TETRA TECH EC, INC.

DOCKET	
09-AFC-8	
DATE	JAN 05 2010
RECD.	JAN 06 2010

January 5, 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:

Included with this letter is one hard copy and one electronic copy of the ***Draft Desert Tortoise Translocation Plan for the Genesis Solar Energy Project.***

Sincerely,

Tricia Bernhardt
Project Manager/Tetra Tech EC

cc: Mike Monasmith /CEC Project Manager

143 Union Boulevard, Suite 1010, Lakewood, CO 80228-1875
Tel 303.988.2202 Fax 303.980.3539
www.tteci.com

DRAFT
DESERT TORTOISE
RELOCATION/TRANSLOCATION PLAN

for the

Genesis Solar Energy Project

Docket No. 09-AFC-8

Submitted to:

Genesis Solar, LLC
700 Universe Boulevard
Juno Beach, Florida 33408

Contacts: Kenneth Stein
Meg Russell

Prepared by:

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

and

Tetra Tech EC, Inc.
143 Union Blvd, Suite 1010
Lakewood, CO 80228

January 4, 2010

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

DRAFT DESERT TORTOISE RELOCATION/TRANSLOCATION PLAN FOR THE GENESIS SOLAR PROJECT

1.0 BACKGROUND

1.1 Project Description and Setting

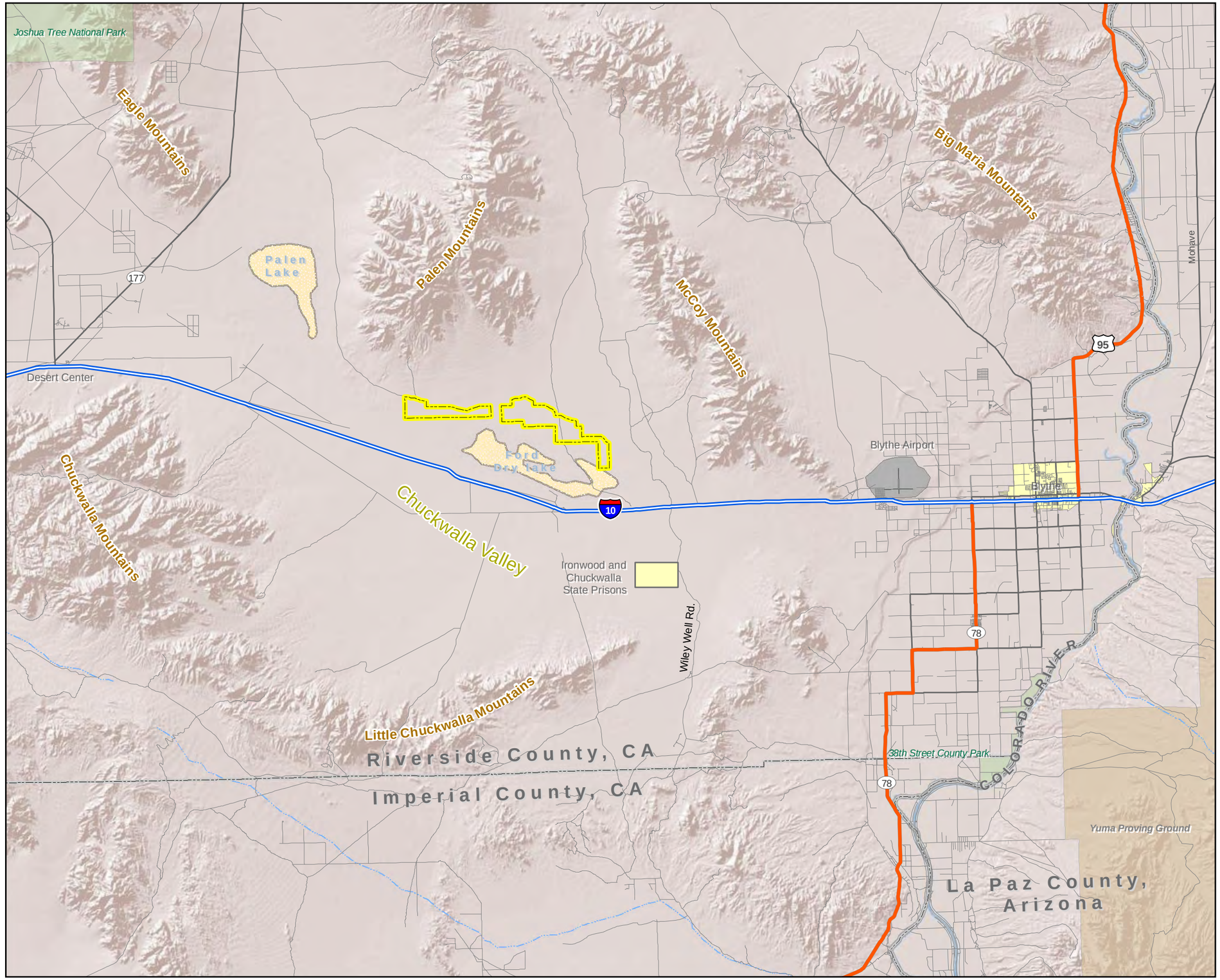
Genesis Solar, LLC, (Genesis Solar) proposes to develop the 250 megawatts (MW) Genesis Solar Energy Project (Project), approximately 25 miles west of Blythe, Riverside County, California (Figure 1). Details of the Project can be found in the Application for Certification (Genesis Solar 2009a). In summary, the Project Area includes:

- A 1,800-acre Plant Site that includes two independent solar electric generating facilities, each of which would have a nominal net electrical output of 125 MW and include a solar array, power block and power generating equipment, support facilities and evaporation ponds.
- Linear facilities, which include an access road from Interstate 10 (I-10), a transmission line, and a natural gas pipeline, all sited in a single, approximately 6.5-mile long corridor.

The Project is sited on undeveloped lands managed by the Bureau of Land Management (BLM). There are few anthropogenic disturbances although past sheep grazing has been reported and a portion of Ford Dry Lake was formerly open to the public for off-highway vehicle. Access to the Project Area is poor, and limited to a four-wheel-drive road on the western end of the Plant Site. The Palen/McCoy Wilderness Area lies immediately north of the Plant Site, abutting the Plant Site border in several places (Figure 2). According to the Wilderness Act of 1964 (Public Law 88-577) and 1994 California Desert Protection Act (Public Law 103-433), designated BLM Wilderness Areas comprise undeveloped federal lands without permanent improvements or human habitation that is to be protected and managed to preserve its natural condition.

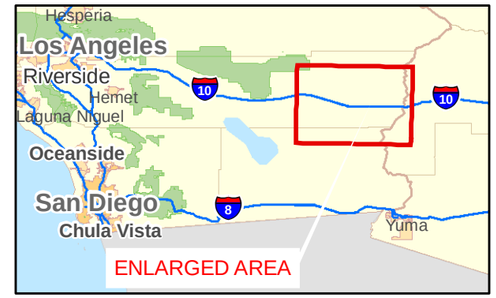
The Project Area is relatively flat and generally slopes from north to south with elevations of approximately 370 to 400 feet above mean sea level. The area is characterized by sheet flow hydrology, with shallow channels (runnels), typically approximately one yard or less wide and one-to-few inches deep, forming a network of ephemeral drainages across the Project that rarely flow and often fail to provide through-flow to larger drainages. Occasional, well-defined washes are present along the southern portion of the surveyed linear facility route north of I-10. There are no springs, seeps, wetlands, streams, or impoundments within the Project Area or vicinity. General vegetation and habitat types for the Project vicinity are illustrated in Figure 3. Subsets of two broad vegetation communities are found on the Project Area: Sonoran Creosote Bush Scrub and Stabilized and Partially Stabilized Sand Dunes (after Holland 1986). The characteristics that refine each community at the Project Area are described below.

