multiple nest sites in the Palen Mountains likely represent alternate nest sites for one pair due to the proximity of the nest locations (Kochert et al. 2002, WRI 2010). No eagles were seen either associated with the nests or while flying in these two mountain ranges. As per protocol requirements, a second survey was conducted on May 14, 2010 by helicopter to revisit active or possible activity territories that were identified in the initial surveys. No new nesting activity was observed (WRI 2010).

4.2. Avian point count surveys

Avian point count surveys were conducted to document breeding passerines according to a protocol set forth by the BLM (Tetra Tech and Karl 2009a). Spring point count surveys were conducted on March 21–24, 27, 29, 30, and April 4–7 and 11–13, 2009. Winter point count surveys were conducted on November 10–13, 16–19, 22–30 and December 1–3 2009 (Tetra Tech and Karl 2009b). One point count transect was located in each square mile of the ROW for a total of seven transects. Point count surveys were conducted for each transect one day per week for four weeks each season. No golden eagles were seen during point counts or as incidental observations.

4.3. Christmas Bird Count data

The Christmas Bird Count (CBC) is an annual, one-day bird count in late December or early January that provides some information on annual trends in wintering birds. These counts are done within a 15-mile diameter circle and reflect the total number of birds seen throughout the day. Of the three CBC locations in Riverside County, the Joshua Tree National Park Count is closest to the Project. Over the last 20 years, two golden eagles were seen in 1995; one was seen in 1999; and one was seen in 2008.

5. Identification of Project-related Activities That Could Potentially Result in Eagle Take

This section addresses potential take of golden eagles that might result from the construction and operation of the Project, either through direct mortality or as a result of disturbance of normal breeding and foraging activities.

5.1. Mortality

5.1.1. Solar facility

Few data are available regarding direct avian mortality at solar facilities. McCrary et al. (1986) conducted searches for bird fatalities at the Solar One Project. They found that the primary cause of bird mortality (57 birds, 81 percent of fatalities found) was collisions with structures, primarily the solar panels. The remaining 19 percent (13 birds) died from burning in the standby points. Fatalities were primarily songbirds and ducks; no raptors were found.

Golden eagle mortality is unlikely to be associated with the operation of the solar facility. To date, there are no documented raptor mortalities associated with solar facilities. In order for a golden eagle fatality to occur, golden eagles would have to collide with the facilities or land on standby points, which would be most likely to occur if golden eagles were hunting in the area. However, because of the distance of the Project from the nests and the lack of prey available due to absence of vegetation suitable as prey habitat within the solar field, eagles are unlikely to be hunting in the area.

The presence of water developments, such as the evaporation ponds, in a desert environment may be expected to increase concentrations of prey species. However, DeStefano et al. (2010) found in their comparison of watered and non-watered areas in Arizona that for lagomorph species sign was more likely to be found in non-watered than in watered areas (Destafano et al. 2000). Jackrabbits are able to get most of the water they need from their diet and therefore do not require open water sources (Best 1996). It is unlikely, therefore, that the presence of the evaporation ponds will cause increased concentrations of jackrabbits to attract foraging golden eagles.

5.1.2. Transmission line

Golden eagle fatalities occur as a result of electrocution and collisions with power line structures (Harness and Wilson 2001, APLIC 2006). Due to their large size, golden eagles are able to bridge conductive elements (Harness and Wilson 2001, APLIC 2006). Therefore, any structures that allow for circuit completion (i.e., flesh-to-flesh contact between energized parts or an energized and grounded part) pose an electrocution risk to golden eagles. To protect eagles from possible electrocution, APLIC recommends a horizontal separation of 60 in (150 cm) and a vertical separation of 40 in (100 cm) between phase conductors or between a phase conductor and grounded hardware.

A 230-kV generation tie-line will exit the Project Area to the south and run in a southeasterly direction for approximately 7.5 miles before connecting to the existing

BEPTL. For this line, transformers will be >60 in (150 cm), thus minimizing the risk for golden eagle electrocution.

The approximately 6 miles of construction power/alternative backfeed power distribution system will be below 60 kV. These lines have smaller separations than transmission lines which increase the risk of electrocutions; therefore, Genesis Solar will follow APLIC guidelines such as spacing or insulation to minimize the risk of golden eagle electrocutions.

