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California Energy Commission
Dockets Unit
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: **PSEGS 1-10 DESERT TORTOISE EXCLUSION FENCE PROJECT DESCRIPTION**
PALEN SOLAR ELECTRIC GENERATING SYSTEM
DOCKET NO. (09-AFC-7C)

Enclosed for filing with the California Energy Commission is the electronic version of **PSEGS 1-10 DESERT TORTOISE EXCLUSION FENCE PROJECT DESCRIPTION**, for Palen Solar Electric Generating System (09-AFC-7C).

Sincerely,

Marie Fleming

PSEGS 1-10 Desert Tortoise Exclusion Fence Project Description

In support of the

PETITION TO AMEND

for the

PALEN SOLAR ELECTRIC GENERATING SYSTEM

(09-AFC-7C)

Submitted to the:

California Energy Commission

Submitted by:

PALEN SOLAR HOLDINGS, LLC

Prepared by:

centerline

OCTOBER 2013

PSEGS I-10 Desert Tortoise Exclusion Fence Project Description

1.0 Introduction

In 2009, California Energy Commission (CEC) Staff proposed to add as a Condition of Certification a requirement that the Project Owner of the Palen Solar Power Project (PSPP or Approved Project) construct desert tortoise fencing along both sides of Interstate-10 extending laterally between certain specified culverts/washes. The requirement was subsequently included in Condition of Certification **BIO-9** of the Final Decision for the Approved Project.

In December 2012, Palen Solar Holdings, LLC (PSH) after acquisition of the Approved Project from the original Project Owner, filed a Petition For Amendment (Petition) to change the solar electricity generation technology from solar trough to BrightSource Energy's solar power tower technology and rename the project the Palen Solar Electricity Generating System (PSEGS). In its Petition, PSH agreed to Condition of Certification **BIO-9**. CEC Staff prepared a Preliminary Staff Assessment (PSA) and a Final Staff Assessment (FSA). Both documents include the requirement for installation of desert tortoise fencing along I-10 in Condition of Certification **BIO-9**. PSH has continued to agree to the requirement.

After the FSA was issued, CEC Staff has required PSH to prepare this Project Description of the I-10 desert tortoise fencing in order for it to prepare its own supplemental analysis of the potential impacts associated with the installation of such fencing. According to CEC Staff, the separate analysis is required for CalTrans. PSH has prepared the following Project Description at Staff's request but notes that it should be considered preliminary as PSH has not yet engaged an engineer or contractor to design and build the desert tortoise fencing. However, the following should be sufficient for CEC Staff's analysis purposes.

2.0 Location of the I-10 Desert Tortoise Fencing

The PSEGS is located just north of I-10 near the intersection of I-10 and Corn Springs Road in Eastern Riverside County. Condition of Certification **BIO-9** from the FSA, Part A provides:

1. Desert Tortoise Fencing along Interstate 10. To avoid increases in vehicular-related mortality from disruption of local movement patterns along the existing ephemeral wash systems, permanent desert tortoise-proof fencing shall be installed along the existing freeway right-of-way fencing, on both sides of Interstate 10 (I-10) between the wash on the westernmost end of the proposed PSEGS site and the easternmost wash associated with the proposed PSEGS site (labeled

as #10 and #13 in Wildlife Movement and Desert Tortoise Habitat [tn56755], AECOM 2010f). The project owner shall secure approval from California Department of Transportation (Caltrans) for the installation and maintenance of desert tortoise exclusion fencing prior to construction or repair. The tortoise fencing shall be designed to direct tortoises to existing undercrossing to provide safe passage under the freeway, and shall be inspected per 2.d. and maintained for the life of the Project.

As described in the Condition desert tortoise fencing will be installed on both sides of I-10 in the CalTrans right of way (ROW) and will modify the existing CalTrans fence where feasible. The specific alignment of the desert tortoise fence within the ROW will be determined by CalTrans. The desert tortoise fencing will begin on the eastern side of culvert/wash labeled #10 and will extend easterly to its terminus at culvert/wash labeled #13 on the figures included as Attachment A. The figures in Attachment A have been taken directly from the document referenced in Condition of Certification **BIO-9,** entitled "Wildlife Movement and Desert Tortoise Habitat", dated April 2010, AECOM. The total length of desert tortoise fencing along each side of I-10 is approximately 3 miles.

3.0 Preconstruction Activities

3.1 Civil Surveying

A licensed California surveyor will survey, stake and flag the entire length of the desert tortoise fencing on both sides of I-10. In accordance with the Biological Opinion (BO) and CEC Conditions of Certification, biological monitors will walk in front of each vehicle to ensure that desert tortoises are not harmed during transit to and from the survey area, surveying, and staking. When vehicles are traveling on roads or tracks, the monitors are not required, provided the vehicles observe the appropriate on-site speed limit.

