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November 21, 2012

California Energy Commission
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Mike Monasmith
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Systems Assessment & Facility Siting Division
California Energy Commission
1516 Ninth Street, MS-15
Sacramento, CA 95814

Subject: Data Response, Set 1B-8
Hidden Hills Solar Electric Generating System (11-AFC-2)

Dear Mr. Monasmith:

On behalf of Hidden Hills Solar I, LLC; and Hidden Hills Solar II, LLC, please find attached copies of Data Response Set 1B-8. It provides a revised Draft Desert Tortoise Translocation Plan.

Please call me if you have any questions.

Sincerely,

CH2M HILL

John L. Carrier, J.D.
Program Manager

Encl.

c: POS List
Project file

Data Response, Set 1B-8

Hidden Hills

Solar Electric Generating System

(11-AFC-2)

Application for Certification

Hidden Hills Solar I, LLC; and Hidden Hills Solar II, LLC

November 2012

With Technical Assistance from

CH2MHILL®

IS061411043744SAC

Hidden Hills Solar Electric Generating System (HHSEGS)

(11-AFC-2)

Data Response, Set 1B-8
(Response to Data Request 66)

Submitted to the

California Energy Commission

Submitted by

Hidden Hills Solar I, LLC; and Hidden Hills Solar II, LLC

November 21, 2012

With Assistance from

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DR66-2 Draft Desert Tortoise Translocation Plan

Introduction

Attached is Hidden Hills Solar I, LLC, and Hidden Hills Solar II, LLC (collectively, "Applicant") response to the California Energy Commission (CEC) Staff's data request number 66 for the Hidden Hills Solar Electric Generating System (HHSEGS) Project (11-AFC-2). The CEC Staff served this data request on November 4, 2011.

Biological Resources (66)

BACKGROUND

A tortoise translocation plan is required by the USFWS when desert tortoise must be moved from the project site. The goals of this relocation/translocation effort should be to:

- relocate/translocate all desert tortoises from the project site to nearby suitable habitat;
- minimize impacts on resident desert tortoises outside the project site;
- minimize stress, disturbance, and injuries to relocated/translocated tortoises; and
- assess the success of the relocated/translocated effort through monitoring.

DATA REQUEST

66. Please provide a draft Desert Tortoise Translocation Plan that incorporates the most recent guidance from the Bureau of Land Management (BLM), United States Fish and Wildlife Service (USFWS), and California Department of Fish and Game (CDFG). Please discuss translocation procedures and guidance in the plan, including a description of clearance survey protocol and desert tortoise transportation and release procedures, and develop a post-translocation monitoring and reporting plan. All methods discussed in the plan should be consistent with the *Guidelines for Handling Desert Tortoises During Construction Projects* (Desert Tortoise Council 1999) or the most recent handling guidance provided by the USFWS.

    Generally, the translocation plan should include the following information:

    a. Identification of potential translocation sites based on the presence of suitable soils, vegetation community, vegetation density and abundance, perennial plant cover, forage species, geomorphology, and slope;

    b. Surveys of resident populations at proposed translocation sites, including health assessment sampling and attaching transmitters to individuals;

    c. Description of measures that would be implemented to prevent translocated desert tortoise entering the site or other hazardous areas;

    d. Description of quarantine facilities to provide individual quarantine for all tortoises prior to translocation;

e. Description of health assessments that would be performed by qualified biologist or veterinarian on each tortoise prior to translocation;

f. A treatment/disposition plan for each tortoise, including those unfit for translocation;

g. Description of translocation procedures, including timing (e.g., time of year, time of day);

h. Description of post-translocation monitoring and adaptive management activities;

i. Description of methods used to mark translocated tortoises and fit them with transmitters so that they can be located and identified during post- translocation monitoring;

j. Description of methods used to mark existing tortoises in the receiving population and fit them with transmitters so that they can be located and identified during post- translocation monitoring; and

k. Description of how data would be compiled, synthesized, and reported to USFWS, CDFG, BLM, and Energy Commission staff.

The translocation site(s) must at a minimum:

a. be sited in accordance with all agency guidelines with respect to choice of land manager, land owner, and land manager;

b. satisfy the requirements of the federal Endangered Species Act Section 7 lead (BLM) and USFWS; and

c. have no proposed rights-of-way or other encumbrances at the time of its establishment.

Response: A Preliminary Draft Desert Tortoise Translocation Plan was provided on December 5, 2011 as Attachment DR66-1, Data Response Set 1B.It has since been revised to include a description of the proposed translocation site between the project boundary and the California-Nevada border. The Draft Desert Tortoise Translocation Plan is provided as Attachment DR66-2, Data Response Set 1B-8.

Attachment DR66-2

Draft Desert Tortoise Translocation Plan Hidden Hills Solar Electric Generating System

(11-AFC-02)

Submitted to the

California Energy Commission

Submitted by

Hidden Hills Solar I, LLC, and

Hidden Hills Solar II, LLC

November 21, 2012

with Assistance from

CH2MHILL®

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Sacramento, CA 95833

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Approvals

California Energy Commission_____ Date: _____
Approval

Bureau of Land Management_____ Date: _____
Approval

U.S. Fish and Wildlife Service_____ Date: _____
Approval

California Department of Fish and Game_____ Date: _____
Concurrence

1.0 Introduction

1.1 Project Description

The Hidden Hills Solar Electric Generating System (HHSEGS) is being developed by Hidden Hills Solar I, LLC and Hidden Hills Solar II, LLC (collectively, the Applicant, or project owners). The HHSEGS is a 500 megawatt (net) solar power project consisting of two solar energy fields and associated facilities. The first nominal 270-megawatt (MW) gross (250 MW net) plant at the north end of the project, known as Solar Plant 1, would be owned by Hidden Hills Solar I, LLC. Hidden Hills Solar II, LLC, would own the second nominal 270-megawatt (MW) gross (250 MW net) southern plant known as Solar Plant 2.

The project site is located entirely on privately owned land in Township 22N, Range 10E of Inyo County, California, adjacent to the Nevada border (see Figure 1, figures are located at the end of the section) along Tecopa Road[1] between Nevada State Route (SR) 160 and California SR 127[2] (see Figure 2). The HHSEGS project will result in approximately 3,277 acres of disturbance. Solar Plant 1 will require approximately 1,483 acres; Solar Plant 2 will require approximately 1,510 acres. A 103-acre common area will be established on the southeast corner of the site to accommodate an administration, warehouse, and an onsite switchyard. A temporary construction laydown and parking area on the west side of the site will occupy approximately 180 acres.

1.2 Background

The Mojave population of the desert tortoise (*Gopherus agassizii*) is listed as a threatened species by both state and federal governments. There is no USFWS designated critical habitat within either the project site or the area surrounding the project. Biologists confirmed that desert tortoise are present on the project site at low densities during presence/ absence surveys conducted in 2011, in which two adult desert tortoise were found within the project boundary. Based on these surveys and subsequent analysis of habitat quality, the number of adult desert tortoises on the site is expected to be low and the number to be translocated is expected to be less than 5; however, this plan includes contingencies should larger numbers be found. The plan describes the U.S. Fish and Wildlife Service (USFWS) criteria for translocation and control sites and describes health assessment measures for the various numbers of translocated desert tortoises, should they be required.

Throughout the California Energy Commission (CEC) certification proceeding for HHSEGS, the Applicant has consulted with the U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Game[3] (CDFG), and the CEC regarding measures to mitigate potential impacts to desert tortoises. If the project is approved, the USFWS and the CEC, standing in the shoes of CDFG, will each authorize the take of desert tortoise. Provisions of this translocation plan will be superseded by the terms and conditions of the USFWS incidental take permit and CEC license, which will incorporate by reference the terms of the biological opinion issued by USFWS. This Desert Tortoise

[1] Also referred to as the Old Spanish Trail Highway

[2] Specifically, the project is located on sections (or portions thereof) 15, 16, 20, 21, 22, 23, 26, 27 and 28. The assessor parcel numbers (APNs) for the site are: 048-110-002; 048-120-010; Book 048, page 30, parcels 03 to 06 and 12 to 14; Book 048, page 62, parcels 03 to 06 and 11 to 14, and all parcels in Book 048 pages 50, 60, 61, and 64 through 71.

[3] This agency will change its name to California Department of Fish and Wildlife on January 1, 2013.

Translocation Plan[4] will be incorporated into the HHSEGS Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), which will be required pursuant to a Condition of Certification, if HHSEGS is certified by the CEC. This plan conforms to the Translocation Guidelines specified in Appendix B of the *Desert Tortoise Recovery Plan* (USFWS, 1994). It generally complies with current guidelines, Translocation of Desert Tortoises (Mojave Population) from Project Sites: Plan Development Guidance (USFWS, 2010a) except for proposed modifications to threshold numbers. It is based on findings from site-specific analysis of desert tortoise survey results and site ecological characteristics. [5]

1.3 Plan Purpose

The purpose of this Desert Tortoise Translocation Plan is to provide a process to ensure no adverse unmitigated impacts occur to desert tortoise from construction of the project. The specific objectives of the plan are to translocate tortoise in a manner that avoids or minimizes impacts to tortoise, provide a system to evaluate the success of the program, and provide a framework for adaptive management to ensure success of the program[6].

1.4 Existing Desert Tortoise Data and Population Estimation Methodology

Sundance Biology, Inc. (Sundance) completed protocol surveys on the site in April 2011 (Sundance, 2011). Detection rates of tortoise sign differed between the project area and the area located directly east of the project. The two adult desert tortoises that were detected within the project boundary were found near the eastern border; whereas, 6 tortoises (4 adult, 1 immature and 1 juvenile) were detected in the 150-meter (m) buffer area east of the project boundary. Both in the project and 150-m buffer area, 100 percent coverage surveys were completed. Beyond the 150-meter buffer, where transects were used to assess the area 200, 400, 600, 1,200, and 1,600 meters from the site boundary, 7 tortoise (6 adults and 1 immature) and sign were observed, 3 of which were found to the east of the project area.

The physical conditions and plant communities (Figure 3) change dramatically from west to east, with the areas in the west being comprised of low quality desert tortoise habitat and soils less compatible with tortoise burrowing. The areas to the east, primarily outside the project boundary, are comprised of better quality desert tortoise habitat. This is consistent with the results of the desert tortoise surveys, which recorded no tortoises in the western area of the project site, only two tortoises in the eastern area of the project site, and sign (12 scats and 5 track sets) that could be generated by a very low density tortoise population within the project area.

Table 1 presents an estimate of relative desert tortoise densities (individuals/acre) based on unit of survey effort and calculated from the data collected in the wildlife survey (Sundance, 2011). Densities are based on the number of adult desert tortoises detected per acre surveyed, using a 30-foot transect width for the ZOI transects. Adult desert tortoise density in the shadscale scrub

[4] In this plan, no differentiation is made between the terms “translocation” and “relocation.” Both terms refer to the movement of desert tortoise.

[5] A Biological Opinion will be issued by the USFWS pursuant to the federal Endangered Species Act (ESA). Similarly, the CEC, standing in the shoes of CDFG, will either make a consistency determination or issue an incidental take statement pursuant to the California Endangered Species Act (CESA)(the “CEC CESA Approval”). In the event of any inconsistencies between the Biological Opinion and CEC CESA Approval versus this document, the Biological Opinion and CEC CESA Approval shall control.

areas (Figure 3) is effectively zero, although some transient use may occur. Furthermore, the adult desert tortoise population density estimate in the Mojave Desert scrub on the site is 1/56 the density estimate of adult desert tortoise located within the ZOI east of the site in Nevada. It is 1/8 the density estimate for the 150-m buffer zone in the Mojave Desert scrub along the eastern edge of the site.