Printing Date: 12/31/2009 9:46 AM
File: P:\GIS\Projects\FPL\Maps\Genesis\Genesis-RegionalLocationMap.mxd



GENESIS SOLAR, LLC

GENESIS SOLAR ENERGY PROJECT
RIVERSIDE COUNTY, CALIFORNIA



Legend

- Requested Project ROW
- Interstate
- Highway
- Major Road
- Local Road
- Airport Area
- County Boundary
- State Boundary
- Lake/River
- Lake Intermittent
- Parks (Regional)
- Military Installation
- Urban Areas

N

0 2.5 5 7.5 10
Miles

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

FIGURE 1
REGIONAL LOCATION MAP

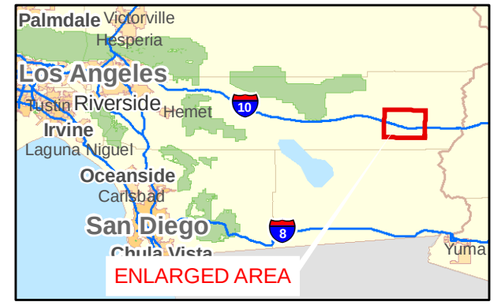
TETRA TECH EC, INC.

Printing Date: 12/31/2009 10:31 AM
File: P:\GIS\Projects\FPL\Maps\Genesis\Genesis-WHMA.mxd

Palen/McCoy Wilderness
Palen Dry Lake
Palen-Ford
Chuckwalla Mountains Wilderness
DWMA
Chuckwalla Valley Dune Thicket
Mule
Little Chuckwalla Mountains Wilderness
10

GENESIS SOLAR, LLC

GENESIS SOLAR ENERGY PROJECT
RIVERSIDE COUNTY,
CALIFORNIA



Legend

- Blythe Transmission Line
- Blythe Transmission Line Structures
- DWMA Northern Eastern Colorado
- Project Area (Facility Footprint)
- Area of Critical Environmental Concern
- Requested Project ROW
- BLM Wilderness
- USFWS Designated Critical Habitat
- Multi Species WHMA
- Bighorn Sheep WHMA

Project Linear Facilities

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

N

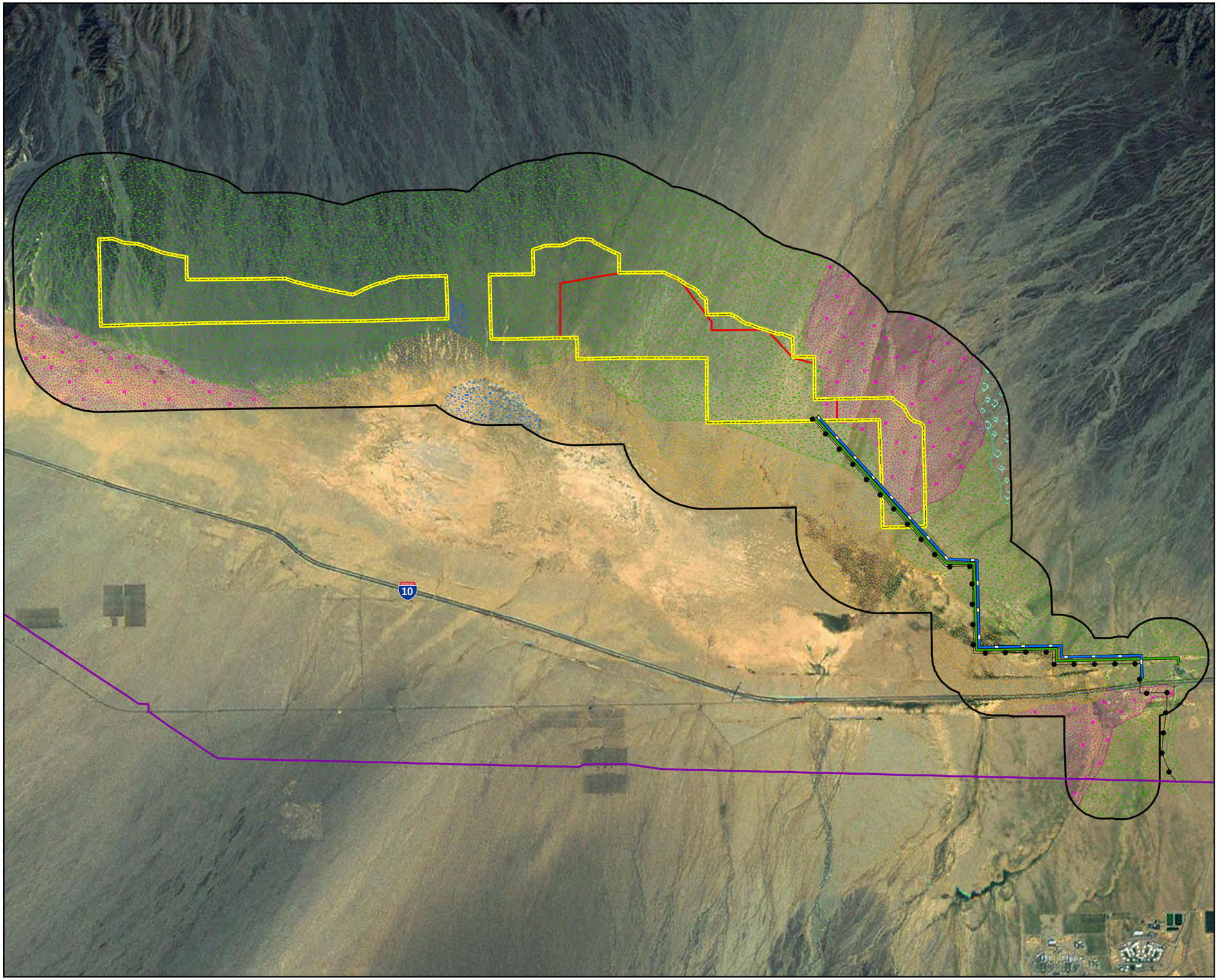
0 1 2 3 4
Miles

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

FIGURE 2
SPECIAL MANAGEMENT AREAS
WITHIN PROJECT VICINITY

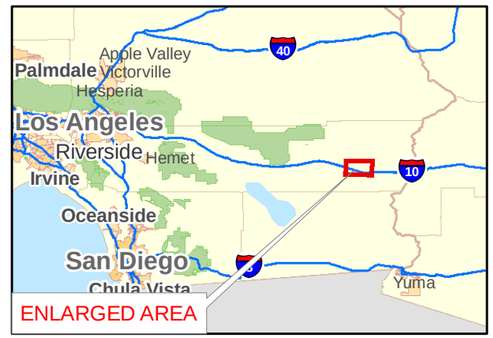
TETRA TECH EC, INC

Printing Date: 1/4/2010 1:41 PM
File: P:\GIS\Projects\FPL\Maps\Genesis\2009BioSurvey\Genesis-Vegetation.mxd



GENESIS SOLAR, LLC

GENESIS SOLAR ENERGY PROJECT
RIVERSIDE COUNTY,
CALIFORNIA



Legend

- Chenopod Scrub
- Sonoran Creosote Bush Scrub
- Dry Desert Wash Woodland
- Playa and Sand Drifts over Playa
- Stabilized and Partly-Stabilized Sand Dune
- Project Area (Facility Footprint)
- Project Area (Facility Footprint)
- Requested Project ROW
- Extent of Surveyed Area
- Blythe Energy Project Transmission Line

Project Linear Facilities

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

N

0 0.5 1 1.5 2
Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI, USDA, TTEC, Alice Karl & Assoc.