In areas where there are few natural perches, power poles may become an attractant to foraging raptors (Lehman et al. 2007). As natural perches are limited in the Project Area, it is possible that golden eagles within the Project Area will use the power poles as hunting perches, although eagle use of the area that encompasses the transmission line is likely to be limited to a maximum of one pair during the breeding season because of the territorial nature of the golden eagles (Kochert et al. 2002). Additional eagles may move through the area during the non-breeding season, although there are no known concentrations of non-breeding eagles within the Project. By following APLIC recommendations during the design and construction of the transmission line and its components, the risk of electrocution to golden eagles will be reduced.

Golden eagle mortalities have been recorded as a result of collisions with power lines (LaRoe et al. 1995); however, much of the data does not distinguish between electrocution and collision accidents (Bevanger 1998). Therefore, although there is a potential for mortality due to collision with the transmission line, the potential is low due to the distance from the nest and the lack of known prey concentrations.

5.2. Disturbance

This section addresses any potential disturbance to normal breeding or foraging behaviors that may result from the construction and operation of the solar facility and the transmission line.

5.2.1. Nesting

Impacts to nesting eagles are dependent on the source or type of disturbance and the distance between the disturbance and the nest (Richardson and Miller 1997). Known disturbances to golden eagle nests in California deserts include OHV traffic, camping, mining/development, shooting, climbing and graffiti (WRI 2008). Construction and operational impacts that could affect golden eagles include noise, human activity, and dust.

Richardson and Miller (1997) summarized recommended buffer distances for active golden eagle nests, with respect to human disturbance, noise, and visual impacts, as 0.1 to 1 miles (200 to 1,600 meters). Suter and Jones (1981) suggested that construction buffers from nests should be at least 0.6 miles (1,000 meters). Holmes et al. (1993) evaluated flushing distance for golden eagles as 0.07–0.25 miles (105–390 meters) for pedestrian disturbance and 0.009–0.12 miles (14–190 meters) for vehicle disturbance.

Multiple authors have stated that disturbance is minimized when it is not within line of sight of the nest (e.g., Suter and Joness 1981, Richardson and Miller 1997).

There are two golden eagle territories within 10 miles of the Project (Figure 2, WRI 2010). The eagle nests in the Palen Mountains are approximately 9.8 miles (15.77 km) from the Plant Site. The eagle nest in the McCoy Mountains is approximately 8.26 miles (13.29 km) from the Plant Site. These distances are substantially greater than the recommended buffers outlined above. Additionally, all the nests are located on slopes that do not afford views of the Project Area. Therefore, construction and operation of the solar facility is unlikely to disturb golden eagle nesting.

The nearest golden eagle nest is 5.24 miles (8.42 km) from the closest point of the transmission line. The nearest golden eagle nest is outside of all recommended buffers; therefore, the construction and operation of the transmission line is also unlikely to disturb nesting efforts at the closest known eagle nests.

5.2.2. Foraging

The construction of the Project will result in the removal of vegetation and prey habitat, which could result in disturbance to golden eagle foraging patterns. Black-tailed jackrabbits and cottontails are documented as the primary prey species of golden eagles in the southwestern US (Mollhagen et al. 1972, Kockhart 1976, Eakle and Grubb 1986 cited in Kochert et al. 2002). Black-tailed jackrabbits are found in a diversity of habitats, ranging from desert scrub to cactus to sagebrush, and are widely distributed throughout the state of California (Best 1996). Therefore, black-tailed jackrabbits are likely to occur in the Project Area prior to construction. Suter and Joness (1981) state that development should stay at least a quarter mile (400 meters) from prey concentrations to avoid impacts to foraging raptors.

It is unknown if golden eagles that nest in the Palen and McCoy Mountains would utilize the Project Area for foraging. Conservatively assuming that they do, impacts to golden eagle foraging are likely to be minimal because the area leased for the Project represents 0.75% of the area within a 10-mile radius of the eagle pair in the Palen Mountains and 0.83% of the area within a 10-mile radius of the eagle pair in the McCoy Mountains. Additionally, the habitat that will be disturbed or removed is not unique or limiting on the landscape and does not represent a known prey concentration (Dr. Larry LaPre, pers. comm.). Eagles should have other comparable or better foraging opportunities within the surrounding areas. Therefore, the construction and operation of the project is unlikely to disturb the foraging of the two eagle pairs within 10 miles of the Project.