TABLE 1
Relative Densities of Adult Desert Tortoise Among Distinct Areas and Vegetation Types (Figure 3), Based on Unit of Survey Effort

Area Surveyed	Vegetation Community[a]	Acres Surveyed	Adult Tortoises	Density (Tortoise/Acre)	Acre/ Tortoise	Relative Densities
Project Site						
	Mojave Desert Scrub	1,611	2	0.0012	806	1
	Shadscale Scrub	1,649	0	0	0	0
	Disturbed	16	0	0	0	0
150-m Buffer Zone (offsite)						
	Mojave Desert Scrub	600	6	0.0100	100	8
	Shadscale Scrub	52	0	0	0	0
Zone of Influence (offsite)						
	Mojave Desert Scrub	100	7	0.0700	14	56
	Shadscale Scrub	82	0	0	0	0

[a] Vegetation community acreage includes areas disturbed by existing dirt roads.

Sundance Biology used the USFWS model (2010) to estimate population size for the project using the tortoise sightings from the 150-m buffer zone, calculating that the project could contain 13.8 (95 percent Confidence Interval [95% CI], range is 5.75 to 33.02) tortoise. However, this estimate did not consider the documented variation in tortoise use across the project area and apparent differences in habitat quality and tortoise density across the project area. Using the survey data from onsite only, 3.8 adult desert tortoises (95% CI, range is 1 to 15) are estimated to occur within the project area.

Using the Turner et al. (1987) method, it is estimated that the project site may support between 0 to 16 juvenile tortoises, indicating a total estimated population consisting of 1 to 31 adult, sub adult, and juvenile tortoises. And, using Turner et al. (1987), a conservative estimate of the number of desert tortoise eggs expected on the project site is approximately 5 to 70 eggs in a given year. However, fewer eggs are likely to be onsite during any reproduction period because:

1) fewer eggs are produced during drought years,
2) not all female desert tortoises are likely of reproduction age, or
3) some females cannot produce eggs during any given year.

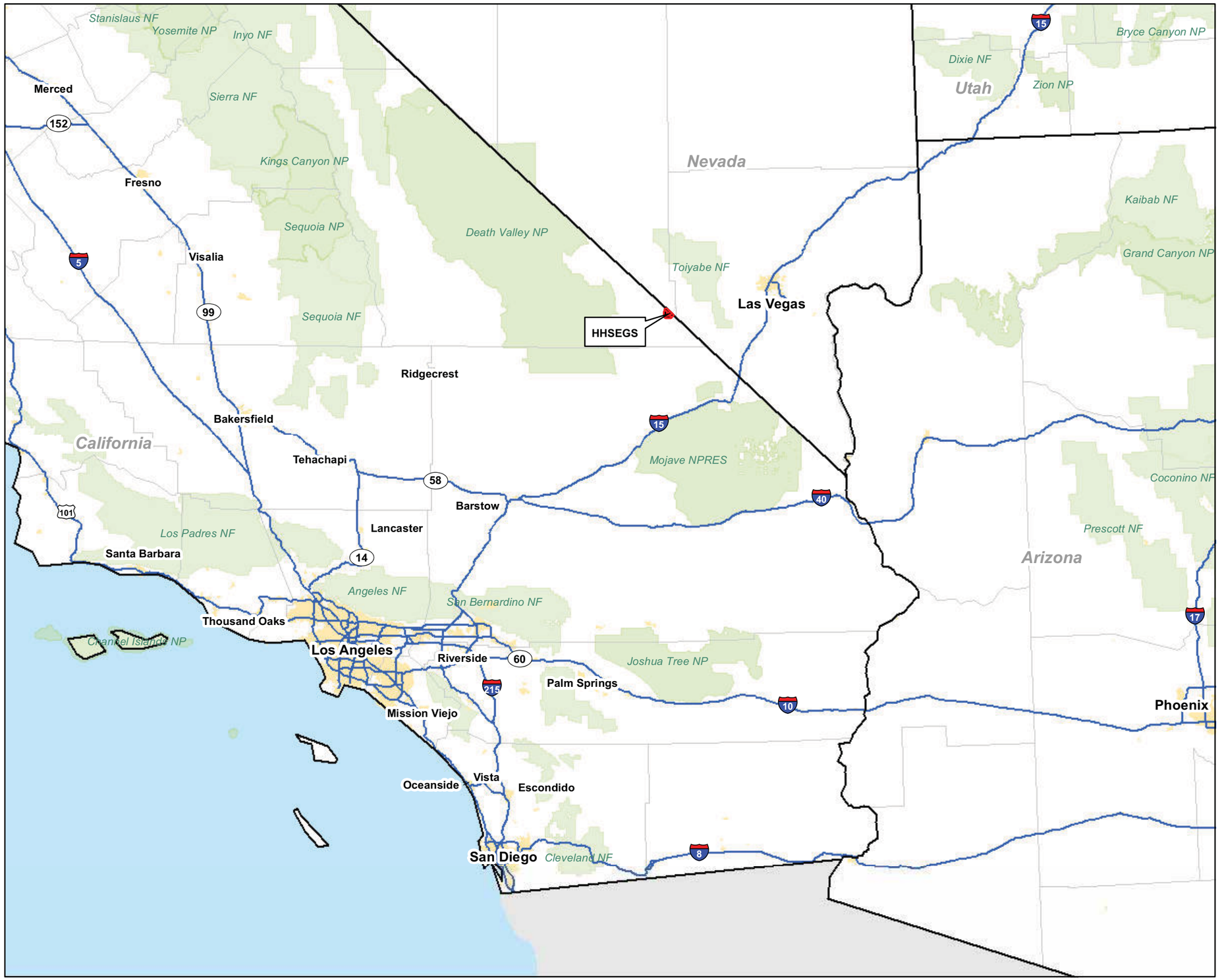


FIGURE 1
Regional Map
Hidden Hills Solar Electric Generating System

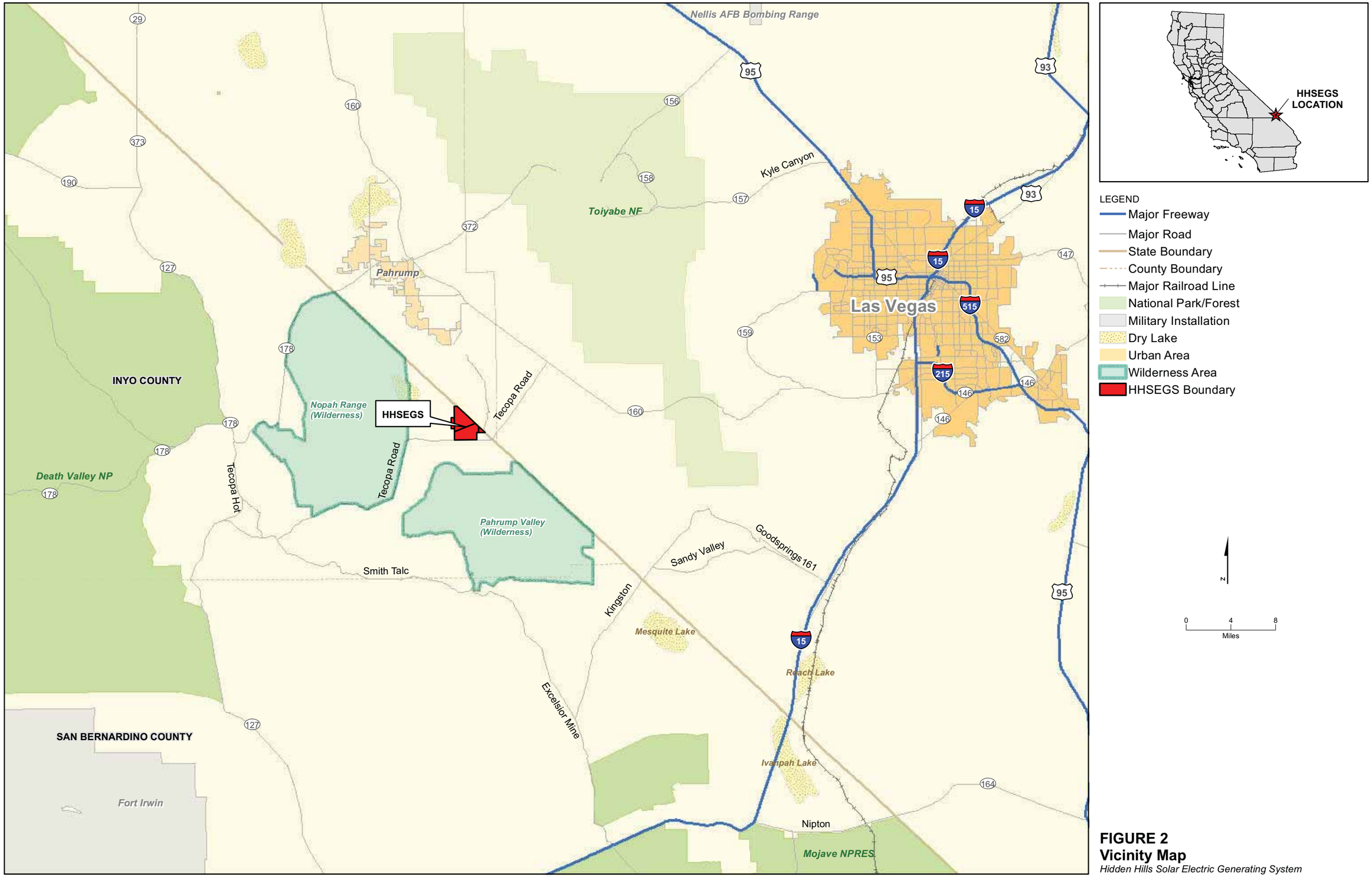
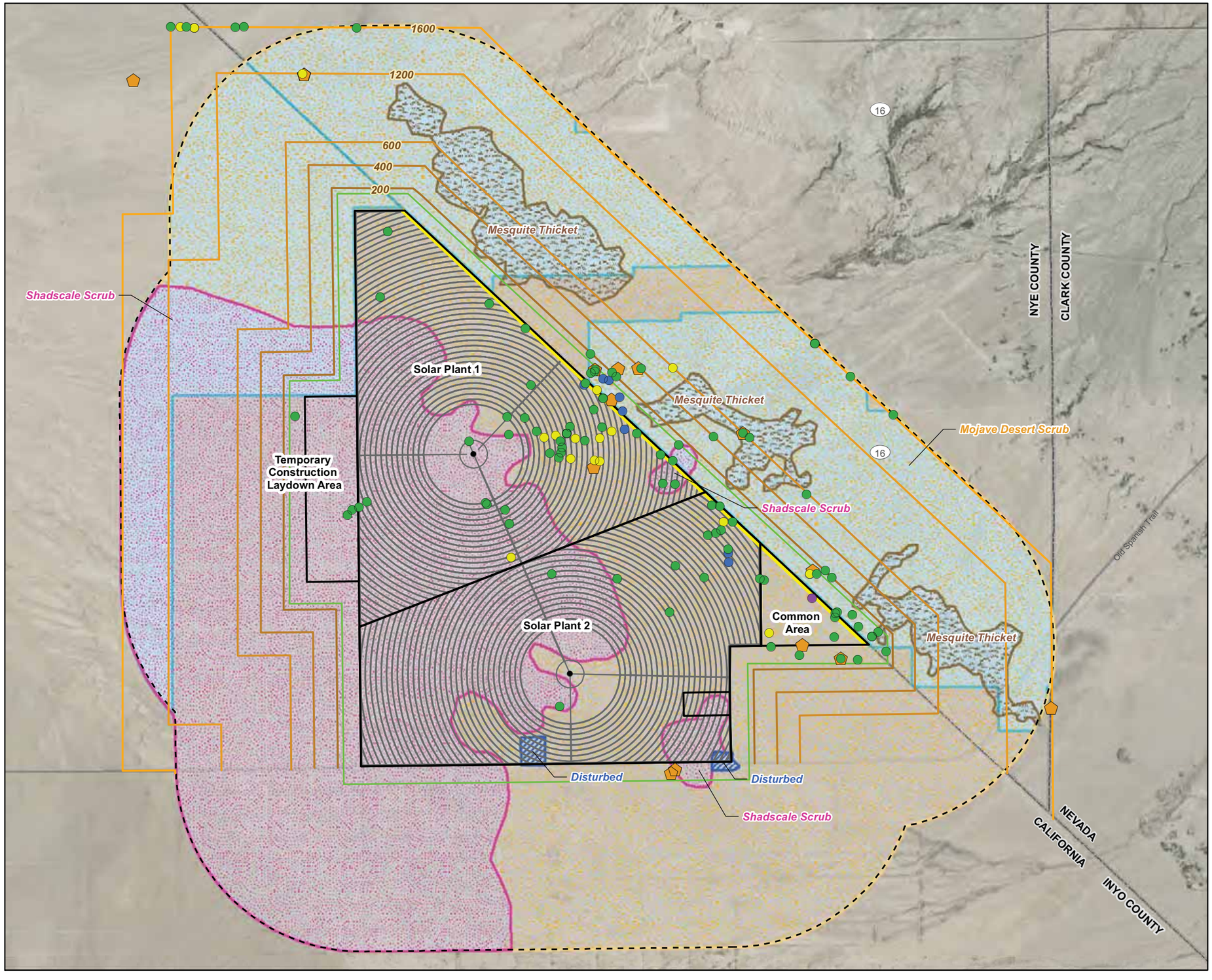