FIGURE 3
NATURAL COMMUNITY TYPES

TETRA TECH EC, INC

The Sonoran Creosote Bush Scrub community on the Project Area is dominated by two species: creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*). Shrub cover is relatively low, approximately 10 to 15 percent, and varies in response to hydrology and slope. Small drainages are more densely populated by creosote bush, white bursage, brittlebush (*Encelia farinosa*), cheesebush (*Ambrosia salsola*), and white rhatany (*Krameria grayi*) than immediately adjacent areas. Big galleta grass (*Pleuraphis* [=*Hilaria*] *rigida*) is also patchily common in these drainages. Ironwood (*Olneya tesota*) and palo verde (*Cercidium floridum*) are scattered in the occasional well-defined washes west of the Plant Site, in areas of heavy sheet flow. Common under story species include plantain (*Plantago ovata*), pebble pincushion flower (*Chaenactis carphoclinia*), forget-me-not (*Cryptantha spp.*), desert sunflower (*Geraea canescens*), peppergrass (*Lepidium lasiocarpum*), and stiff-haired lotus (*Lotus strigosus*). Soils are generally soft sandy-loams and loamy-sands, with scattered to 90 percent cover of fine gravel. Broad patches of well-developed, large-gravel desert pavement characterize the area west of the Plant Site and are scattered (and less well-developed) throughout the central portion of the Plant Site.

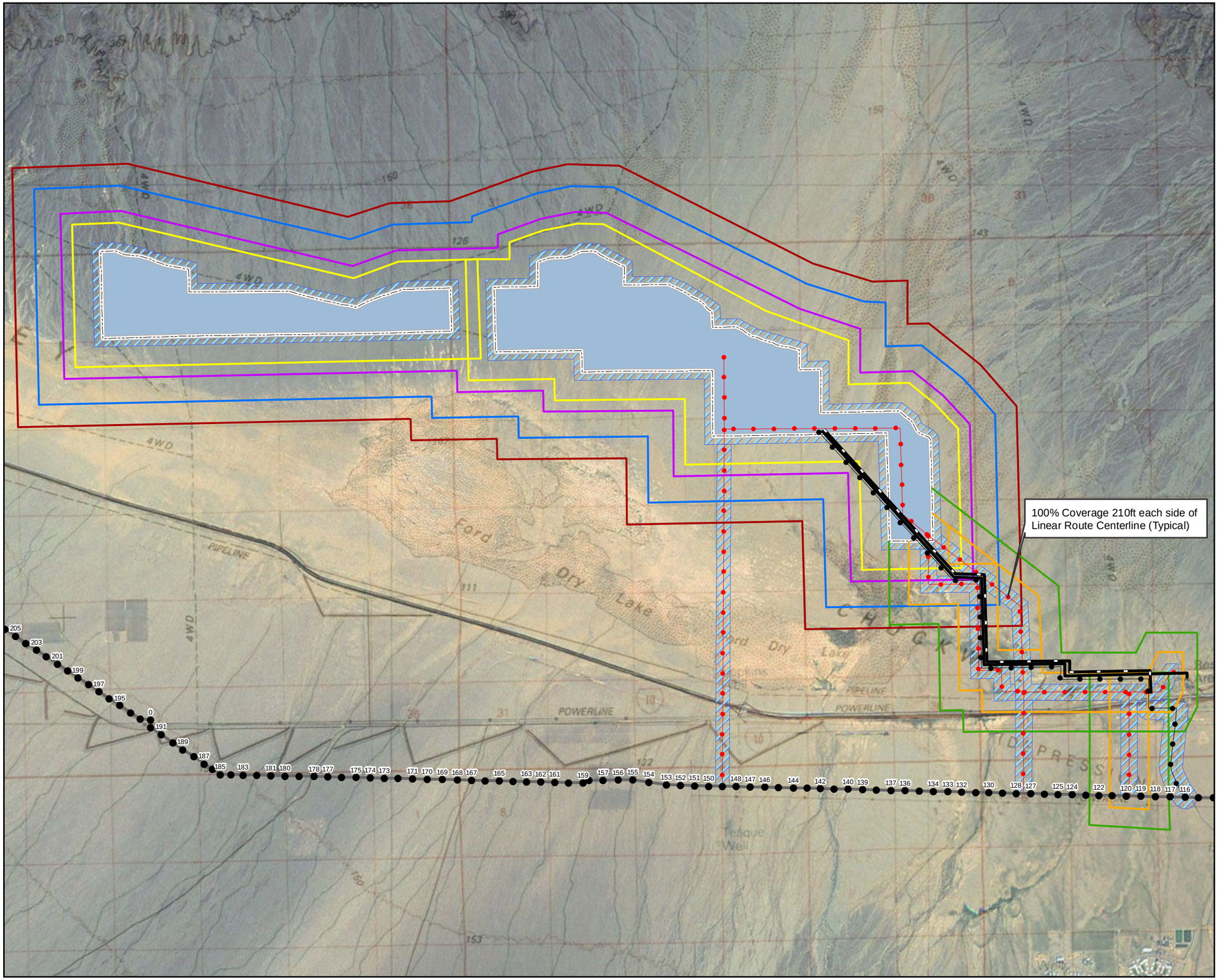
A heterogeneous mixture of Stabilized and Partially Stabilized Sand Dunes overlaps a portion of the Plant Site and the linear facilities' route. There are also sandy areas present south of I-10 that overlap the surveyed linear route. These areas contain low dune formations of fine sand that contain widely spaced perennial shrubs. Dominant shrubs include creosote bush, white bursage, and galleta grass. Shrub cover is 2 to 5 percent, decreasing closer to the Ford Dry Lake playa. Several sand-associated and other annuals are also abundant (*e.g.*, sand verbena [*Abronia villosa*], birdcage primrose [*Oenothera deltoides*], desert marigold [*Baileya pauciradiata*], and narrow-leaved forget-me-not [*Cryptantha angustifolia*]). Although there are no coarse particles in the substrate of the dunes, the areas between the dunes that contain more shrubs may be partially stabilized by a light gravel layer.

Where Ford Dry Lake nears the junction of the southeastern portion of the Plant Site and the linear facility routes (north of I-10), soils are much finer than elsewhere in the Project Site. In this transition zone between the playa and Stabilized and Partially Stabilized Sand Dunes, sand is patchily and shallowly deposited over the surface and there are many small sinks.

1.2 Desert Tortoise Occurrence in the Project Area

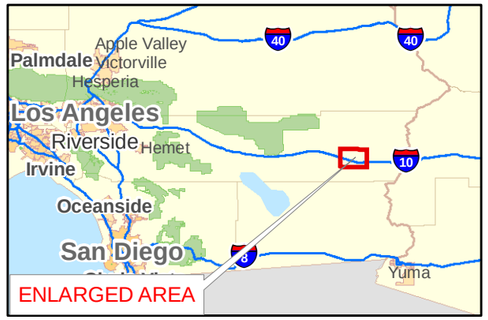
Comprehensive surveys were conducted in March, April, and October 2009. During the spring surveys, the Survey Area included a substantially larger area than the current Project Area because the location of the Plant Site had not been finalized. The Survey Area included the 4,640-acre right-of-way (ROW) originally requested from the BLM, plus zone-of-influence (ZOI) surveys extending out one mile from the ROW (Figure 4). Two proposed linear facility routes and ZOIs were also surveyed. Details of the spring surveys can be found in the AFC (Genesis Solar 2009a). In October 2009, a survey was conducted of a revised transmission line route south of I-10. Since the spring surveys, the linear facility route has changed, though it remains within the original survey area (i.e., within the area where ZOI transects were walked). Because this overlap was limited for the revised aligned transmission line route that is south of I-10, data on desert tortoise were augmented with a survey of this portion of the route on October 30, 2009. The survey assumed a 420-foot-wide ROW and ZOIs were conducted to 500 feet (Figure 4). Any portions of the new alignment north of I-10 not previously surveyed will be conducted in spring 2010.