6. Combined Wildlife Research Institute Golden Eagle Survey

The 10-mile eagle survey buffer around the Project overlapped with other solar facilities under development in the same region. In order to minimize disturbance to the eagles, NextEra, Solar Millennium, and First Solar jointly hired Wildlife Research Institute to survey within 10 miles of their four solar projects; thereby providing a consistent methodology across the local area. WRI (2010) found only one active nest, which was

located in the Coxcomb Mountains, although surveys began later in the season and early breeding attempts may have been missed. An additional eight possible active territories were found within 10 miles of the four project combined. The following four mountain ranges had a single active or possibly active pair: the Big Maria Mountains, the Chocolate Mountains, the Chuckwalla Mountains, and the Palen Mountains. Two mountain ranges had two or more active territories within 10 miles of the combined projects; the Eagle Mountains (2 territories) and the Coxcomb Mountains (3 territories). An additional 5 non-active territories were located throughout the search area and may be active in non-drought years (WRI 2010). Impacts from the development of the Genesis Project are not expected to be cumulatively considerable due to the distance of the Project from nests and the minimal impact on foraging habitat (see above).

7. Conclusions

The risk of impacts to golden eagles resulting from development of the Genesis Solar Project is likely to be very low. Potential causes of mortality include collisions with the solar facilities, transmission lines, and electrocution. However, mortality is unlikely due to collisions with the solar facilities because of the lack of raptor mortalities associated with solar facilities and the lack of prey, and therefore hunting eagles, in the immediate vicinity of the operational facility. Mortality risk is low due to electrocutions at transmission lines because lines will follow APLIC guidelines. Mortality risk is also likely to be low due to collision with transmission lines because likely only a single eagle pair overlaps the vicinity of the new transmission line and there are no known concentrations of non-breeding eagles in the Project. Disturbance to golden eagles is also likely to be low, due to the distance of the solar facility from the nest, the lack of view of the Project from the nests and the lack of known prey concentration in the area.