FIGURE 2
Vicinity Map
Hidden Hills Solar Electric Generating System



LEGEND

- Solar Power Tower

Tortoise Data

- Live Tortoise
- Tortoise Burrow
- Tortoise Carcass
- Tortoise Scat
- Tortoise Tracks

Zone of Influence (ZOI) Survey Lines

- 200 meters
- 400 meters
- 600 meters
- 1200 meters
- 1600 meters

Project Site Data

- HHSEGS Boundary
- HHSEGS 1-Mile Buffer
- HHSEGS 150-Meter Burrowing Owl Survey Buffer
- Translocation Area

CA and NV Land Use (within 1 mile)

- Bureau of Land Management
- Private

Vegetation Coverage

- Mesquite Thicket
- Disturbed (excluding roads)
- Shadescale Scrub
- Mohave Desert Scrub

Tortoise Data Source: Sundance Biology, Inc., 2011

N

0 1,400 2,800
Feet

FIGURE 3
Vegetation Communities, Land Ownership, Tortoise Sign and Translocation Area
Hidden Hills Solar Electric Generating System

2.0 Translocation Plan

This Translocation Plan provides the details necessary to minimize the potential for adverse impacts to desert tortoise during project construction and operations. It presents the processes and measures to detect and translocate desert tortoises that are present on the project area to appropriate offsite locations. It details the translocation, handling, health assessment and release processes, as well as the tracking, monitoring and reporting protocols following translocation. The plan provides detail on the selection of the translocation recipient site and assessment of the recipient population, and provides adaptive management measures that will be implemented if more tortoises are discovered onsite than expected. Additional avoidance and mitigation measures are presented, as well as an adaptive management framework, to respond to monitoring information provided from the assessment of the released tortoises.

2.1 Fencing and Clearance Process

2.1.1 Permanent Exclusion Fencing

Prior to any ground disturbance, the project owners will install permanent tortoise exclusion fencing around the perimeter of the area to be cleared to prevent the re-entry of desert tortoises onto the property. This tortoise exclusion fencing will be maintained for the life of the project, and may be attached to security fencing depending on final design. Desert tortoise guards, as described in Appendix A, will be installed at gated entries to prevent desert tortoises from gaining entry to the project site. Both tortoise exclusion fencing and tortoise guards will be installed under the direction of a Designated Biologist[7] using appropriate clearance and installation protocols to ensure that no tortoise are taken as a result of fence installation. The Biological Opinion for the project may require more detailed fence installation activities and/or fencing materials; however, the general approach to be followed is described here.

All permanent fencing will be constructed with durable materials (11 gauge or heavier) suitable to resist desert environments, alkaline and acidic soils, wind, and erosion. Permanent tortoise exclusionary fence material will consist of 1-inch horizontal by 2-inch vertical, galvanized welded wire, 36 inches high. This fence material will be buried a minimum of 12 inches below the ground surface, leaving 22 to 24 inches aboveground. A trench will be dug to allow 12 inches of fence to be buried below the natural level of the ground. Specifications for desert tortoise-proof fencing are provided in Appendix A and can be found at the following website: http://www.fws.gov/ventura/speciesinfo/protocols_guidelines /docs/dt/DT_Exclusion-Fence_2005.pdf. The project owners will, if necessary, modify the current design of all desert tortoise exclusion fencing to comply with the most up-to-date USFWS guidance. The USFWS is currently using guidance provided in the *Desert Tortoise Field Manual* (USFWS, 2009).

Where a combined security/tortoise fence is needed, a standard chain link fence will be installed with approximately 2 feet of tortoise fence overlapping the chain link fence creating a combined security/tortoise fence. The top end of the tortoise fence will be secured to the security fence with hog rings at 12-to 18-inch intervals. Distance between posts will not exceed 10 feet. Concrete footings for metal posts will not be required. The fence will be perpendicular to the ground surface,

[7] The Designated Biologist is the lead biologist authorized by the CEC to oversee construction activities and be responsible for ensuring that all biological conditions of certification are followed. The Designated Biologist is also an authorized biologist under the USFWS guidelines. The terms are used interchangeable in this plan.

or slightly angled away from the road, towards the side encountered by tortoises. After the fence has been installed, excavated soil will be replaced and compacted to minimize soil erosion. Fence installation will be monitored by an Authorized Biologist or a Biological Monitor, and an Authorized Biologist will be available at all times to move any desert tortoises that are within the path of the fence line work.

The boundaries of all areas to be disturbed during fence installation will be flagged before beginning any activities in those areas, and all disturbances will be confined to the flagged areas. Perimeter fence construction may be done during any season; however, within 24 hours prior to the initiation of installation of the desert tortoise-exclusion fence, a Designated Biologist will conduct two complete desert tortoise clearance surveys of the fence line segment and associated disturbance right-of-way that will be fenced that day. During these surveys, an Authorized Biologist will inspect all burrows to determine occupancy and collapse all unoccupied burrows.

If the fence line cannot avoid an occupied desert tortoise burrow, an Authorized Biologist will remove the individual and place it in a sheltered location outside of the area being fenced. Any desert tortoises located during clearance surveys of the perimeter fence during the active season (April 1 and May 31 or September 1 and October 15) will be treated as translocatees as described in Section 2.2 and moved to the recipient site. However, if clearance of the perimeter fence is conducted outside of the desert tortoise active season, then any desert tortoises located along the alignment will be moved out of harm's way but to the inside of the perimeter fence (that is, onto the power plant site), be fitted with a transmitter (if required by the Biological Opinion) to allow it to be easily located when clearance surveys are performed), blocked into an artificial or empty natural burrow and monitored as described in Section 2.6

If exclusion fencing is installed during a period when tortoises are known to be active, then all installed exclusion fence will be checked at least three times each day for the first week to ensure that no tortoise is fence-walking inside the fence, attempting to gain access to the other side of the fence. In that case, the tortoise will be moved out of harm's way outside the fence in accordance with this plan. Tortoises fence-walking outside the fence will be monitored to ensure that such individuals have suitable cover sites in the event that daily temperatures exceed lethal thresholds.

If the project owners fence a given project phase and do not plan on immediately clearing the area, they may collapse all unoccupied burrows, but leave gaps in the fence in to allow ingress and egress. If there are locations where occupied desert tortoise burrows are found in the path of the fence line right-of-way, gaps in the fence will be left that buffer the burrow by a distance of 50 m (25 m on each side) and will remain open until the time that the project owners are ready to commence with clearance surveys. The Authorized Biologist will not excavate and clear these occupied burrows until it is ready to perform clearance surveys.

All permanent desert tortoise exclusion fencing and guards will be maintained in accordance with the USFWS guidance. The USFWS is currently using guidance provided in the Desert Tortoise Field Manual (USFWS, 2009). If monitoring indicates that fencing is compromised, or tortoise guards are ineffective or problematic, the barriers will be replaced with another means of exclusion with input from the permitting agencies.

2.1.2 Clearance Surveys

Following installation of the permanent desert tortoise exclusion fence around a given portion of the HHSEGS project site, the Designated Biologist will lead teams to perform a full clearance survey of the fenced area (typically during the spring or fall) and excavate all burrows that could house a desert tortoise (including rodent holes). The survey will be completed in accordance with the

USFWS' desert tortoise translocation guidance, and the Designated Biologist may extend this survey window if pre-approved by the USFWS, CDFG, and CEC given appropriate temperatures and tortoise activity. If the USFWS releases revised guidance on desert tortoise translocation prior to initiation of clearance surveys, the Designated Biologist will perform surveys in accordance with the revised guidance.

When performing clearance surveys, Authorized Biologists and supervised Biological Monitors will conduct at least three complete clearance sweeps within the fenced area with transects no wider than 15 feet. Surveyors will conduct transects for each sweep in different directions to allow for opposing angles of observation. Authorized Biologists will excavate all potential desert tortoise burrows by hand to confirm occupancy status, remove desert tortoises as necessary, and collapse or block burrows to prevent occupation by desert tortoises. A fiber optic scope may be used to determine presence or absence within a deep burrow. The Authorized Biologists will also search for desert tortoise nests/eggs, which are typically located near the entrance to burrows. The site will be considered cleared after two complete passes have discovered no new desert tortoises.

All desert tortoise handling and removal, and burrow excavations, including nests, will be conducted by Authorized Biologists in accordance with the most current USFWS-approved protocol; currently the *Desert Tortoise Field Manual* (USFWS, 2009). The Designated Biologists will maintain a record of all desert tortoises encountered and translocated during project surveys and monitoring. This includes the following information for each individual: the location (narrative, vegetation type, and maps) and dates of observations; burrow data; general conditions and health; measurements; any apparent injuries and state of healing; if moved, the location from which it was captured and the location in which it was released; whether the animal voided its bladder; and diagnostic markings (for example, identification numbers).

Any work conducted on the site prior to the clearance of desert tortoises must either be done on-foot or under the guidance of a Biological Monitor. Once the sites are deemed free of desert tortoises, after at least two consecutive clearance surveys have discovered no new desert tortoises, then heavy equipment will be allowed to enter the construction site to perform earth work such as clearing or cutting vegetation, grubbing, leveling, and trenching. A Biological Monitor will monitor initial clearing and grading activities to find and move any tortoises missed during the initial tortoise clearance survey. If a tortoise is discovered, the Designated Biologist will be responsible for relocating it according to the requirements in this plan.