Printing Date: 12/31/2009 10:33 AM
File: P:\GIS\Projects\FPL\Maps\Genesis\2009BioSurvey\Genesis-NewLinearRoute-DesertTortoiseSurveyTransects.mxd



GENESIS SOLAR, LLC

GENESIS SOLAR ENERGY PROJECT
RIVERSIDE COUNTY,
CALIFORNIA



Legend

- Requested Project ROW (100% Coverage)
- 100-500Ft ZOI Transects
- Blythe Transmission Line Structure
- Blythe Transmission Line
- Routes Surveyed for Biological Resources Spring 2009
- 1200 ft ZOI Transect Previous Linear Route
- 2400 ft ZOI Transect Previous Linear Route
- Project Site 1200 ZOI Transect
- Project Site 2400 ZOI Transect
- Project Site 3960 ZOI Transect
- Project Site 5280 ZOI Transect

Project Linear Facilities

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

N

0 0.5 1 1.5 2
Miles

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

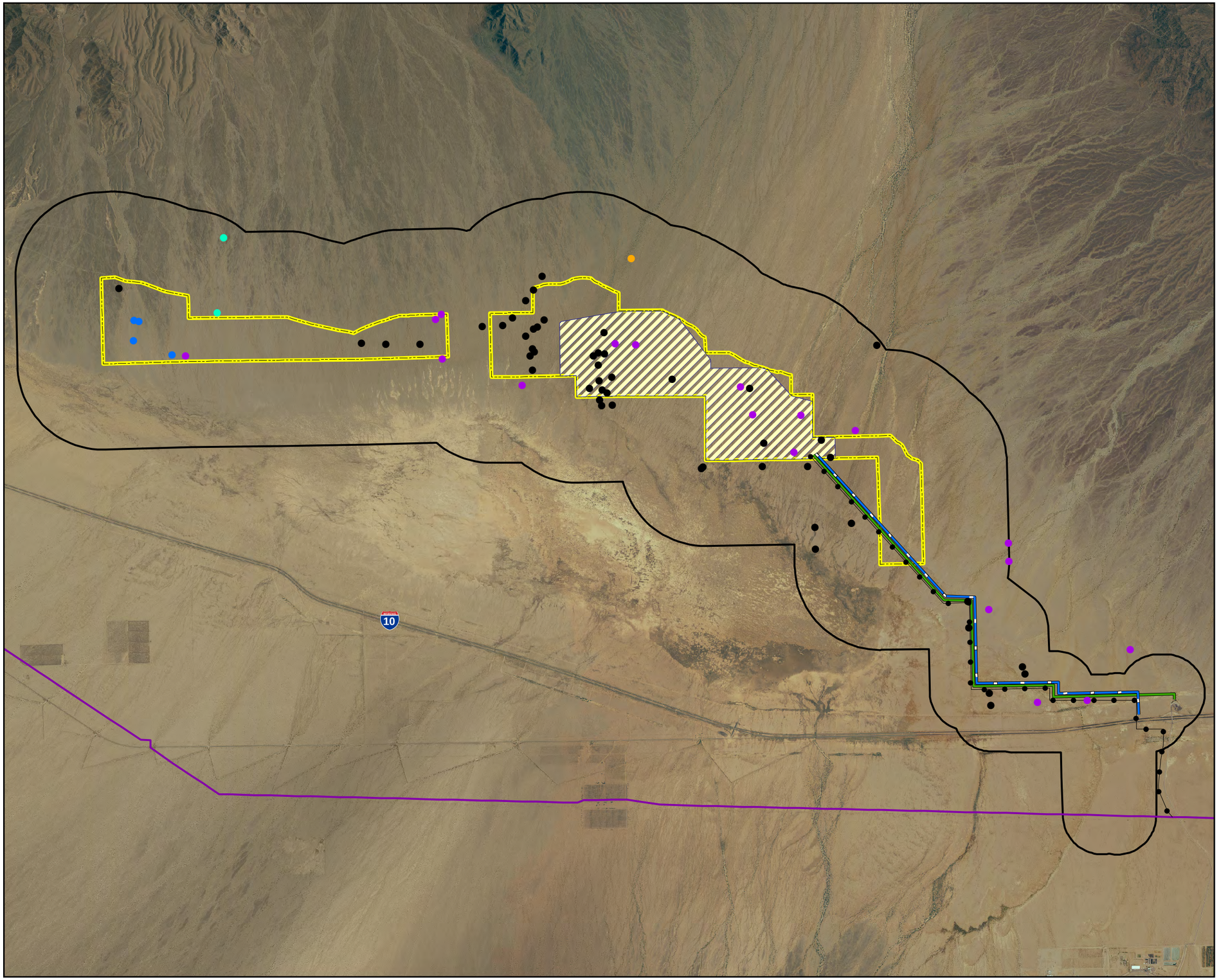
FIGURE 4
DESERT TORTOISE SURVEY TRANSECTS

TETRA TECH EC, INC.

No live tortoises or other sign of tortoise occupation were found within the Project Area during the 2009 field surveys. One set of tracks was observed approximately 0.5 mile north of the Plant Site, and three burrows and two partially intact carcasses estimated to be at least four years old were located approximately three and four miles west of the Plant Site respectively (Figure 5). Within the Plant Site and ZOI survey area out to one mile from the Plant Site, surveyors found 8 bone fragments estimated to be between 10 and 15 years old, and 38 mineralized bone fragments estimated to be 3,000 to 5,000 years old (W. Orr, pers. comm.). Bone fragments were generally parts of single, disarticulated bones, averaging approximately 30 millimeters (mm) in diameter. Those estimated to be between 3,000 and 5,000 years old showed evidence of permineralization, a process in which minerals are deposited into cells of organisms, usually by way of water (W. Orr, pers. comm.). These fragments could be easily distinguished from the younger bone fragments found because they were heavier, more solid, and most had a slight orange/brown color as opposed to the younger fragments, which were whiter and lighter in color. For the most part, bone fragments were found singly and evenly distributed throughout the Survey Area, with the exception of a slightly higher concentration in the western portion of the Plant Site. Because of this, and their small size, it is assumed that the fragments were transported onto the site via water flow; this is consistent with the slightly higher concentrations in areas that probably receive increased water runoff from the Palen Mountains.

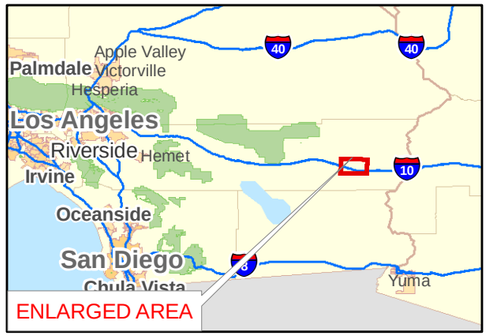
The lack of live tortoises, scat, burrows, tracks, courtship rings, or eggshell fragments, plus the small size, older condition, and distribution of the bone fragments, indicate that tortoises do not currently occupy the Project Area. The very low amount of sign observed within the Survey Area indicates that the current tortoise population around the Project Area is very low. Desert tortoises are likely present to the north, west and east of the Plant Site where higher quality creosote bush scrub and well-developed washes are present. South of the Plant Site, the dunes, fine soils, few vegetated washes and sparse vegetation that characterize the habitat nearer the playa do not offer suitable tortoise habitat. South of I-10, tortoises may be present west of the transmission line route. The southern portions of the linear facilities are within a desert tortoise Desert Wildlife Management Area (DWMA) and U.S. Fish and Wildlife Service (USFWS)-designated desert tortoise critical habitat (transmission line only) (Figure 2). Desert tortoise critical habitat boundaries and DWMAs contain both suitable and unsuitable habitat. A complete lack of tortoise sign in the part of the Survey Area that intersects critical habitat and the DWMA strongly suggests that the critical habitat and DWMA overlapping the Project Area do not have suitable habitat. This is not surprising, both because this is the edge of the critical habitat unit and DWMA and because the ability of critical habitat and the DWMA here to support desert tortoises is highly compromised by I-10. This freeway both interferes with tortoise movement and gene flow and is also likely to be a mortality sink (Nicholson 1978, Karl 1989, Boarman 1994, LaRue 1993, Marlow et al. 1997, Rosen et al. 2007).