Desert tortoises will not be handled or moved during surveying and staking if encountered, but their location will be noted and transmitters may be mounted for later relocation in accordance with BO and CEC Conditions of Certification. Surveying and staking can begin before the desert tortoise active period.

3.2 Desert Tortoise Biological Surveying

Desert tortoise surveys will be conducted prior to installation of desert tortoise fencing in accordance with the Desert Tortoise Translocation Plan, the Biological

Opinion and the CEC Conditions of Certification. Before fence installation, two biologists will walk 16-foot transects along the proposed fence line (total coverage of 32-feet), inspecting the ground surface, under shrubs and in burrows for tortoises. Burrows in this zone will be searched for tortoises, excavated, and collapsed. In accordance with the desert tortoise clearance protocols, however, the tortoise survey crew will not work more than 24 hours in advance of the fencing crew. It is estimated that the fencing crew can install between 2,000 and 3,000 feet of fence per day. Therefore, the tortoise survey team will clear no more than 4,000 feet in advance of the fence installation team.

In accordance with the BO and CEC Conditions of Certification each fence installation team will have a biological monitor assigned to it. The biological monitor will walk in front of each vehicle traveling overland (not including travel on disturbed roads) until the fence has been installed and all desert tortoises have been removed by trained specialists. It is possible that up to seven separate vehicles or pieces of equipment may be in use at the same time for fence installation and each will require monitoring, including up to five activities (clearing, excavating, installing posts, installing and stretching fence, and backfill) along with up to two vehicles moving to and from the fencing site.

3.3 Cultural Monitoring

Cultural monitoring will be performed in accordance with the Conditions of Certification.

3.4 WEAP Training

All workers performing surveying or construction activities for the I-10 desert tortoise fencing will undergo training pursuant to the Approved Worker Environmental Awareness Program (WEAP) as specified in the Conditions of Certification.

4.0 Vegetation Clearing

Vegetation clearing activities will be limited in accordance with Condition of Certification **BIO-8** to the amount necessary to install the desert tortoise fence. Vegetation clearing may include the use of track or wheel mounted equipment and when such equipment is used, biological monitoring and cultural monitoring activities will be conducted in accordance with the Conditions of Certification.

5.0 Dust Control

A water truck may be employed to provide dust control water as required by the Air Quality Conditions of Certification.

6.0 Trenching

Trenching activities will be performed by wheel or track mounted equipment capable of excavating a trench a minimum of 12 inches below final grade.

7.0 Fence Installation

The desert tortoise fencing will be designed in accordance with the U.S. Fish and Wildlife Service's Recommended Specifications for Desert Tortoise Exclusion Fencing (see Attachment B). Where necessary, fence posts will be steel t-posts in accordance with USFWS Recommended Specifications for Desert Tortoise Fencing (2005) or utilize the existing posts for the CalTrans range fence. The fence posts length will vary according to the use of existing or new t-posts. New t-posts will be a minimum of 5 feet or 60 inches, driven to a depth of at least 30 inches. Once the fence posts have been installed, the 1 inch horizontal by 2 inch vertical galvanized welded wire will be stretched and attached to existing strand wire or new strand wire such that the fabric is a minimum of 12 inches below finished grade and extends a minimum of 24 inches above final grade. Alternatively, where rocky soils or other conditions warrant, the wire will be bent and extended 14 inches to the outside of the fence (the side to exclude tortoises). The mesh will be pinned to the ground and covered with cobble according to the option 2 specifications of the USFWS. Where the existing CalTrans range fence is not present, the type of fence materials to be installed on top of the desert tortoise fence will be determined and installed in accordance with CalTrans requirements.

The desert tortoise fencing will be anchored to the abutments of the culvert structure at each wash in such a manner as to direct and allow wildlife to use the culvert and wash to travel in either direction under I-10. By anchoring the fencing to culverts, fencing will not cross washes, will allow wildlife connectivity, and will avoid the risk of fences washing out, thus minimizing maintenance.

8.0 Backfilling

The trench will be backfilled with excavation spoils and final grade established to ensure the minimum depth and height of the desert tortoise fabric complies with the USFWS requirements described above.