To minimize adverse effects to the desert tortoise, the project owners will implement the following protective measures when implementing clearance surveys:

1. Comply with the most up-to-date guidance for performing clearance surveys and handling desert tortoises. The USFWS is currently using the *Desert Tortoise Field Manual* (USFWS, 2009).
2. Use Authorized Biologists for the performance of clearance surveys and for any other activities that require the handling of desert tortoises. If Biological Monitors are used during clearance surveys or for other activities that require identification of sign or handling of desert tortoises, they will do so under the direct supervision of an Authorized Biologist.
3. Unless otherwise directed by the USFWS and CEC, no clearance surveys will occur when ambient air temperature are above 95 degrees Fahrenheit (°F) or are anticipated to exceed 95 °F before handling or processing can be completed. They will not perform any clearance surveys when ambient air temperatures are below 65 °F or are anticipate going below 50 °F during the week after release. They will not release any desert tortoises if ambient air

temperatures are above or are expected to reach 90 °F within 3 hours of release. Ambient air temperature will be measured in shade, protected from wind, at a height of 2 inches above the ground surface.

4. Perform clearance surveys only as stipulated in the Biological Opinion. The clearance window in the Biological Opinion may be extended if approved by the resource agencies (USFWS and CEC). Release of cleared desert tortoises will only be made into a translocation area in the spring and fall, or as stipulated in the Biological Opinion.
5. All USFWS Guidelines for clearance surveys stipulated in the Biological Opinion (USFWS, 201X[8]) will be followed and may supersede details in this plan prepared in advance of the final Biological Opinion.

2.1.3 Temporary Exclusion Fencing

Temporary fencing[9], such as chicken wire, snow fencing, chain link, and other suitable materials will be used in designated areas to reduce encounters with tortoises during short-term projects. Such areas requiring temporary exclusion fencing would be located outside the permanently fenced project area, and would be identified on construction drawings and approved by the permitting agencies prior to the start of construction activities at these sites. Such areas may include linear features are other appurtenances.

The temporary exclusion fencing material will be securely attached to posts. The grid opening of the fencing material will not exceed 1 inch by 2 inches and the fence height will be no less than 24 inches. Concrete footings for posts will not be required. Because of the short duration of the work, temporary metal fencing need not be buried but any high or low points along the wire mesh fence line will be hand-excavated to maintain integrity with the ground. If non-metal fencing is used, it will be staked to the ground at intervals of sufficient distance to maintain fence integrity.

The following conditions apply to the use of temporary exclusion fencing:

- Within 24 hours prior to the initiation of construction of the temporary exclusion fence, a desert tortoise survey will be conducted using techniques providing 100 percent coverage of the construction area and an additional transect along both sides of the fence line transect to provide coverage of an area approximately 90 feet wide centered on the fence alignment. Authorized Biologists will conduct at least three complete sweeps of the construction area using transects no wider than 30 feet. Surveyors will conduct transects for each sweep in different directions to allow for opposing angles of observation. The site will be considered cleared after two complete passes have discovered no new desert tortoises.
- All desert tortoise burrows, and burrows constructed by other species that might be used by desert tortoises, will be examined to determine occupancy. Any burrow within the fenced area will be collapsed after confirmation that it is not occupied by a desert tortoise, or if occupied, the desert tortoise has been removed by an Authorized Biologist.
- An Authorized Biologist, or Biological Monitor, will monitor the installation of the temporary exclusion fence. If installation of temporary fencing, surveying or clearing is occurring at

[8] Citation to be completed once the Biological Opinion is issued.

[9] Temporary exclusion fencing is defined as fencing that does not meet the specifications of permanent desert exclusion fencing presented in Appendix A and available online at the following website address: http://www.fws.gov/ventura/speciesinfo/protocols_guidelines /docs/dt/DT_Exclusion¬Fence_2005.pdf.

more than one location, more than one Authorized Biologist may need to be onsite to provide appropriate supervision. After installation of the temporary fencing and prior to initiation of construction activities, an Authorized Biologist and/or Biological Monitor will perform a pre-construction sweep for desert tortoises. An Authorized Biologist will translocate any desert tortoises found in the project impact area pursuant to the procedures set forth in Section 2.4, Tortoise Handling Guidelines.

- Biological Monitors will monitor construction activities in areas where temporary tortoise fencing is being used. An Authorized Biologist will also be available to move out of harm's way any desert tortoises that may wander into the impact area during construction.
- All construction activities will be confined within the temporarily fenced impact area. Equipment or construction personnel will not be allowed to work outside fenced areas without a Biological Monitor.
- Once temporary exclusion fencing has been installed, the area within the temporary fencing may be mowed to facilitate access by the construction equipment. Vegetation clearing will be limited to the areas required for construction.
- At the end of each working day, the Biological Monitor will inspect the integrity of all temporary desert tortoise fencing to ensure that desert tortoises are prohibited from entry. If the fence is compromised, repairs shall be completed at that time. Extra fencing material will be kept onsite during periods when construction requiring the use of temporary fencing is occurring.
- Prior to the start of work each day the Authorized Biologist or Biological Monitor will re-check the construction area to ensure that it is clear of tortoises. If work in the area has been delayed more than 24 hours (for example, weekend or due to a storm), a more detailed search for tortoises will be required prior to the start of work.

2.2 Translocation Process

2.2.1 Detection and Processing

Tortoise excavation, handling, artificial burrow construction, egg handling and other procedures will follow those described in the Desert Tortoise Field Manual (USFWS, 2009).

Unless otherwise approved the USFWS and the CEC, no desert tortoise will be captured, moved, transported, released, or purposefully caused to leave its burrow for whatever reason when the ambient air temperature is above 95 °F (35 °C). Ambient air temperature will be measured in the shade, protected from wind, at a height of 2 inches (5 centimeters) above the ground surface. No desert tortoise will be captured if the ambient air temperature is anticipated to exceed 95 °F (35 °C) before handling and translocation can be completed. If the ambient air temperature exceeds 95 °F (35 °C) during handling or processing, desert tortoises will be kept shaded in an environment that does not exceed 95 °F (35 °C), and the animals will not be released until ambient air temperature declines to below 95 °F (35 °C). Further, desert tortoises will not be released at translocation sites if ambient air temperatures are above or are expected to reach 90 °F (32 °C) within 3 hours of release.

Any desert tortoises encountered during clearance of the power plant site or the perimeter fence will be assigned a unique identifier (provided by USFWS), have a transmitter attached (if required by the Biological Opinion) so it can be easily found at the conclusion of the clearance survey and be released within the project site. Each desert tortoises encountered will be given a health assessment prior to being moved to the translocation site or quarantine facility, regardless of the distance the

desert tortoise is expected to be translocated. The disposition of each will be determined as described in Section 2.4, which dictates the management approach to be implemented at each numerical threshold for number of tortoises to release.

Desert tortoises will be transported in clean ventilated protective containers. If a cardboard box is used, a new box will be used for each individual tortoise and will be properly discarded after a single use. If a plastic tote is used, it will be sterilized with a 10 percent household bleach or other solution approved by the USFWS between each use.

Data collected during clearance surveys will include detailed information about the exact point of collection (UTMs from GPS, description of location, etc.). For those desert tortoises that will be monitored in situ, these data will be collected again on the day of translocation from the project site. The Designated Biologist will use the unique identifiers of each desert tortoise to link each individual desert tortoise with data obtained during clearance surveys and subsequent health assessments including blood tests (if needed).

The placement of the desert tortoises following the health assessments will depend on whether it will be held in a quarantine facility or monitored on the HHSEGS project site, as approved under the incidental take permit or biological opinion. There are four potential outcomes for each desert tortoise:

1. Translocation on the day of collection if the total number of desert tortoises expected to be translocated is fewer than 15 (see Section 2.4.1.5 below for translocation of 15 or more adult desert tortoises). This option may be used for desert tortoises being moved within 1500 m from the point of collection to lands contiguous with the project site (i.e., no barriers to natural dispersal). These individuals require complete health assessments, but do not require disease testing via blood samples.
2. Transfer of healthy desert tortoises to quarantine facility for holding (*ex situ*). Desert tortoises will not be held in the quarantine facilities for greater than 18 months.
3. Remain onsite for *in situ* monitoring until translocation, pending disease testing results and concurrence with results of complete health assessments (and disposition plan if 10 or more desert tortoises to be translocated). This option may be used for desert tortoises regardless of the distance to the translocation site.
4. Transfer to an agency-approved facility. Transferring desert tortoises to the approved facility is only appropriate for individuals showing clinical signs of infection or having positive blood tests (USFWS, 2010a).

2.2.2 Health Assessments

Health assessments will be conducted by biologists approved and permitted by the USFWS and State wildlife agencies to conduct such assessments. Individuals will receive certification from USFWS.

Health assessments will be completed for all tortoises encountered during the surveys at the recipient site, and will include a physical inspection (that is, notation of clinical signs of acute disease infection, body mass, and carapace measurements). The need to draw blood from desert tortoises within the project area depends on the presence or absence of clinical signs and the distance that desert tortoises will be translocated (see Section 2.7.5). Any incidental observations of signs of disease will be documented. Signs of infection from upper respiratory tract disease are as follows: nasal or moderate-to-severe ocular discharge, eroded nares, partially or completely occluded nares.

If a desert tortoise being monitored *in situ* has a positive blood test result, all desert tortoises with a negative blood test result within 1500 m of the positive desert tortoise's initial and current locations will be retested in case they came into contact with the unhealthy individual while initial test results were pending. The desert tortoises showing clinical signs or test positive for disease will not be eligible for translocation and will be removed from the project site and sent to an agency-approved facility, where it will undergo further assessment, treatment, and/or necropsy. Some desert tortoises will be rehabilitated and potentially be eligible for subsequent release. Coordination with the USFWS, State agencies, and the approved treatment facility will be initiated when clearance surveys commence to facilitate prompt transport of unhealthy desert tortoises, as necessary. Project proponents will be charged a fee for each desert tortoise sent to the approved treatment facility commensurate with the cost to provide housing, care, treatment, and other services for 5 years. No additional funds will be requested from project proponents for desert tortoises remaining at the center after 5 years.

2.2.3 Release of Desert Tortoise

Desert tortoises deemed uninfectious (that is, lack of clinical signs and show no antibodies to pathogens) and of suitable body condition (standards to be provided by USFWS) will be translocated. Translocation to the approved recipient site will comply with existing protocols, this Plan, and the project-specific translocation and monitoring requirements in the Biological Opinion. Generally, translocations will occur in spring (April 1 through May 31), or fall (September 1 through October 15). Extensions may be considered as approved by the USFWS. In addition, the following conditions should be met for translocation to proceed:

1. Releases will occur when temperatures range from 18 to 30°C (65 to 85°F) and are not forecasted to exceed 32°C (90°F) within 3 hours of release or 35°C (95°F) within 1 week of release. Additionally, forecasted daily low temperatures should not be cooler than 10° C (50°F) for one week post-release. Temperature thresholds for translocation differ from those for handling resident and control desert tortoises because translocated desert tortoises spend more time aboveground subsequent to release as they habituate to unfamiliar surroundings, thus increasing their susceptibility to stress factors such as temperature extremes.
2. Release points for desert tortoises will be pre-selected during visits to the translocation site (configuration of release points is project-specific) and will be at least 2.5 km (1.6 miles) from any documented positive blood test results or clinically ill (showing outward signs of disease) resident desert tortoises.
3. Desert tortoises will be transported in clean ventilated protective containers. If a cardboard box is used, a new box will be used for each individual tortoise and will be properly discarded after a single use. If a plastic tote is used, it will be sterilized with a 10 percent household bleach or other solution approved by the USFWS between each use.
4. Within 12 hours before release, all desert tortoises to be translocated will be hydrated according to existing protocols.
5. Desert tortoises will be released at unoccupied shelter sites. Shelters include unoccupied soil burrows, spaces within rock outcrops, caliche caves, and the shade of shrubs.