Printing Date: 1/4/2010 12:53 PM
File: P:\GIS\Projects\FPL\Maps\Genesis\2009BioSurvey\Genesis-DesertTortoise.mxd



GENESIS SOLAR, LLC

GENESIS SOLAR ENERGY PROJECT
RIVERSIDE COUNTY,
CALIFORNIA



Legend

- Burrow
- Carcass
- Bone Fragments 10-15 years old
- Bone Fragments 3,000 - 5,000 years old
- Tracks
- Extent of Surveyed Area
- Requested Project ROW
- Project Area (Facility Footprint)
- Blythe Energy Project Transmission Line

Project Linear Facilities

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

N

0 0.5 1 1.5 2
Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI, USDA. TTEC, Alice Karl & Assoc.

FIGURE 5
DESERT TORTOISE SIGN

TETRA TECH EC, INC

2.0 PURPOSE OF THE PLAN

The purpose of this relocation/translocation plan (Plan) is to provide direction for the removal of tortoises from harm's way on the Project Area during all Project phases. For the purposes of this Plan, the following terminology is used:

- Relocation – Moving a tortoise out of harm's way to a point within that tortoise's home range.
- Translocation – Moving a tortoise out of harm's way to a point distant from the tortoise's home range

Generally, males have been shown to have larger home ranges than females in studies of sufficient length and sample size (O'Connor et al. 1994; TRW 1999), approximately 43.5 acres (range: 4.7–143.3 acres) (17.6 ha; range: 1.9–58.0 ha) for adult females and 111.6 acres (range: 10.4–487.8 acres) (45.2 ha; range: 4.2–197.5 ha) for males, in a three-year study when tortoises were recaptured at least 50 times/year (TRW 1999). Studies of shorter duration or with a smaller sample size found smaller home ranges (e.g., Burge 1977, Barrett 1990, O'Connor et al. 1994, Duda et al., 1999). Home ranges for both genders (Duda et al, 1999) or for males only (TRW 1999) decreased significantly in drought years.

This Plan first addresses desert tortoise relocation or translocation during Project construction activities, Project operations, and Project decommissioning, including final site restoration. The Plan then describes general procedures applicable to all tortoise relocations/translocations (data collected on all tortoises, temperature considerations, tortoise transportation, authorized handlers, monitoring). The Plan also discusses options that may occur based on the timing of construction. This Plan does not discuss other actions associated with tortoise protection (clearance surveys, construction monitoring, fence monitoring, reporting) that are or will be fully discussed in the AFC (Genesis Solar 2009a), California Endangered Species Act (CESA) 2081 application (Genesis Solar 2009b) and federal Biological Assessment (Genesis Solar 2009c).

3.0 RELOCATION/TRANSLOCATION DURING SPECIFIC PROJECT PHASES

3.1 Temperature Considerations

In general, it is unwise to translocate tortoises in seasons when daily ground temperatures exceed 109°F (mid-April through early October) because tortoises must find new refuges in unfamiliar areas, with the added pressure of lethal daily temperatures. Karl (1992) and Zimmerman *et al.* (1994) observed that 109°F was the approximate surface temperature at which tortoises must go underground to escape heat. During each Project phase discussed below, options are provided for relocating/translocating tortoises found at ground temperatures exceeding 109°F[1].

3.2 Construction Phase

Tortoise relocation/translocation that is necessary during Project construction may occur during Plant Site clearance, initial perimeter fence construction, utilities' construction, diversion channel construction, revegetation of temporarily disturbed areas or initial grading on the Plant

[1] USFWS protocols state that tortoises shall not be handled when air temperatures at 5 cm above the ground surface exceed 95°F (35°C) (http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/docs/dt). Moving tortoises at higher temperatures would require approval by USFWS.

Site. Based on the 2009 survey results, it is anticipated that no or very few desert tortoises would require removal from the Project Area.

Clearance on linear facilities may occur at any time of the year. Measures for relocation/translocation within the Plant Site boundary are based on either:

1. Plant Site perimeter fencing beginning in the winter, with tortoise clearance and relocation/translocation occurring the following late March and early April, or
2. Plant Site perimeter fencing beginning in the fall, with tortoise clearance and relocation/translocation occurring in later October or early November.

Should this schedule change, then other options will be employed to ensure that tortoises are safe during construction, clearance, and relocation/translocation procedures. These alternatives will be approved by the resource agencies prior to their implementation.

Perimeter Fencing

During Plant Site perimeter fencing in Winter 2010/11, tortoises found in burrows will be avoided, and the burrow fenced with high visibility fencing and monitored (see AFC, Section 5.3). If a tortoise in a burrow cannot be avoided, and tortoises are still in hibernation, then an artificial burrow that replicates the capture burrow (location relative to a shrub, direction, length) will be constructed 100 ft from the capture burrow. The tortoise will be captured at night and placed in the artificial burrow along with soil and scat from the capture burrow. The tortoise will be blocked into the burrow for no more than two weeks (unless the weather warms, in which case the barriers will be removed) and then monitored to ensure that it either remains in the burrow or finds another burrow. If the tortoise attempts to find another burrow but is unsuccessful, and the nighttime air temperatures fall below approximately 35ºF, then the tortoise will be captured, held in a climate-controlled, dark, quiet, and safe location (e.g., Project office closet), until temperatures warm and tortoises are observed to be active in the area. At that point, it will be released within 100 ft of its capture burrow and monitored as described in Section 4.4, below. If necessary, temporary fencing will be erected to keep the tortoise out of the construction area.

Plant Site

During tortoise clearance surveys (following Plant Site perimeter fencing and prior to any surface disturbance) and during initial vegetation removal on the Plant Site, any tortoise found will be placed outside the Plant Site's perimeter fence on suitable habitat (i.e., along the north, east, and west sides of the Plant Site), as close to the capture location as possible. Tortoises will be placed onto BLM land adjacent to BLM Wilderness and/or in the BLM Wilderness Area abutting the Project Area (Figure 2). Based on the 2009 surveys and habitat (Figures 3 and 5), it is highly likely that any tortoises found on the Plant Site would be close to the Plant Site borders, so moving them outside the fence would constitute relocation. All tortoises would be placed in the shade of a shrub[2] and monitored as described in Section 4.4, below.

[2] In past relocation/translocation efforts, an artificial burrow has typically been constructed for tortoises. However, relocated and translocated tortoises do not use these burrows and it is anticipated that most tortoises removed

Although unlikely, a remote possibility exists that a tortoise might be found further inside the Plant Site boundary and would have established a home range inside the Plant Site. Such a tortoise will be translocated to the nearest suitable habitat outside the Plant Site, consistent with relocation described above. In this circumstance, however, an artificial burrow will be constructed into which the tortoise would be released. The artificial burrow will be at least 1.5 meters long and constructed using a gas-powered auger or shovel/plywood, per the Desert Tortoise Council (1994) guidelines.

Because most tortoises are likely to be relocated, carrying capacity is not an issue. However, even a few translocated tortoises would not create carrying capacity pressure when translocated to the BLM Wilderness Area. Tortoise populations are currently well below carrying capacity throughout their documented range due to a long-term drought and other factors (Karl 2004, McLuckie et al. 2006, Boarman et al. 2008).