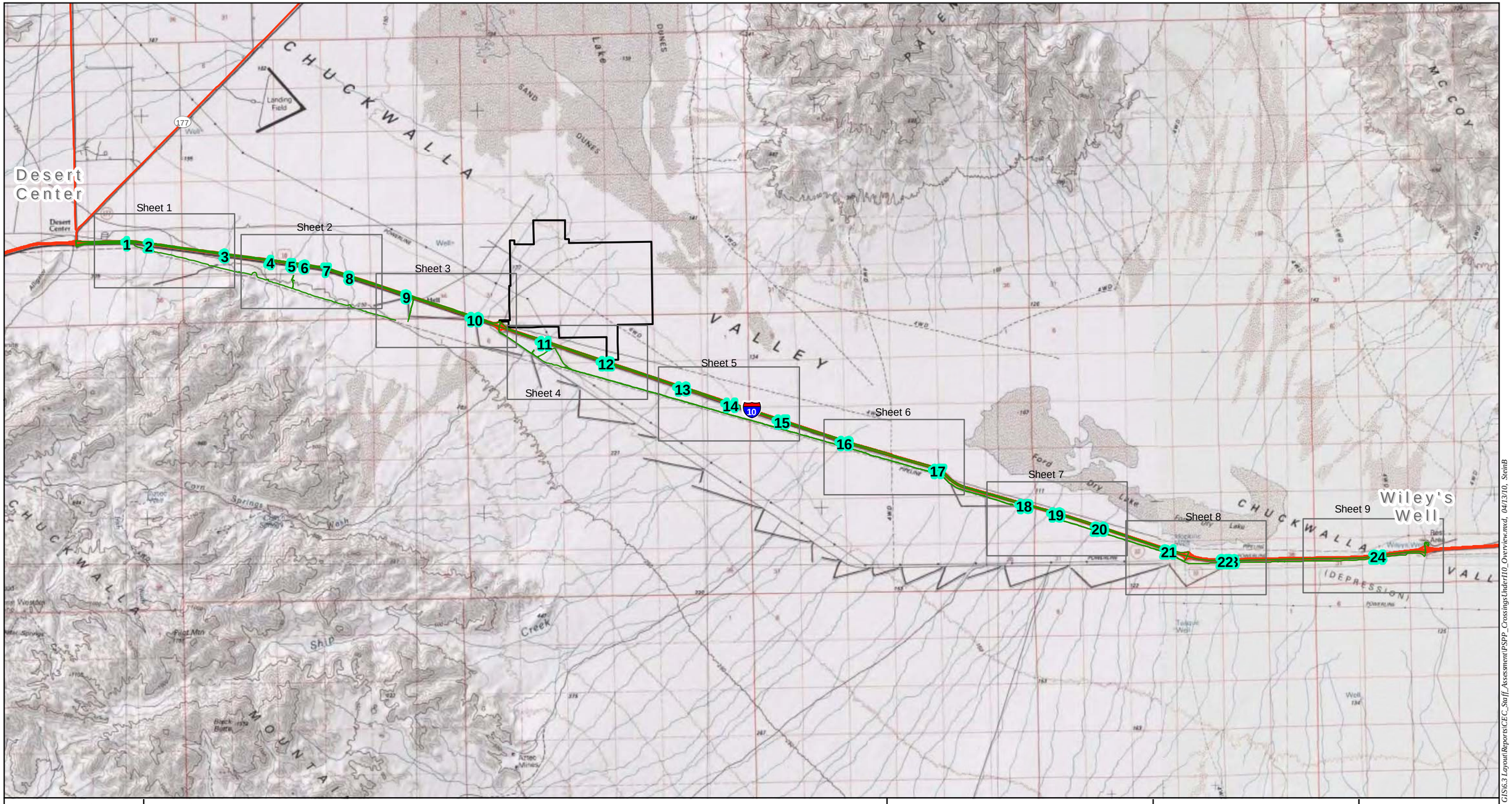
9.0 Schedule

The I-10 desert tortoise fencing will not require additional construction workers beyond those identified for the overall PSEGS Project. The I-10 desert tortoise fencing activities will likely be performed immediately after the desert tortoise fencing activities for the PSEGS facility site. PSH conservatively estimates that the total time for construction of

the I-10 desert tortoise fencing may be up to 30 days and will take place during the previously submitted PSEGS construction schedule.

ATTACHMENT A

INTERSTATE-10 DESERT TORTOISE FENCING LOCATION



Map Location

Legend

- Project Disturbance Area
- Access Routes
- Crossings Under I-10
- Map Extent

Source: ESRI 2010; AECOM 2010

N
W
E
S

1 inch = 2 miles

0 1 2 4 Miles

Palen Solar Power Project
Figure 1
I-10 Wildlife Crossing Analysis in the Project Vicinity

AECOM

Date: April 2010

Path: P:\2009\09080081 Sol Mil Palen\6.0 GIS\6.3 Layout\Reports\CEC_Staff_Assessment\PSPP_CrossingsUnderI10_Overview.mxd, 04/13/10, SteinB

Map Location

Legend

- Crossings Under I-10
- Washes Within 500-feet of Crossing
- Access Routes

Source: ESRI 2010; AECOM 2010

N
W
E
S

1 inch = 1,000 feet

0 1,000 2,000 Feet

Palen Solar Power Project
Figure 1
I-10 Wildlife Crossing Analysis in the Project Vicinity