2.3 Translocation Recipient Area

2.3.1 Consistency with Agency Guidelines

The proximity and quality of habitat in the translocation area is a major factor in achieving the Plan's goal to minimize stress, disturbance, and injuries to translocated tortoises. To the extent feasible, the translocation area criteria used in this Plan are based on the 2010 draft guidelines developed by USFWS and Desert Tortoise Recovery Office for desert tortoise translocation (*The 2010 Desert Tortoise Field Guide and the Translocation of Desert Tortoises [Mojave Population] from Project Sites: Plan Development Guidance*). They are being provided, should adult tortoises be found onsite that require translocation to a site other than the proposed area between the project site and the California-Nevada border as described in Section 2.3.3.

2.3.2 Translocation Recipient Area Criteria

USFWS has identified criteria for selecting recipient sites (USFWS, 2010a). The criteria for a translocation site are listed below. The proposed recipient site is then compared to the criteria.

1. Recipient sites should be at least equal in size to the project site.
2. The project site and recipient site should be within 40 kilometers (km) (24.8 miles) of one another with no natural barriers to movement between them, as the desert tortoises at the two sites were likely part of a larger mixing population and similar genetically.
3. The site should support desert tortoise habitat that is equivalent in type/quality to the project site, suitable for all life stages, have no designated rights-of-way (ROWs) or other encumbrances, and be managed for conservation so that potential threats from future impacts are precluded in perpetuity.
4. If available, selection of potential recipient sites should focus on lands where desert tortoise populations have been depleted or extirpated yet still support suitable habitats. These may include lands adjacent to highways or within designated critical habitat or lands identified as Desert Tortoise Conservation Areas (TCAs) in the revised recovery plan for the species (e.g., Desert Wildlife Management Areas, Areas of Critical Environmental Concern, National Park Service lands, designated critical habitat, etc.); lands outside TCAs that are important for maintaining habitat and population connectivity and that are not subject to future impacts or are a minimum of 10 km (6.2 miles) from areas expected to be developed; or lands where management actions are currently being tested.
5. Recipient sites should be at least 15 km (9.3 miles) from major unfenced roads or highways; distances from roads may be reduced if the proposed action includes provisions to install desert tortoise exclusion fencing as a minimization measure.

2.3.3 Translocation Site Description

The most suitable habitat within 40 km (24.8 miles) of the project site is located east and north of the project area. In contrast, the Nopah Range and part of the Kingston Range occupy large portions of the area within 40 km and are physical barriers to habitat areas beyond them to the west and south. However, the eastern portion of the project site and the areas east of the site have Mojave Desert scrub vegetation community. Habitat quality increases along a gradient eastward from the project site toward the Spring Mountains. In contrast, habitat quality west of the project site is low due to edaphic factors (soil conditions). Residences and associated developments are located south of the project site. The western portions of the project site and the areas west of the site have shadscale vegetation community.

The recipient site is an area of habitat generally between one to three feet wide in Mojave Desert scrub in California, on the eastern edge of the project boundary that runs between the project boundary perimeter road and the California-Nevada state line. It is contiguous with the large tract of higher-quality habitat east of the project site in the Nevada portions of the Pahrump Valley (Figure 3) that is managed by the Bureau of Land Management (BLM). The relative densities of desert tortoise populations on the site and in surrounding areas are presented in Table 1.

The USFWS criteria previously listed in Section 2.3.2 are discussed below in light of the jurisdictional and habitat availability constraints.

1. *Recipient sites should be at least equal in size to the project site.*

   The recipient site is in California but is not as large as the project site. However, the contiguous habitat east of the site, in Nevada, is much larger than the project site. There is no other suitable habitat for a translocation site in California within 40 km (24.8 miles) of the project site (Criterion 2).

2. *The project site and recipient site should be within 40 kilometers (km) (24.8 miles) of one another with no natural barriers to movement between them, as the desert tortoises at the two sites were likely part of a larger mixing population and similar genetically.*

   The recipient site is immediately adjacent to the project site, and thus satisfies this criterion.

3. *The site should support desert tortoise habitat that is equivalent in type/quality to the project site, suitable for all life stages, have no designated rights-of-way (ROWs) or other encumbrances, and be managed for conservation so that potential threats from future impacts are precluded in perpetuity.*

   The recipient site is in California, located just along the California Nevada border to the east of the project. The contiguous habitat located in Nevada is managed by BLM in conformance with management related to the Endangered Species Act. The comparable quality of the habitat is summarized in Table 1. It is much better quality habitat than the habitat of the project site. Suitability of habitat in the recipient site and contiguous habitat to support all life stages is demonstrated by the density of the population.

4. *If available, selection of potential recipient sites should focus on lands where desert tortoise populations have been depleted or extirpated yet still support suitable habitats. These may include lands adjacent to highways or within designated critical habitat or lands identified as Desert Tortoise Conservation Areas (TCAs) in the revised recovery plan for the species (e.g., Desert Wildlife Management Areas, Areas of Critical Environmental Concern, National Park Service lands, designated critical habitat, etc.); lands outside TCAs that are important for maintaining habitat and population connectivity and that are not subject to future impacts or are a minimum of 10 km (6.2 miles) from areas expected to be developed; or lands where management actions are currently being tested.*

   There are no lands where desert tortoise populations have been depleted or extirpated yet still support suitable habitats available that meet the other requirements for translocation. Other suitable habitat is not present within 40 km (24.8 miles) of the site (Criterion 2) that is also 10 km (6.2 miles) from developed sites. However, development at Calvada Springs/ Charleston View is low density and includes a small population. The outskirts of Pahrump are located approximately 6.8 km (4.3 miles) northwest of the site (direct line distance). However, the development is low density at the fringes.

5. *Recipient sites should be at least 15 km (9.3 miles) from major unfenced roads or highways; distances from roads may be reduced if the proposed action includes provisions to install desert tortoise exclusion fencing as a minimization measure.*

   The closest major road, Tecopa Road, is approximately 1 km (0.6 mile) south of the southern extremity of the translocation area. However, the current occupied habitat is approximately the same distance from this road as is the recipient site. Consequently, the translocation will not increase risk associated with the road.

2.3.4 Estimate of Desert Tortoise Population at the Recipient Site

Guidance from the USFWS recommends that desert tortoise densities at the recipient site be calculated according to the most recent USFWS Pre-project Survey Protocol and include data on carcasses observed during surveys. Surveys will be conducted during the desert tortoise's most active periods (i.e., typically April 1 through May 31 or September 1 through October 15 when air temperatures are below 40°C (104°F), which will be verified by activity in the field).

The recipient site and adjacent area in Nevada was surveyed with 100 percent coverage using transects spaced at 30-feet (Sundance, 2011). The tortoise density in the translocation site is based on the data collected in the portion of the 150-m buffer zone that contains Mojave Desert scrub vegetation. That area covers about 600 acres. In that area, 6 desert tortoises were discovered offsite along with 15 burrows, 4 sets of tracks and 1 scat of the current year. The population estimate of tortoise using only the tortoises detected in the Mojave Desert scrub portion of the 150-m buffer (600 ac. or 2.43 square km) using the USFWS model (USFWS, 2010b) is estimated at 10.9 adults (95% CI, range is 4 to 28, see Table 2).

TABLE 2
Estimated Number of Desert Tortoise on 600 acres of Buffer Area Adjacent to the Translocation Site (95 Percent Confidence Values)

Adult and Sub-Adults[a]		Juvenile Estimates[b]		Eggs[c]	Total Adult/Sub-adult and Juvenile	
Lower	Upper	Lower	Upper	(Min-Max)	Lower	Upper
4	28	2	30	39-132	6	58

[a] Value based on formula recommended by USFWS. Numbers reflect the 95 percent confidence interval.

[b] Values based on the equations of Turner et al., 1987. Equation assumes that juveniles account for approximately 31.1 to 51.1 percent of the overall tortoise population. If P = Percentage of juveniles in population, A = Number of adults, and J = Number of juveniles then P = J / (J + A). Therefore J = PA/ (1 – P).

[c] Assumes a 1:1 sex ratio and that all females present would clutch in a given year. Assumes average clutches per reproductive female in a given year (1.6, see Turner et al. 1987, multiplied by the average number of eggs found in a clutch (5.8; see USFWS, 1994).

According to USFWS (2010), the projected density of all resident adults and translocated adults at the recipient site after translocation should not exceed 130 percent of the mean density of adults in the recovery unit. Under this existing guidance, the project would be in compliance; however, the USFWS has a revised guidance document pending publication. It is understood to set the upper density limit at one standard deviation above the mean density. It calculates the mean density of adults desert tortoises in the East Mojave Recovery Unit as 4.2 adults per square km (other age classes are not counted for this purpose) and the maximum post-translocation density of the recipient area (corresponds to 1 standard deviation above the mean) is 5.77 adult desert tortoise per square km (Averill-Murray, 2012) or 0.02 per acre. The mean density of adult desert tortoises in the 600-acre surveyed recipient area is estimated to be 4.53 adult desert tortoises per square km

(11/2.428 sq. km). This allows for the translocation of up to 3 adult tortoises to reach the density limit (14/2.482 sq. km = 5.77). However, the 600 acres surveyed is only a sub-sample of the adjacent and contiguous habitat of similar or better quality. The translocation area is effectively much larger than 600 acres because translocated adults will surely use portions of the contiguous habitat and that area is already part of the habitat of those being translocated 1500 m or less (so new population is not being added). The recipient area will easily receive 4 desert tortoises. If 15 or more adult desert tortoises are to be translocated, then other measures will be required as described in Section 2.4 if required by the USFWS and the CEC.

2.4 Translocation Plan Thresholds

2.4.1 Translocation Plan Thresholds

Translocation recommendations differ depending on the distance and number of adult tortoises to be translocated (USFWS, 2010a). All thresholds are based on the number of adult tortoises (Averill-Murray, 2012). USFWS guidelines (USFWS, 2010a) recommend a threshold distance of 500 m and threshold numbers of tortoises of 5 and 10 individuals (USFWS, 2010a). If more than 5 adult individuals are expected to be translocated, then different measures apply to those desert tortoises that have to be translocated farther than 500 m from the point of collection than for the initial 5 tortoises. Additional recommended measures apply if 5 to 9 desert tortoise individuals are expected to be translocated within 500 m and yet more measures if they are translocated farther than 500 m.

However, USFWS recognizes that projects are unique and that there may be projects that expect to translocate desert tortoises greater than 500 m from the point of collection. USFWS makes the following statement, "*Because any given project may have unique circumstances, we recommend project proponents and the lead action agency work closely with the appropriate USFWS field office and State wildlife agencies as early in the planning process as possible to determine which of the components and to what degree each of the following should be included in project-specific translocation plans*" (USFWS, 2010a).

For this project, the Applicant proposes alternate thresholds of 15 and 30 adult desert tortoises and 1500 m for the translocation distance. The measures recommended for fewer than 5 adult desert tortoises will apply in this case to fewer than 15. The measures recommended for 5 to 9 will apply in the case of 15 to 30 adult tortoises. The measures recommended for 10 or more will apply in the case of 31 or more adult tortoise. We are proposing these thresholds because these numbers are still small and since the project is on the edge of desert tortoise habitat, all of the tortoises found in the project site are already likely using Nevada as part of their home range.