Based on the Project construction schedule, tortoises would be relocated/translocated from the Plant Site during site clearance, when daily ground temperatures are below 109°F. However, the possibility exists that a tortoise could be found when ground temperatures exceed 109°F. In such cases, the following options will be employed at the Authorized Biologist's (AB; see Section 4.3, below) discretion. A summary of these activities is found in Table 1.

- *If a tortoise is >125mm in carapace length and is found under a shrub*, a small transmitter (e.g., Holohil R1-2B) can be taped to the rear carapace (to avoid interference with normal movements) with duct or sports tape, and the tortoise released at the capture site. Alternatively, and for smaller tortoises, the tortoise can be secured in an individual, sterilized box and placed in a quiet, climate-controlled environment (e.g., the onsite Project office). Adult tortoises that are either transmittered or held temporarily due to ambient temperatures will be released in the late afternoon/early evening of the same day, when ambient temperatures subside. Juvenile tortoises, which are highly subject to depredation by canids, badgers, and ravens, will be released in the early morning to minimize depredation. Relocated tortoises would be released to a shrub; translocated tortoises would be released to an artificial burrow. All transmittered or boxed tortoises will be monitored periodically during the day to ensure their safety.
- *If a tortoise is found in a burrow*, either of the above options is applicable. A third option is to erect a temporary pen around the tortoise and burrow. The pen would be constructed of 1- by 2-inch mesh or other, adequate temporary fencing (e.g., silt fencing), and would be several meters across. The tortoise will be relocated or translocated when temperatures subside, as above. All transmittered, boxed, or penned tortoises will be monitored periodically during the day to ensure their safety.

from the Project Area will be relocated - i.e., have known burrows. Therefore, no artificial burrows will be constructed for relocated tortoises.

Table 1. Alternatives for relocating or translocating tortoises found at temperatures above 109ºF. See the text for an explanation of each alternative.

Project Phase	Project Activities	Alternatives for Relocation/Translocation	
		Tortoise Found Under Shrub	**Tortoise Found In Burrow**
Construction	Plant Site clearance, initial vegetation removal from Plant Site	• Temporarily affix transmitter; release late afternoon; monitor • Hold in climate-controlled facility; release late afternoon; monitor	• Temporarily affix transmitter; release late afternoon; monitor • Hold in climate-controlled facility; release late afternoon; monitor • Erect pen around burrow; release late afternoon; monitor
	Construction of Plant Site perimeter fence, linear facilities, and drainage channels; revegetation of temporarily disturbed areas	• Relocate to a shrub or burrow • Erect pen around burrow; release late afternoon; monitor	• Erect pen around burrow; release late afternoon; monitor • Hold in climate-controlled facility; release late afternoon; monitor
Operations	Plant Site	• Hold in climate-controlled facility; release late afternoon; monitor	
	Access road, utilities' maintenance	• Allow tortoise to proceed out of area unimpeded • If relocation is necessary, hold in climate-controlled facility; release late afternoon; monitor	
Decommissioning	Project Site decommissioning and site restoration	• Relocate to a shrub or burrow • Erect pen around burrow; release late afternoon; monitor	• Erect pen around burrow; release late afternoon; monitor • Hold in climate-controlled facility; release late afternoon; monitor

In all cases, relocated/translocated tortoises will be monitored as described in Section 4.4, below, following their release.

Linear Facilities and Plant Site Fence Construction, Revegetation of Temporarily Disturbed Areas

Construction of the perimeter fence, transmission line, access road and pipeline, and revegetation of temporarily disturbed areas will occur in unfenced, native habitat. Tortoises that need to be relocated from construction zones will be placed outside the construction zone but on the Project's linear right-of-way (ROW)[3,4]. All tortoises will be placed in the shade of a shrub or in the tortoise's known burrow and monitored as described in Section 4.4, below. It is possible that a tortoise might attempt to re-enter an unfenced construction zone (for example, during fence

[3] For the purposes of this Plan, the linear ROW only refers to the Project corridor for the linear facilities, not the initial, 4,640-acre ROW grant rquested from the BLM.

[4] It is generally appropriate that any tortoise removed from utility ROWs or fence construction areas be placed 100-200 feet away or outside a known or suspected burrow for that tortoise (it is anticipated that the Biological Monitors would have found and mapped most burrows close to the ROWs). This distance would be within the home range of any tortoise found on the ROW but sufficiently far from construction activity for minimal disturbance to the tortoise from construction activities. It would also be close enough that if the tortoise had been placed on the wrong side of the ROW, it would not be too far for the tortoise to travel to reach its normal activity areas. However, unless permission can be obtained to place tortoises on private or public lands, they must be removed only as far as the edge of the Project right-of-way.

construction), in which case a temporary fence could be erected to exclude the tortoise to increase its safety.

All tortoises needing to be moved during the construction of linear facilities and the Plant Site fence will be relocated to familiar areas within their home ranges, where burrows are well-known. As such, relocation can occur when ground temperatures exceed 109°F using the following alternatives:

- *If a tortoise is found under a shrub*, at the AB's discretion it may be moved to another shrub or known burrow for that tortoise. Alternatively, a temporary pen can be erected around the tortoise and shrub and flagged to ensure avoidance. The pen would be constructed of 1 by 2-inch mesh or other, adequate temporary fencing (e.g., silt fencing). The pen would be removed later in the day when the tortoise could be safely moved or allowed to move away from the construction area of its own accord. All penned tortoises will be monitored adequately to ensure their safety.
- *If a tortoise is captured in a burrow*, it can be penned as described above and then put outside the pen in the late afternoon/early evening. If it is either impractical to pen the tortoise or it cannot be avoided by construction activities, then it will be held in a climate-controlled location (e.g., Project office) and released in the early evening after temperatures fall below 109°F.

If Plant Site perimeter fencing or linear facilities' construction occurs during winter (e.g., Winter 2010/11), tortoises found in burrows will be avoided, and the burrow fenced with high visibility fencing and monitored (see AFC, Section 5.3). If a tortoise in a burrow cannot be avoided, and tortoises are still in hibernation, then an artificial burrow that replicates the capture burrow (location relative to a shrub, direction, length) will be constructed 100 ft from the capture burrow. The tortoise will be captured at night and placed in the artificial burrow along with soil and scat from the capture burrow. The tortoise will be blocked into the burrow for no more than two weeks (unless the weather warms, in which case the barriers will be removed) and then monitored to ensure that it either remains in the burrow or finds another burrow. If the tortoise attempts to find another burrow but is unsuccessful, and the nighttime air temperatures fall below approximately 35ºF, then the tortoise will be captured, held in a climate-controlled, dark, quiet, and safe location (e.g., Project office closet), until temperatures warm and tortoises are observed to be active in the area. At that point, it will be released within 100 ft of its capture burrow and monitored as described in Section 4.4, below. If necessary, temporary fencing will be erected to keep the tortoise out of the construction area.

In all cases, relocated/translocated tortoises will be monitored as described in Section 4.4, below, following their release.

Diversion Channel Construction

Construction of the diversion channels that re-route water around the Plant Site will occur in unfenced habitat. With the exception of the channel that runs between the two solar generating facilities, tortoises found during channel construction will be relocated in the same manner as discussed above for construction of the linear facilities. For the central channel, no adjacent habitat will be available. All tortoises that must be moved during construction of the central channel will be relocated or translocated north to the BLM Wilderness Area or adjacent BLM

land and outside channel construction zones. Techniques will follow those above for the linear facilities and Plant Site.