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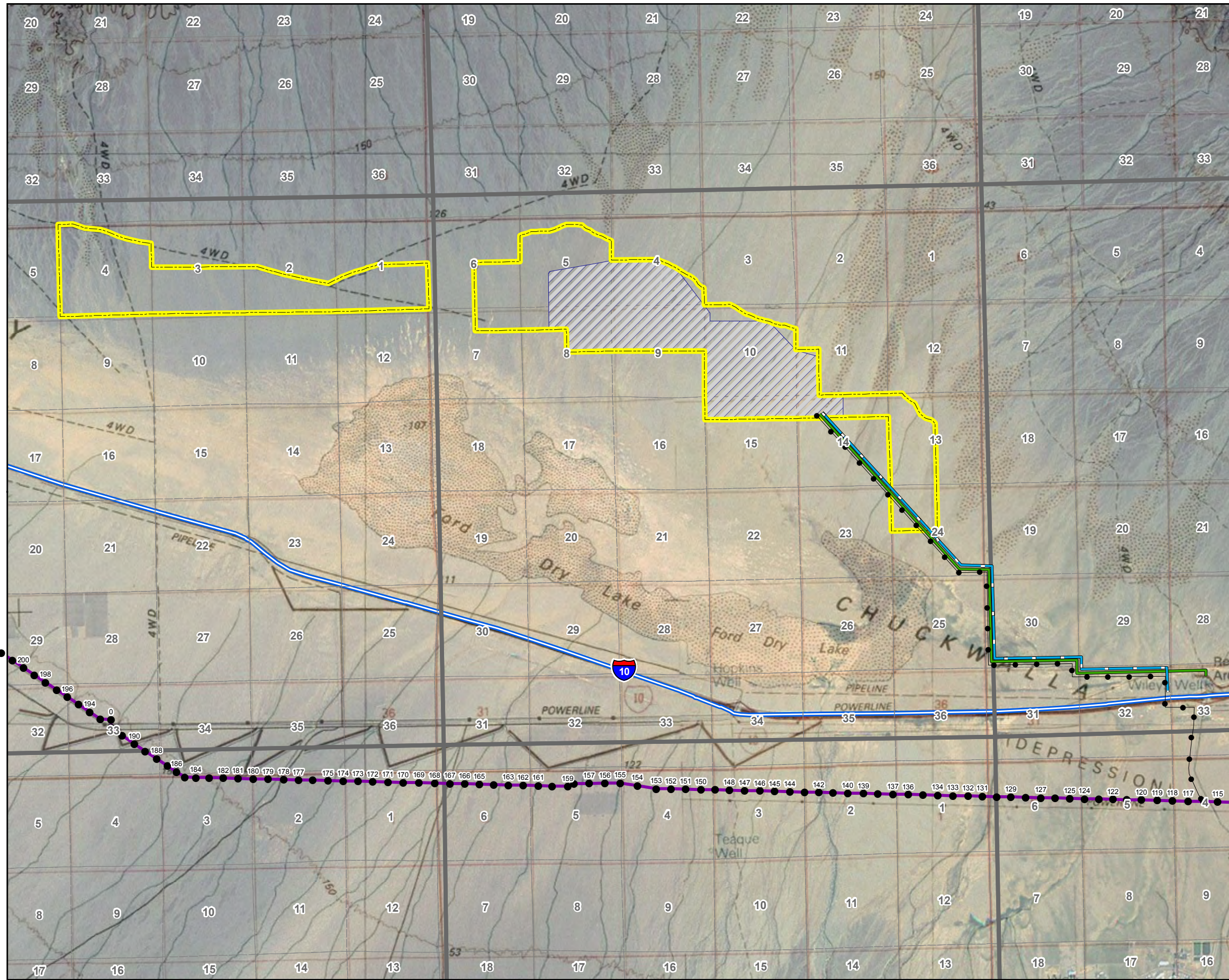
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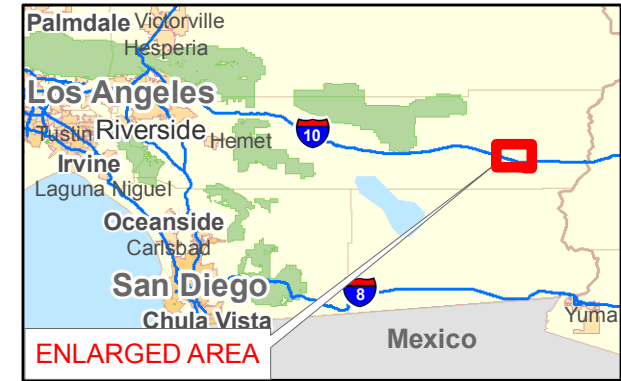
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GENESIS SOLAR, LLC
GENESIS SOLAR ENERGY PROJECT
RIVERSIDE COUNTY,
CALIFORNIA



Legend

- Blythe Transmission Line
- Blythe Transmission Line Structures
- Project Requested ROW
- Plant Site
- Township and Range Lines
- Section Lines

Project Linear Facilities

- Proposed Transmission Interconnect (7.5 Miles)
- Proposed Gas Line (5.9 Miles)
- Proposed Access Road (6.1 Miles)

Notes:

- (a) UTM Zone 11, NAD 1983 Projection.
- (b) Source data: ESRI, BLM, TTEC

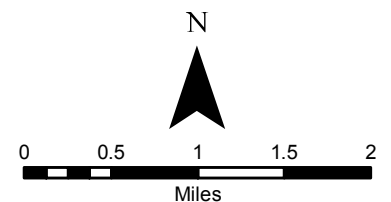
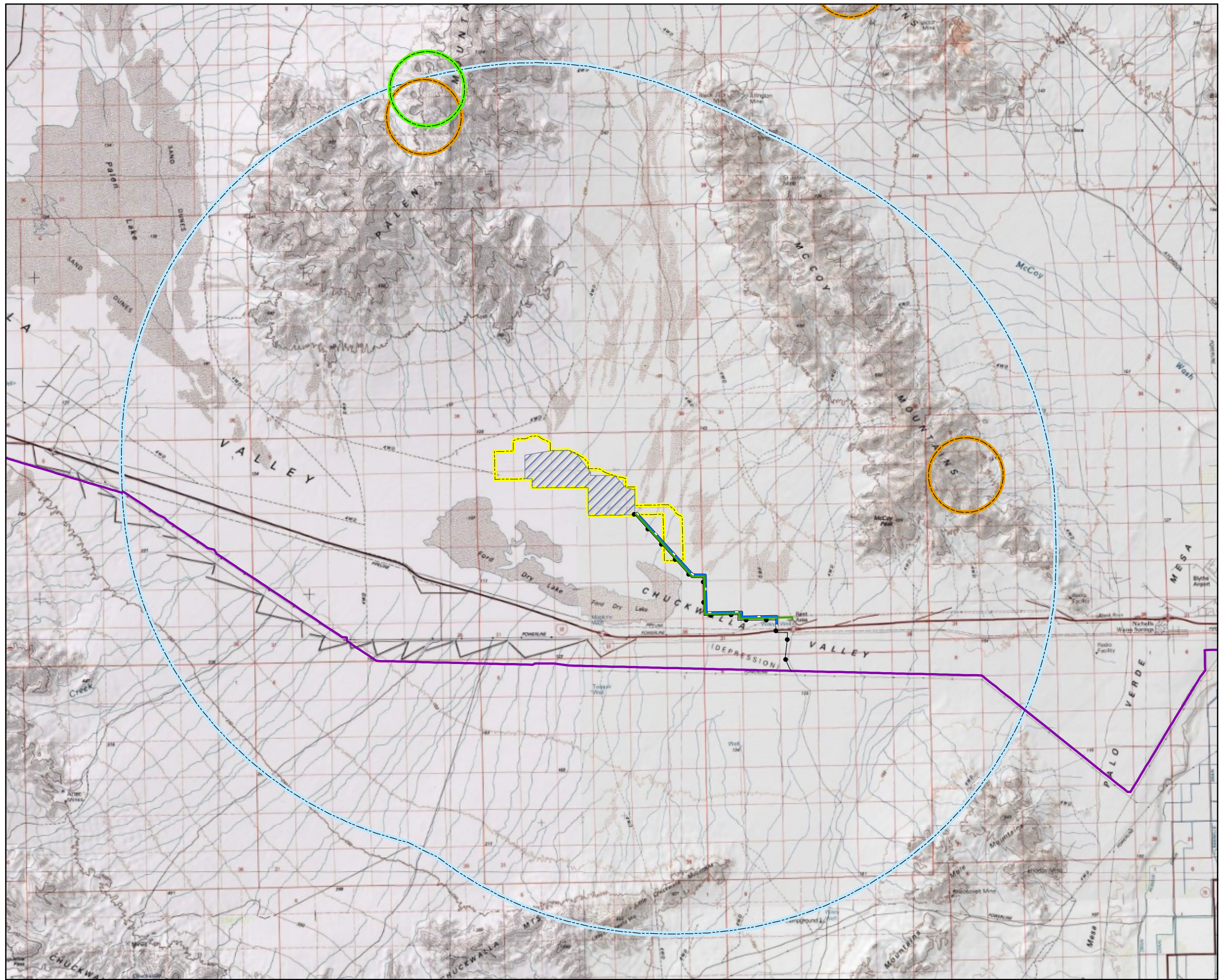


FIGURE 1
FEATURES AND LOCATION MAP

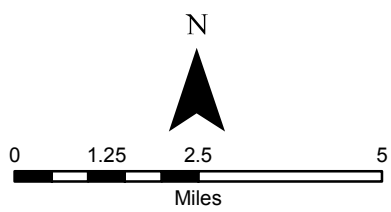


Genesis Solar, LLC

GENESIS SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CALIFORNIA



- Legend**
- Active Golden Eagle Nest
 - Inactive Golden Eagle Nest
 - Project Requested ROW
 - Plant Site
 - 10 Mile Buffer of Project ROW Boundary
 - Proposed Access Road (6.1 Miles)
 - Proposed Gas Line (5.9 Miles)
 - Proposed Transmission Interconnect (7.5 Miles)



Notes:
 (a) UTM Zone 11, NAD 1983 Projection.
 (b) Source data: ESRI; WRI, Inc.

**FIGURE 2
 GOLDEN EAGLE NEST LOCATIONS
 RANDOM OFFSET PROXIMITY - 1 MILE**