For this project, the number of adult desert tortoises expected to be translocated is fewer than 15 and the expected translocation distances are within 1500 m. The number of desert tortoise observed onsite was two. The population estimate of tortoise, using only the tortoise detected onsite in the creosote bush scrub, using the USFWS model (2010) is 3.8 (95% CI, range is 1 to 15). It is estimated that the project site may support between 0 to 16 juvenile tortoises (that is, a total population range between 1 and 31 adults, sub-adults, and juveniles). The density of desert tortoise onsite is very low (0.0012 per acre or 0.29 per square km) and much of the site is low-quality habitat or disturbed. Therefore, the actual number of tortoises is expected to be in the lower part of the confidence interval range. The estimated number of individuals has a 95 percent chance of being fewer than 31. The detected desert tortoises onsite were located within 500 m of the translocation area. However, the potential habitat extends about 1500 m at its maximum point with the majority

of the habitat within 750 m from the translocation area. Consequently, it is expected that the recommended measures described in Section 2.4.1.1 will be implemented.

Because it is possible, although not probable, that 15 or more tortoises will require translocation, the recommended measures for each circumstance are presented in Table 3 and a flowchart is attached in Appendix B. The five scenarios defined by thresholds are the following:

1. Translocated within 1500 m and the total number of translocatees is fewer than 15 adult tortoises
2. Translocated farther than 1500 m and the total number of translocatees is fewer than 15 adult tortoises
3. Translocated within 1500 m and the total number of translocatees is 15 to 30 adult tortoises
4. Translocated farther than 1500 m and the total number of translocatees is 15 to 30 adult tortoises
5. Thirty one or more adult tortoises translocated, regardless of distance

If the number of desert tortoises and the translocations distances exceed expectations, then the applicable measures will be applied and the agencies will be consulted as to the disposition of those tortoises found.

TABLE 3
Desert Tortoise[a] Translocation Components

Individuals Expected to Translocate	**Fewer than 15** adult tortoises	**Fewer than 15** adult tortoises	**15 to 30** adult tortoises	**15 to 30** adult tortoises
Distance to Translocation Area	**Within 1500 m**	**Farther than 1500 m**	**Within 1500 m**	**Farther than 1500 m**
Translocatees: health assessment without blood test	X		X	
Translocatees: health assessment with blood test		X		X
Recipient site required	X	X	X	X
Recipient site density surveys required	X	X	X	X
Recipient desert tortoises: health assessment without blood test	X		X	
Recipient desert tortoises: health assessment with blood test		X		X
Control site, if required by the Biological Opinion			X	X
Control desert tortoises: health assessment with blood test, if required by the Biological Opinion			X	X
Monitoring of translocatees	X	X	X	X
Monitoring of residents			X	X
Monitoring of controls, if required by the Biological Opinion			X	X

[a] These are adult tortoises at least 180 mm mean carapace length

2.4.1.1 Translocate Fewer than 15 Adult Tortoises within 1500 meters

The measures described in this section are recommended for those translocated tortoises that will be translocated within 1500 m from the point of collection, when the total number of adult translocated adults is fewer than 15. This condition is based on the fact that there are no barriers to impede natural desert tortoise movement (prior to project development) between the project site and recipient site. These conditions described below are in addition to the general requirements for desert tortoise handling.

Health assessments of the translocatees and the resident desert tortoises in the recipient area will be conducted; however, no blood samples will be necessary to test for disease. Health assessments will be conducted by individuals approved and permitted by the USFWS and CDFG to conduct such assessments.

The recipient site has been selected according to the criteria recommended by the USFWS and described in subsection 2.3.

Recipient site density surveys are required. As described in Section 2.3.4, projected density of adults after translocation at recipient sites should not exceed 5.77 adults per square kilometer (Averill-Murray, 2012).

Recipient area desert tortoise individuals require complete health assessments, but do not require disease testing via blood samples.

Radio transmitters and monitoring (if required by the Biological Opinion) will apply to translocatees only. No control or resident individuals will be identified or monitored.

The following list summarizes the recommended measures:

1. Translocatees: health assessment without blood test
2. Recipient site required
3. Recipient site density surveys required
4. Recipient desert tortoises: health assessment without blood test
5. Monitoring of translocatees

2.4.1.2 Translocate Fewer than 15 Adult Tortoises Farther than 1500 meters

If fewer than 15 adult desert tortoises are expected to be translocated, then the recommended measures previously mentioned will be applied to the individuals translocated farther than 1500 m. In addition, the recommended measure of including blood tests for disease detection as part of the health assessments will be applied to translocatees and recipient area residents.

The following list summarizes the recommended measures:

1. Translocatees: health assessment with blood test
2. Recipient site required
3. Recipient site density surveys required
4. Recipient desert tortoises: health assessment with blood test
5. Monitoring of translocatees

2.4.1.3 Translocate 15 to 30 Adult Tortoises within 1500 m

Desert tortoises translocated within 1500 m and the resident desert tortoises in the recipient area will be assessed for health; however, no disease sampling via blood samples will be necessary. If 15 to 30 adult desert tortoises are to be translocated, then additional recommended measures will be applied. For monitoring purposes, if 15 or more desert tortoises will be translocated, desert

tortoises will be assigned a unique identifier (provided by USFWS) and be fitted with a transmitter (if required by the Biological Opinion) by qualified personnel.

The following list summarizes the recommended measures:

1. Translocatees: health assessment without blood test
2. Recipient site required
3. Recipient site density surveys required
4. Recipient desert tortoises: health assessment without blood test
5. Control site if required by the Biological Opinion
6. Control desert tortoises: health assessment with blood test, if required by the Biological Opinion
7. Monitoring of translocatees
8. Monitoring of residents
9. Monitoring of controls, if required by the Biological Opinion

2.4.1.4 Translocate 15 to 30 Adult Tortoises Farther than 1500 meters

Both desert tortoises translocated farther than 1500 m and the resident desert tortoises in the recipient area will be assessed for health; including disease sampling via blood samples. If 15 to 30 desert tortoises are expected to be translocated, then additional recommended measures will be applied. For monitoring purposes, if 15 or more desert tortoises will be translocated, desert tortoises will be assigned a unique identifier (provided by USFWS) and be fitted with a transmitter (if required by the Biological Opinion) by qualified personnel.

The following list summarizes the recommended measures:

1. Translocatees: health assessment with blood test
2. Recipient site required
3. Recipient site density surveys required
4. Recipient desert tortoises: health assessment with blood test
5. Control site if required by the Biological Opinion
6. Control desert tortoises: health assessment with blood test, if required by the Biological Opinion
7. Monitoring of translocatees
8. Monitoring of residents
9. Monitoring of controls, if required by the Biological Opinion

2.4.1.5 Translocate 31 or More Adult Tortoises

If 31 or more adult desert tortoises are expected to be translocated, one of two forms of quarantine may be implemented (*in situ* or *ex situ*) while a disposition plan is prepared by the project owners and submitted to the resource agencies. Desert tortoises will not be moved from quarantine prior to concurrence by the USFWS and CEC of health assessment results and disposition plans.

The project owners will likely select the *ex situ* monitoring option, due to the difficulties in monitoring desert tortoises *in situ* for the time required to receive blood test results. According to USFWS (2010) guidance, the project owners will construct individual quarantine facilities. Tortoises located during protocol clearance surveys will be transferred to a quarantine facility that has been constructed for their use, or to an existing quarantine facility in California that has capacity, such as the facility at Ivanpah SEGS or in the Mojave Preserve. The facility design, animal husbandry plan, and operating protocols will be developed by experienced personnel and be approved by USFWS, CDFG and CEC. Facilities will be constructed and managed to prevent tortoises from coming into

contact with one another, exclude predators, provide ability for appropriate thermoregulation, and allow for necessary husbandry activities by a caretaker that is certified to conduct health assessments and administer care. Quarantine facilities will be constructed to avoid inadvertently capturing any resident desert tortoises within the enclosure. Data to be collected will be standardized to conform to data collection requirements of the regulatory agencies for all projects.

2.4.2 Disposition Plan

A Disposition Plan will be required If 31 or more adult desert tortoises are expected to be translocated, regardless of the distance they will be translocated. The tortoises will be isolated in quarantine pens and monitored on the site while a Disposition Plan is prepared by the Designated Biologist and submitted to the resource agencies. Desert tortoises will not be translocated prior to concurrence by the resource agencies after they receive health assessment results and disposition plans.

The Disposition Plan will state the proposed fate of each desert tortoise (for example, translocated to recipient site or removed from population due to suspected disease) expected to be translocated and include the complete health assessment for each individual.

The disposition plan will provide information on the use of tracking units (GPS) on tortoises from the project site and translocation site; provide information on the short- and long-term monitoring and reporting of translocated populations; provide information on disease testing for long distance translocated tortoises; and, identify remedial actions should excessive predation or mortality be observed. The plan will also include provisions for removing diseased tortoises; the development of quarantine pens; accommodating eggs, hatchlings or juvenile tortoise.

2.5 USFWS Control Site Criteria

USFWS has identified criteria for selecting control sites (USFWS, 2010a).

1. Potential control sites, if required, should be equivalent (or better) in habitat type and quality, desert tortoise population size and structure, and disease status as the recipient sites.
2. Control sites should not have been previously used as a recipient site for other projects and should be a minimum distance of 10 km (6.2 miles) from the project site if the recipient site is unfenced or no substantial anthropogenic or natural barrier exists to prevent the interaction of control, resident, and translocated desert tortoises.

It is not anticipated that a control site will be required since the locations and numbers of tortoises are not expected to exceed the thresholds that trigger the need for a control site; therefore, a specific control site has not been identified at this time, unless required by the Biological Opinion. If the Applicant wants to establish a control area out of an abundance of caution or if a control area is required based on the number of desert tortoise found during clearance surveys, the site selection for the control area will be coordinated with the USFWS and the CEC to make sure the control site satisfies all then-applicable regulatory requirements.

2.6 Tracking, Monitoring, Disease Testing, and Reporting

Regularly scheduled monitoring events consist of attempting to view each individual without disturbance unless entrapment or a scheduled body condition assessment requires handling.

Desert tortoises confined to an artificial or empty burrow during perimeter fence construction (see Section 2.1.1) will be monitored as follows pursuant to USFWS Guidance (2010):

1. Once a day during first week;
2. Once a week for the following three weeks; then
3. Twice per month until the clearance survey is conducted.

Translocated desert tortoises will be monitored as follows:

1. Once within 24 hours of release; and
2. A minimum of twice weekly for the first two weeks after release; and
3. A minimum of once a week from March through early November for the 5-year monitoring period; and
4. Once every other week from November through February starting after the third week of release and for the duration of the 5-year monitoring period.

Recipient site desert tortoises will be monitored for the 5-year monitoring period as follows:

1. A minimum of once a week from March through early November; and
2. A minimum of once every other week from November through February.

Assessments of condition (that is, measurements of body mass and carapace, health assessment, calculation of body condition) will be conducted during each year of monitoring, consistent with USFWS and CEC direction regarding the necessity and appropriateness of handling the species; one assessment prior to and one assessment subsequent to over-wintering. Any health problems observed (e.g., rapid declines in body condition, perceived outbreaks of disease, mortality events) will be reported to the resource agencies such that appropriate actions can be taken in a timely manner. Mortalities will be thoroughly investigated. Information on health concerns and mortalities, including desert tortoise unique identifier, location, and cause of death (if determined) will be provided to the resource agencies upon discovery (verbally within 48 hours or via email within 5 business days). Fresh carcasses will be submitted for necropsy to USFWS (details to be provided during project planning and coordination with the resource agencies) and the cost covered by the project owners.

In addition to monitoring the desert tortoises, USFWS recommends that vegetation transects at representative sampling locations within the recipient site be repeated annually to capture potential changes in habitat characteristics. At a minimum, monitoring of the annual species component is recommended to identify changes in forage diversity and availability. The USFWS will provide additional guidance to project proponents on appropriate methods of vegetation monitoring and sampling during the planning process.