Nest Relocation

Any nests found between November 1 and April 15 are unlikely to be viable and will not be moved. Hatching will probably be finished by October. In the event that nests are found between April 15 and October 1 and must be moved (e.g., for construction of linear facilities), the nests will be moved. Eggs would be inspected to determine if they are viable and, if so, will be moved to an identical microsite (e.g., cover, plant species, soil type, substrate, aspect) on BLM land adjacent to BLM Wilderness or in the BLM Wilderness Area using standard techniques (e.g. Desert Tortoise Council, 1994). Translocated nests will be fenced with open-mesh fencing (e.g. 2-inch wide mesh) that will permit hatchlings to escape but prevent depredation by canids that might be attracted to the new nests by human scent predator entry. Open-mesh fencing or avian netting also will be installed on the roof to prevent predator entry. Nests will be monitored from a 30-foot distance once a month until late November, at which time they will be excavated for examination. If possible, hatchlings will be weighed, measured, photographed, described and marked.

3.3 Operations Phase

Because the Plant Site will be entirely devoid of vegetation following surface grading, there will be no areas where a tortoise could reside onsite. Therefore, any tortoise found during Project operations likely will have entered the Plant Site through a gate or breach in the fence. It is likely, although not impossible, that any tortoise found during Project operations would not yet have constructed a burrow and would have entered the site only recently. Any such tortoise would be relocated to the nearest suitable habitat outside the fence on BLM land adjacent to BLM Wilderness or into the BLM Wilderness Area. Because any tortoise found inside the Plant Site is likely to be a transient, it is anticipated that the tortoise would seek a familiar burrow when released outside the Plant Site. All tortoises would be placed in the deep shade of a large shrub and monitored, as described in Section 4.4, below, to ensure their safety.

In the event that surface temperatures are in excess of 109°F, the tortoise will be secured in an individual, sterilized box and placed in a quiet, climate-controlled environment (e.g., the onsite Project office). The tortoise will be released in the late afternoon/early evening of the same day, when ambient temperatures subside. Juvenile tortoises will be released in the early morning to minimize depredation. All transmittered or boxed tortoises will be monitored periodically during the day to ensure their safety, and following release, according to Section 4.4, below.

Tortoises observed on the utility corridors during inspection activities or along the main access road by personnel leaving or entering the Project will not be disturbed or handled and will be allowed to move away of their own accord. Any maintenance that required surface disturbance or heavy equipment would require the same protection measures as for construction.

3.4 Decommissioning Phase

During the Project decommissioning phase, activities will take place both inside fenced areas and in unfenced native habitat. Techniques provided above for tortoise relocation during linear

facilities' construction would apply to decommissioning activities. Newer information will be incorporated as appropriate to optimize tortoise relocation.

4.0 PROCEDURES APPLICABLE TO ALL RELOCATIONS/TRANSLOCATIONS

4.1 Data Gathered on Relocated/Translocated Tortoises

Each captured tortoise will be processed prior to relocation/translocation. The gender, carapace length, distinguishing morphology, clinical signs of disease, capture site location and description, release site location and description, and the amount of void, if any, will be recorded and the tortoise photographed and drawn. All tortoise handling will be accomplished by approved techniques (e.g., Desert Tortoise Council, 1994), incorporating newer research for minimization of disease transmission (e.g., Brown 2003)[5]. Each tortoise will be assigned an individual number. Marking techniques will be approved by USFWS, but temporary marks using very small epoxy numbers with a project-specific identifier are suggested. Such numbers will last for several years, long enough to be able to identify specific tortoises if subsequently observed during Project activities, in particular construction activities, wherein a tortoise could re-enter an unfenced construction zone, on the linear facilities, for instance.

4.2 Tortoise Transportation

Most tortoises will be captured sufficiently near the fence or release site to be hand-carried to the release site. Each tortoise that is hand-carried will be kept upright and the handler, wearing disposable examination gloves (one pair per tortoise), will move the tortoise as quickly and smoothly as possible. Tortoises kept in a climate-controlled situation due to temperature considerations or captured further from the release site will be transported to their release sites in individual, sterilized tubs or boxes with taped, sterilized lids. If transported by vehicle, the tortoise tub will be kept shaded during transport and the tub will be placed on a well-padded surface, not over a heated portion of the vehicle floor.

4.3 Authorized Handlers

USFWS (http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/docs/dt) describes a single designation for biologists who can be approved to handle tortoises - "Authorized Biologist." Such biologists have demonstrated to USFWS that they possess sufficient desert tortoise knowledge and experience to handle and move tortoises appropriately. Authorized Biologists are permitted to then approve specific monitors to handle tortoises, at their discretion. The California Department of Fish and Game (CDFG) must also approve such biologists, potentially including individual approvals for monitors approved by the Authorized Biologist. Notwithstanding that the California Energy Commission only has designations for "Designated Biologist" and "Biological Monitor," only those biologists authorized by USFWS and CDFG, presumably including the Designated Biologist and certain Biological Monitors, can handle desert tortoises.

4.4 Post-Release Monitoring

All tortoises moved, whether during initial fence construction, from the Plant Site, during construction for linear facilities, or later, will be monitored sufficiently to ensure their safety.

[5] The USFWS is currently developing a manual that will address several aspects of handling. Specific measures will replace those in this Plan, as appropriate.

This is especially critical for juvenile tortoises, which are highly subject to depredation. Any tortoise moved will be watched for at least two hours to determine if it is behaving safely or if it is likely to try and re-enter the construction area (during fence construction or for utility corridors). In addition to the initial monitoring at release, in any instance where a tortoise is relocated outside a tortoise exclusion fence, that release location and surrounding area will be visited for at least the next two days during tortoise activity temperatures (i.e., <43ºC ground surface temperature [Karl 1992, Zimmerman *et al.* 1994]) to ensure that the tortoise is not fence-walking. The latter would suggest that the release site had been incorrectly chosen and that release outside a different fence should be attempted (for example, outside the opposite side of the fenced utility corridor, should it be fenced during construction). If moved to another area, the monitoring of the desert tortoise would be initiated.

Tortoises released in the evening due to temperature considerations will be monitored until dark with a resumption of monitoring at dawn. Such tortoises will be watched until they entered a burrow that provides thermal relief and predator protection.

Because the sample size of tortoises relocated/translocated is anticipated to be zero or very low, and because most, if not all, will be released into another part of their current home range, no scientific study is proposed for these tortoises. Because no tortoises currently occupy the Plant Site, even a tortoise that moves onto the Plant Site and requires translocation is already highly likely to be familiar with the release area. So, monitoring these few (if any) tortoises for survival appears unwarranted. If determined to be necessary, a short-term monitoring program can be implemented that would include telemetry and a sufficiently frequent monitoring schedule (e.g., for tortoises translocated in the spring: daily for two to three weeks, then twice weekly until the tortoise enters hibernation the following winter; for tortoises translocated in fall: daily until hibernation, then monthly until March 10, then weekly) to identify that the tortoise has established a home range in the translocation area.

4.5 Health Considerations

Because any tortoises removed from the Project Site will likely be relocated – i.e., moved into another part of their existing home range – and the number of animals expected to be removed is none or very few, disease testing is unwarranted. Since no tortoises currently reside on the Project Area, even a tortoise that moves onto the Plant Site and requires translocation will have had its previous home range in the population outside the Plant Site. Clinical signs of disease will be recorded during the examination of all tortoises relocated/translocated.

5.0 LITERATURE CITED

Barrett, S.L. 1990. Home range and habitat of the desert tortoise (*Xerobates agassizii*) in the Picacho Mountains of Arizona. Herpetologica 46:202-206.

Boarman, W.I. 1994. Effectiveness of fences and culverts for protecting desert tortoises along California State Highway 58: summary of the 1993 field season. Draft. Unpub. rept. to the California Energy Commission. Contract No. 700-90-015, Phase 3, Task 3-3. 23 pp. plus appendices.

---. W.B. Kristan, III, and A.P. Woodman. 2008. Neither here nor there: current status of Sonoran desert tortoise populations in Arizona. Paper presented at the 2008 Desert Tortoise Council Symposium, Las Vegas, NV.