Findings and recommendations will be submitted to the resource agencies. The USFWS will provide standardized data fields and database format for use by the project owners; reporting requirements will be determined during the planning process with the resource agencies and incorporated into associated permits and/or the biological opinion.

2.7 Adaptive Management

Explicit triggers for implementation of adaptive management will be project-specific and developed through coordination with the resource agencies, as appropriate. Upon conclusion of the 5-year monitoring period, health assessments would be performed on all remaining monitored desert tortoises and transmitters, if required by the Biological Opinion, and transmitters would remain attached until the resource agencies have determined whether or not further action is warranted.

3.0 Additional Impact Avoidance Measures

In addition to the translocation plan, additional impact avoidance measures will be implemented during construction and operation to further reduce the risk that the project would pose to desert tortoises. The following impact minimization measures will be implemented during all construction activities, in addition to the construction of desert tortoise exclusion fencing as described above:

- All personnel involved in the construction project will participate in Worker Environmental Awareness Program (WEAP) training that includes desert tortoise protection training approved by the USFWS and CEC). At a minimum, training will include discussion of the fragility of desert habitats, the importance of the desert tortoise to the environment, the protections afforded to the desert tortoise by the Endangered Species Act, locations of Environmentally Sensitive Areas (as defined in the training), and the correct protocol to follow when encountering a desert tortoise.
- Open trenches, auger holes, or other excavations that may act as pit-fall traps will be inspected by an Authorized Biologist (or Biological Monitor) before backfilling. Any desert tortoise found will be safely moved out of harm's way by an Authorized Biologist. For open trenches located outside of fenced areas, earthen escape ramps will be maintained at intervals of no greater than 0.25 mile. The open trenches located outside of fenced areas will be inspected three times per day (four times per day during the spring and fall seasons when tortoise are active) by an Authorized Biologist or Biological Monitor. Other excavations outside the fenced areas that remain open overnight will be covered to prevent them from becoming wildlife traps.
- Project personnel will check under parked vehicles and equipment located outside of fenced and cleared areas for desert tortoises before operation. An Authorized Biologist will move desert tortoises found within the parking, staging, construction, or other traffic areas to a location away from danger and only as specified in the Biological Opinion.
- At water and garbage/trash sources, measures will be implemented by the Authorized Biologist to preclude access by common ravens (*Corvus corax*) and other tortoise predators. Garbage (waste with organic content) will be placed in closed containers and emptied at the end of business each day. Each water source will be caged. Fencing and netting will prevent desert tortoises and common ravens from accessing water sources in construction areas.
- If a desert tortoise that is either dead, injured, or entrapped, is found, the contractor will immediately notify the Designated Biologist/Authorized Biologist/Biological Monitor so the Designated Biologist/project proponent can notify the permitting agencies directly or through the CEC's biology staff. Any entrapped desert tortoise will be permitted to escape. The disposition of any carcasses or recovery of dead animals will be coordinated with the permitting agencies.
- If a desert tortoise is injured during the course of construction, the CEC will be notified and the Authorized Biologist will transport the animal to a qualified veterinarian.

4.0 References

Averill-Murray, Roy C. 2012. USFWS Desert Tortoise Recovery Office. Personal communication with James Marble, CH2M HILL, August 7.

Sundance Biology, Inc. (Sundance). 2011. Presence/Absence Survey for the Desert Tortoise (*Gopherus agassizii*) and other Sensitive Wildlife on the proposed Hidden Hills SEGS Project, Inyo County, California. November 30. (Submitted as Appendix 5.2F-R11, Data Response Set 1B)

U.S. Fish and Wildlife Service (USFWS). 1994. Desert Tortoise (Mojave Population) Recovery Plan. U.S. Fish and Wildlife Service, Portland, Oregon.

U.S. Fish and Wildlife Service (USFWS). 2009. Desert Tortoise Field Manual. http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/U.S. Fish and Wildlife

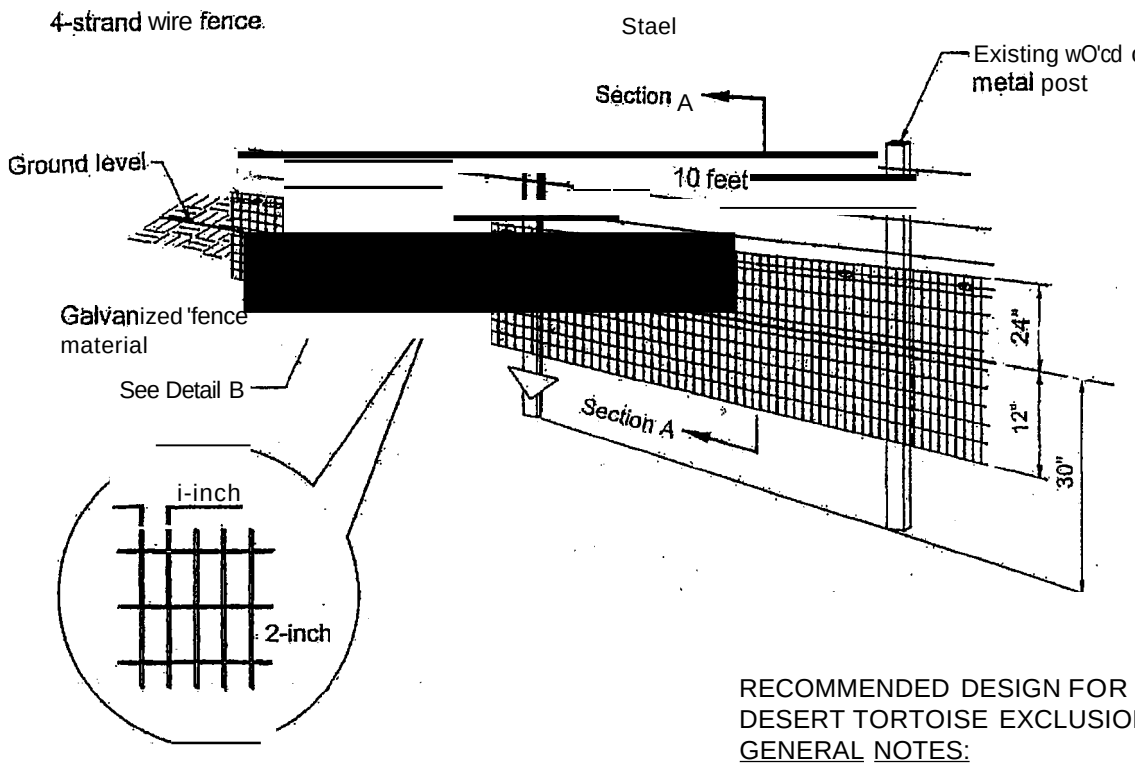
U.S. Fish and Wildlife Service. 2010a. Translocation of Desert Tortoises (Mojave Population) from Project Sites: Plan Development Guidance. Desert Tortoise Recovery Office. August 2010.

U.S. Fish and Wildlife Service (USFWS). 2010b. Preparing for any action that may occur within the range of the Mojave desert tortoise (*Gopherus agassizii*). Carlsbad, CA. Available online at: http://www.fws.gov/ventura/species_information/protocols_guidelines/index.html

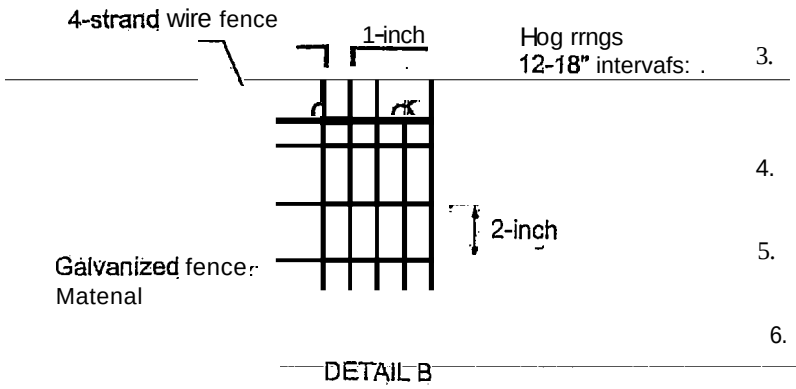
USFWS. 201X. Biological Opinion

Appendix A
Tortoise Fencing and Guards

DESERT TORTOISE EXCLUSION FENCE (2005)



DETAIL A



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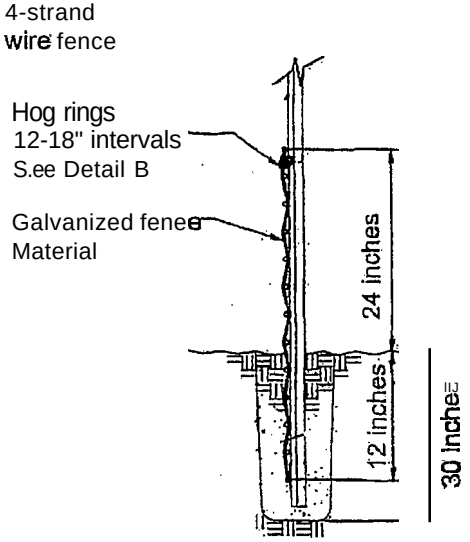


SECTION A

RECOMMENDED DESIGN FOR DESERT TORTOISE EXCLUSION FENCE

GENERAL NOTES:

1. Ensure that fence posts and materials conform to the standards approved by the U.S. Fish and Wildlife Service.
2. Ensure that the height above ground level is no less than 18 inches and no higher than 24 inches.
3. Ensure that the depth of fence material below ground level is about 12 inches but no less than 6 inches. (See SECTION A above)
4. Install additional steel posts when between existing fence posts exceed 10 feet.
5. Attach fence material to existing fence or wire using hog rings at 12-inch intervals.
6. Fasten fence material to posts with 3 tie wires with a wire near the top, bottom, and center of the fence material.
7. Backfill trenches with excavated material and compact the material.
8. Attach fence material to all gates. Ensure that clearance at base of gate achieves zero ground clearance.
9. Substitute smooth wire for barbed wire if additional support wires are necessary.
10. The number placement of support wires may be modified to allow sheep and deer to pass safely.
11. Erosion at the edge of the fence' material where the fence crosses washes may occur and requires appropriate and timely monitoring and repair.
12. Tie the fence into existing culverts and cattleguards when determined necessary to allow desert tortoise passage underneath roadways.

FOR BEDROCK OR CALICHE SUBSTRATE

1. Use this fence design (see below) only for that portion of the fence where fence material cannot be placed 6 inches below existing ground level due to presence of bedrock, large rocks or caliche substrate.