Brown, M.B., 2003. Disinfection protocol. Unpub. document from the University of Florida Mycoplasma research laboratory. 1 pp.

Burge, B.L. 1977. Movements and behavior of the desert tortoise, *Gopherus agassizi*. M.S. Thesis, Univ. of Nevada, Las Vegas. 225 pp.

Desert Tortoise Council, 1994 (rev. 1999). Guidelines for handling desert tortoises during construction projects. E.L. LaRue, Jr. (ed.) Wrightwood, CA.

Duda, J.J., A.J. Krzysik, and J.E. Freilich. 1999. Effects of drought on desert tortoise movement and activity. Jour. Wildlife Mgmt. 63(4):1181-1192.

Genesis Solar, LLC. 2009a. Genesis Solar Energy Project Application for Certification. Submitted to the California Energy Commission, Sacramento, CA. August 31, 2009.

---. 2009b. Genesis Solar Energy Project Application for Incidental Take of threatened and endangered species, Section 2081 of the California Endangered Species Act. Submitted to the California Department of Fish and Game, Inland Deserts Region, Ontario, CA. 24 pp plus attachments.

---. 2009c. Genesis Solar Energy Project Biological Assessment. In prep.

Holland, R. F. 1986. Preliminary descriptions of the terrestrial natural communities of California. California Department of Fish and Game, Nongame-Heritage Program. 155 pp.

Karl, A.E. 1989. Investigations of the desert tortoise at the California Department of Health Services' proposed low-level radioactive waste facility site in Ward Valley, California. Unpub. rept. submitted to US Ecology and Ecological Research Services. 116 pp.

---. 1992. Annual report to the U.S. Fish and Wildlife Service for Permit No. PRT-746058. 12 pp.

---. 2004. Drought: acute effects and impacts to recovery of the desert tortoise. Paper presented at the 2004 Desert Tortoise Council Symposium, Las Vegas, NV.

LaRue, E.L. 1993. Distribution of desert tortoise sign adjacent to Highway 395, San Bernardino County, California. Draft. Unpub. rept. from Tierra Madre Consultants to Gratten, Gersick, Karp, and Miller, Sacramento, CA. 17 pp.

Marlow, R. W., K. von Seckendorff Hoff, and P. Brussard. 1997. Management of wild tortoise populations is complicated by escape or release of captives. Pp. 479-480 *in* J. van Abbema (ed.), Proceedings: Conservation, Restoration, and Management of Tortoises and Turtles – an International Conference. Joint publ. of the New York Turtle and Tortoise Society and the WCS Turtle Recovery Program.

McLuckie, A.M., M.R.M. Bennion, R.A. Fridell, and R. Radant. 2006. Status of the desert tortoise in the Red Cliffs Desert Reserve. Paper presented at the 2006 Desert Tortoise Council Symposium, Las Vegas, NV.

Nicholson, L.L. 1978. The effects of roads on desert tortoise populations. Pp. 127-129 *in* M. Trotter (ed.) Proceedings of the 1978 Desert Tortoise Council Symposium.

O'Connor, M. P., L. C. Zimmerman, D. E. Ruby, S. J. Bulova, and J. R. Spotila. 1994. Home range size and movements by desert tortoises, *Gopherus agassizii*, in the eastern Mojave Desert. Herp. Monogr. 8:60-71.

Orr, William. 2009. Personal communication. Paleontologist, Dept. of Geology, Univ. of Oregon, Eugene, OR. rr_bll@yahoo.com. May 15.

Rosen, P.C., P.A. Holm, and E.B. Wirt. 2007. Studies of drought and highway effedts on tortoises at Organ Pipe Cactus national Monument, Arizona. Paper presented at the 2007 Desert Tortoise Council Symposium, Las Vegas, NV.

TRW Environmental Safety Systems, Inc. 1999. Movement patterns of desert tortoises at Yucca Mountain. Unpubl. rept. to U.S. Department of Energy, Yucca Mountain Site Characterization Office, North Las Vegas, NV. Document No. B00000000-01717-5705-00049.

Zimmerman, L.C., M.P. O'Connor, S.J. Bulova, J.R. Spotila, S. J. Kemp, and C.J. Salice. 1994. Thermal ecology of desert tortoises in the eastern Mojave Desert: seasonal patterns of operative and body temperatures, and microhabitat utilization. Herp. Monogr. 8:45-59.

DECLARATION OF SERVICE

I, Tricia Bernhardt, declare that on January 5, 2010, I served and filed copies of the attached **Draft Desert Tortoise Relocation/Translocation Plan**, dated **January 4, 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://ww.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:

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

__X__ 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:

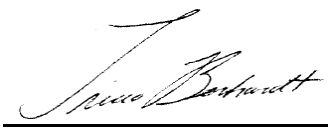
__X__ sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (***preferred method***);

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
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct.



Tricia Bernhardt

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 12/22/09)

APPLICANT
Ryan O'Keefe, Vice President
Genesis Solar LLC
700 Universe Boulevard
Juno Beach, Florida 33408
Ryan.okeefe@nexteraenergy.com

Scott Busa/Project Director
Meg Russel/Project Manager
Duane McCloud/Lead Engineer
NextEra Energy
700 Universe Boulvard
Juno Beach, FL 33408
Scott.Busa@nexteraenergy.com
Meg.Russell@nexteraenergy.com
Duane.mccloud@nexteraenergy.com

Mike Pappalardo
Permitting Manager
3368 Videra Drive
Eugene, OR 97405
mike.pappalardo@nexteraenergy.com

Diane Fellman/Director
West Region
Regulatory Affairs
234 Van Ness Avenue
San Francisco, CA 94102
Diane.fellman@nexteraenergy.com

APPLICANT'S CONSULTANTS
Tricia Bernhardt/Project Manager
Tetra Tech, EC
143 Union Boulevard, Ste 1010
Lakewood, CO 80228
Tricia.bernhardt@tteci.com

Christo Nitoff, Project Engineer
Worley Parsons
2330 East Bidwell Street, Ste.150
Folsom, CA 95630
Christo.Nitoff@Worleyparsons.com

COUNSEL FOR APPLICANT
Scott Galati
Galati & Blek, LLP
455 Capitol Mall, Ste. 350
Sacramento, CA 95814
sgalati@gb-llp.com

INTERESTED AGENCIES
California-ISO
e-recipient@caiso.com

Allison Shaffer, Project Manager
Bureau of Land Management
Palm Springs South Coast
Field Office
1201 Bird Center Drive
Palm Springs, CA 92262
Allison_Shaffer@blm.gov

INTERVENORS
Tanya A. Gulesserian,
Marc D. Joseph
Adams Broadwell Joesph & Cardoza
601 Gateway Boulevard, Ste 1000
South San Francisco, CA 94080
tgulesserian@adamsbroadwell.com

*Michael E. Boyd, President
Californians for Renewable Energy, Inc. (CARE)
5439 Soquel Drive
Soquel, CA 95073-2659
michaelboyd@sbcglobal.net

Other
*Alfredo Figueroa
424 North Carlton
Blythe, CA 92225
LaCunaDeAtzlan@aol.com

ENERGY COMMISSION
JULIA LEVIN
Commissioner and Presiding Member
jlevin@energy.state.ca.us

JAMES D. BOYD
Vice Chair and Presiding Member
jboyd@energy.state.ca.us

Kenneth Celli
Hearing Officer
kcelli@energy.state.ca.us

Mike Monasmith
Siting Project Manager
mmonasmi@energy.state.ca.us

Caryn Holmes
Staff Counsel
cholmes@energy.state.ca.us

Robin Mayer
Staff Counsel
rmayer@energy.state.ca.us

Public Adviser's Office
publicadviser@energy.state.ca.us

*indicates change