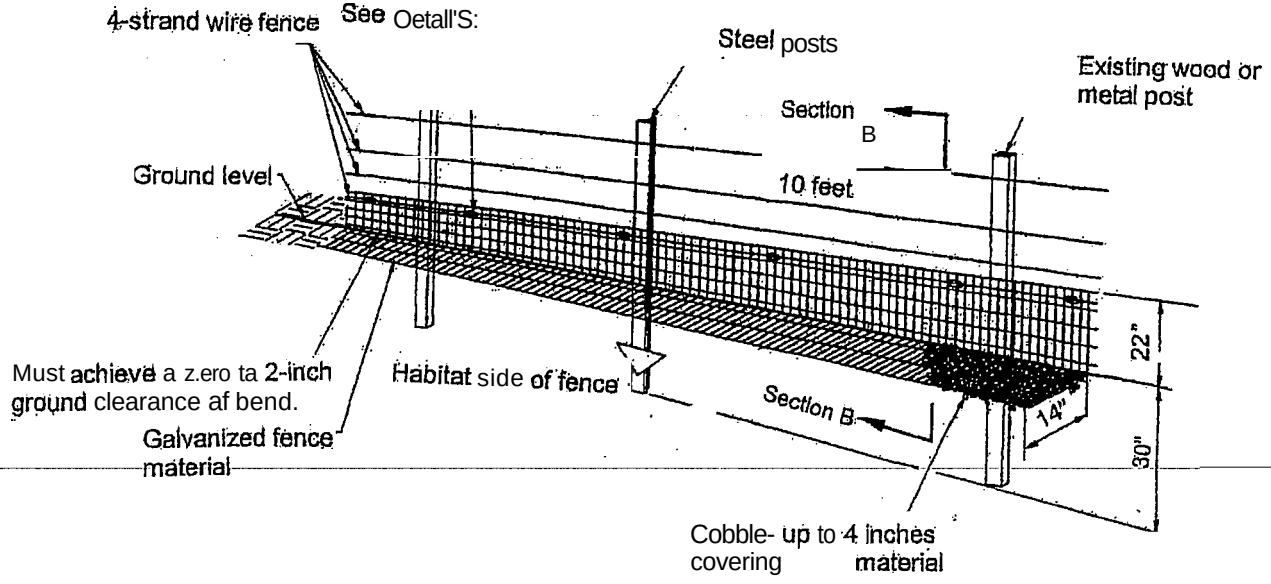
2. Ensure that the fence height above ground level is no less than 22 inches.

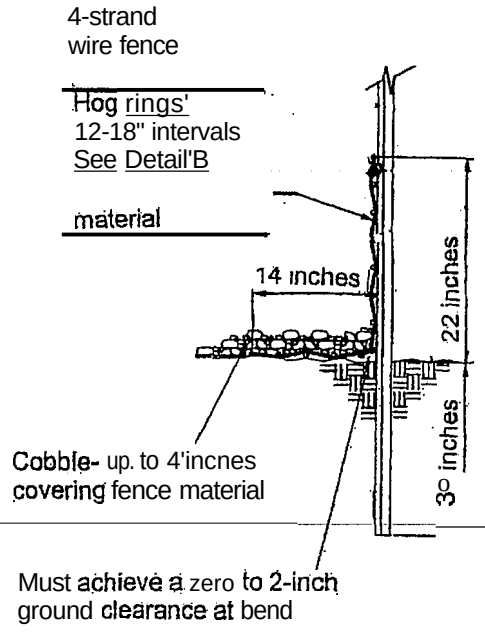
3. Ensure that there is a zero to 2-inch ground clearance at the bend.

4. Ensure that the bent portion of the fence is lying on the ground and pointed in the direction of desert tortoise habitat.

5. Cover the portion of the fence that is flush with the ground with cobble (rocks placed on top of the fence material to a vertical thickness up to 4 inches).

6. When substrate no longer is composed of bedrock or caliche, install fence using design shown above.

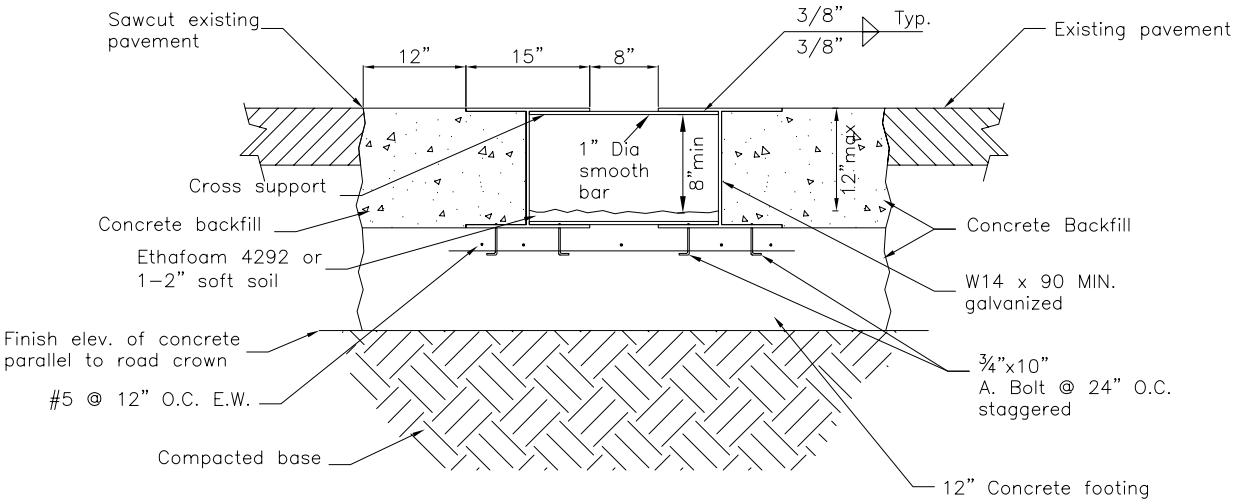




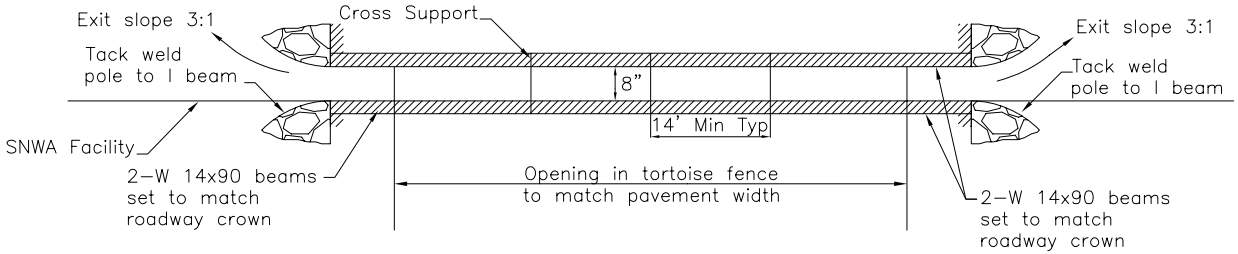
SECTIoN B

PERMANENT TORTOISE GUARD

CROSS SECTION



TOP VIEW

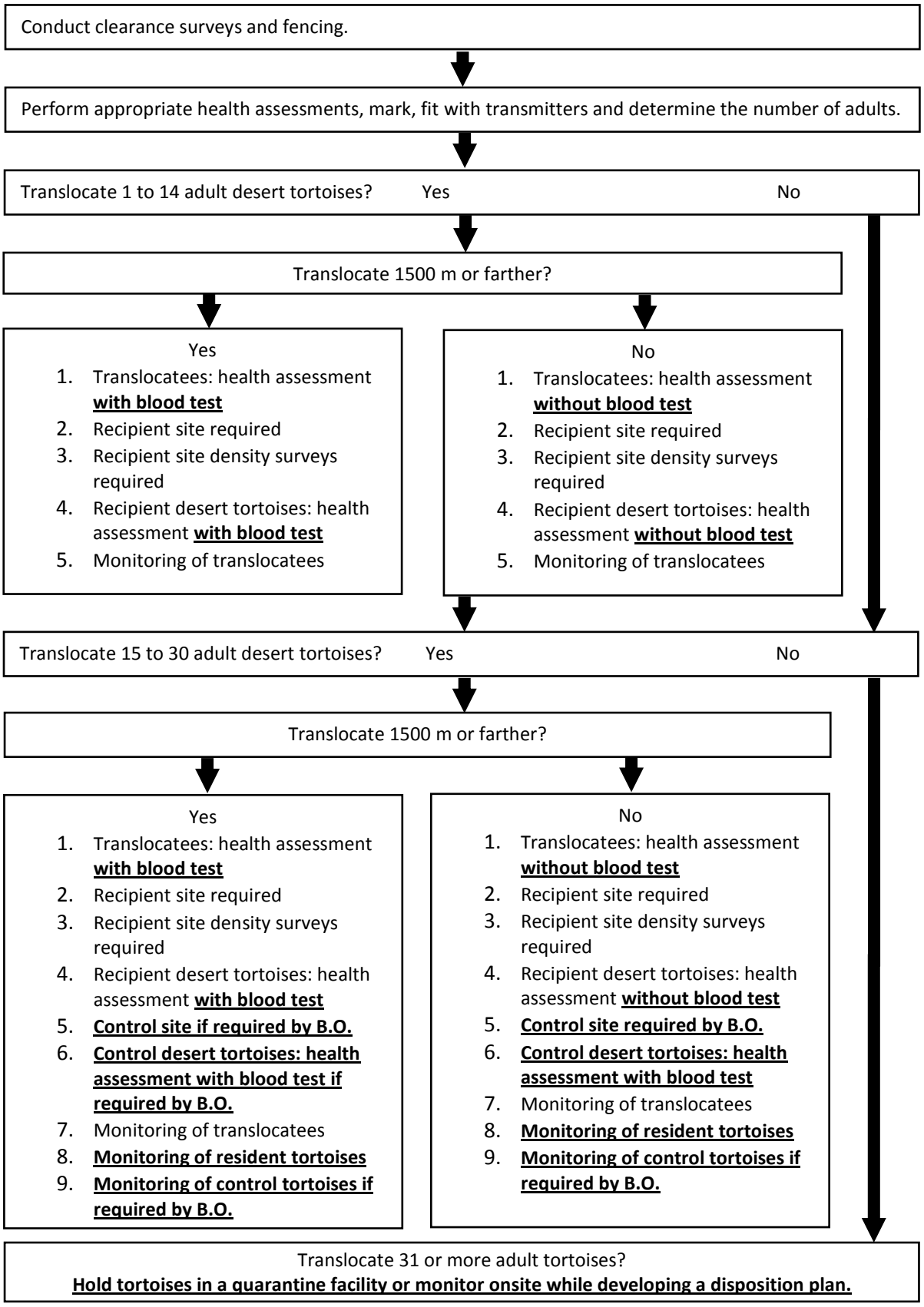


NOTE:
All metal should be galvanized per spec 05500, paragraph 3.3

Appendix B
Desert Tortoise Handling Threshold Flow Chart

Appendix B

Desert Tortoise Handling Threshold Flow Chart



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 HIDDEN HILLS SOLAR ELECTRIC GENERATING SYSTEM

Docket No. 11-AFC-02

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(Revised 9/20/12)

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DECLARATION OF SERVICE

I, Mary Finn, declare that on November 21, 2012, I served and filed copies of the attached Data Response, Set 1B-8, dated November 21, 2012. This document is accompanied by the most recent Proof of Service list, located on the web page for this project at: www.energy.ca.gov/sitingcases/hiddenhills/index.html.

The document has been sent to the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit or Chief Counsel, as appropriate, in the following manner:

(*Check all that Apply*)

For service to all other parties:

__x__ Served electronically to all e-mail addresses on the Proof of Service list;

____ Served by delivering on this date, either personally, or for mailing with the U.S. Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses marked *"hard copy required" or where no e-mail address is provided.

AND

For filing with the Docket Unit at the Energy Commission:

__x__ by sending an electronic copy to the e-mail address below (preferred method); *OR*

____ by depositing an original and 12 paper copies in the mail with the U.S. Postal Service with first class postage thereon fully prepaid, as follows:

CALIFORNIA ENERGY COMMISSION – DOCKET UNIT
Attn: Docket No. 11-AFC-02
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.ca.gov

OR, if filing a Petition for Reconsideration of Decision or Order pursuant to Title 20, § 1720:

____ Served by delivering on this date one electronic copy by e-mail, and an original paper copy to the Chief Counsel at the following address, either personally, or for mailing with the U.S. Postal Service with first class postage thereon fully prepaid:

California Energy Commission
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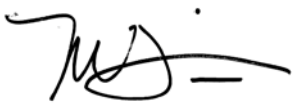
I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.



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