Sheet 1

AECOM

Date: April 2010

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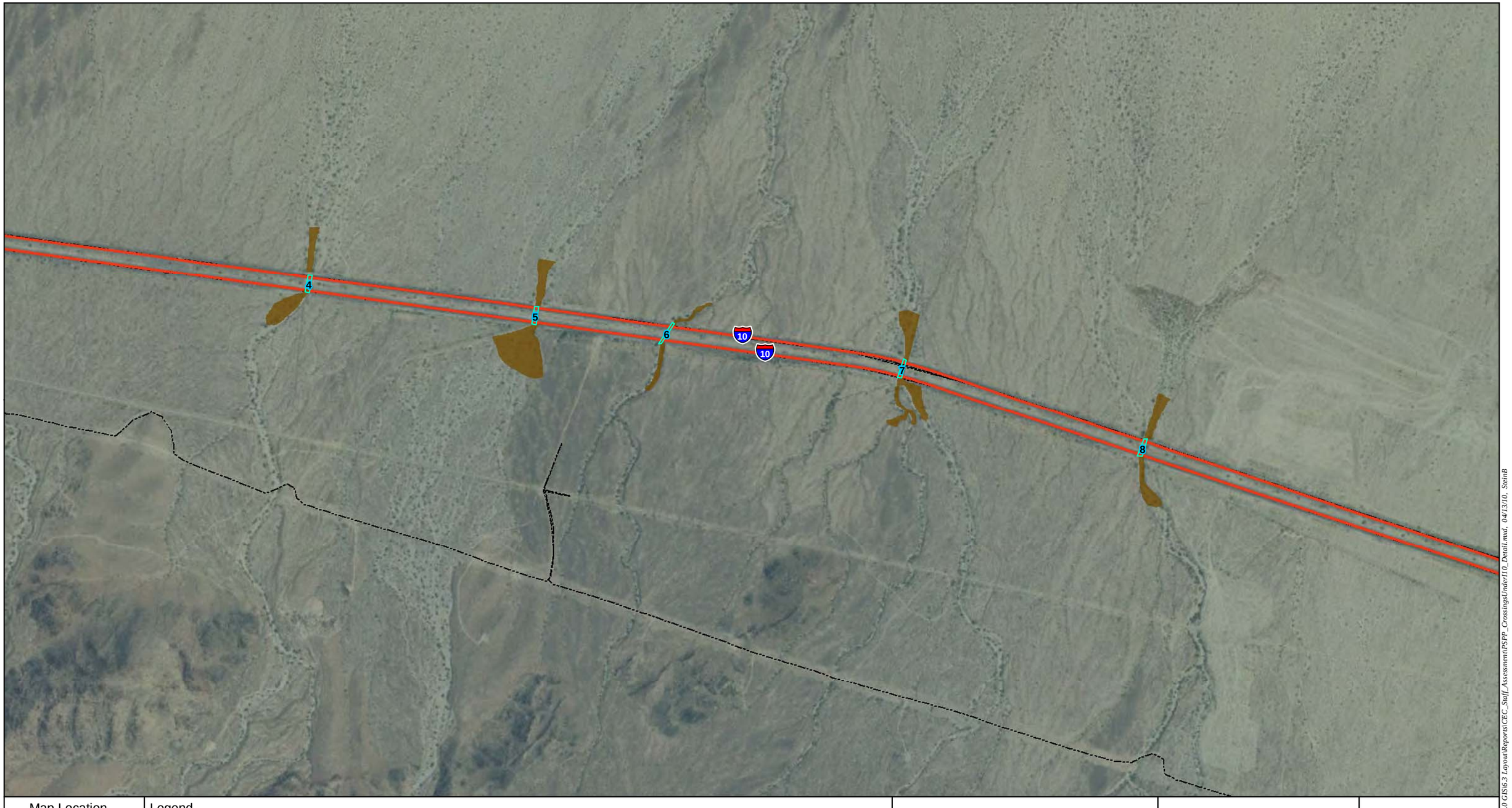

Map Location

Legend

- Crossings Under I-10
- Washes Within 500-feet of Crossing
- Access Routes

Source: ESRI 2010; AECOM 2010

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1 inch = 1,000 feet

0 1,000 2,000 Feet

Palen Solar Power Project
Figure 1
I-10 Wildlife Crossing Analysis in the Project Vicinity

Sheet 2

AECOM

Date: April 2010

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Figure 1

Map Location

Legend

- Crossings Under I-10
- Washes Within 500-feet of Crossing
- Access Routes

Source: ESRI 2010; AECOM 2010

N
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1 inch = 1,000 feet

0 1,000 2,000 Feet

Palen Solar Power Project
Figure 1
I-10 Wildlife Crossing Analysis in the Project Vicinity

Sheet 3

AECOM

Date: April 2010

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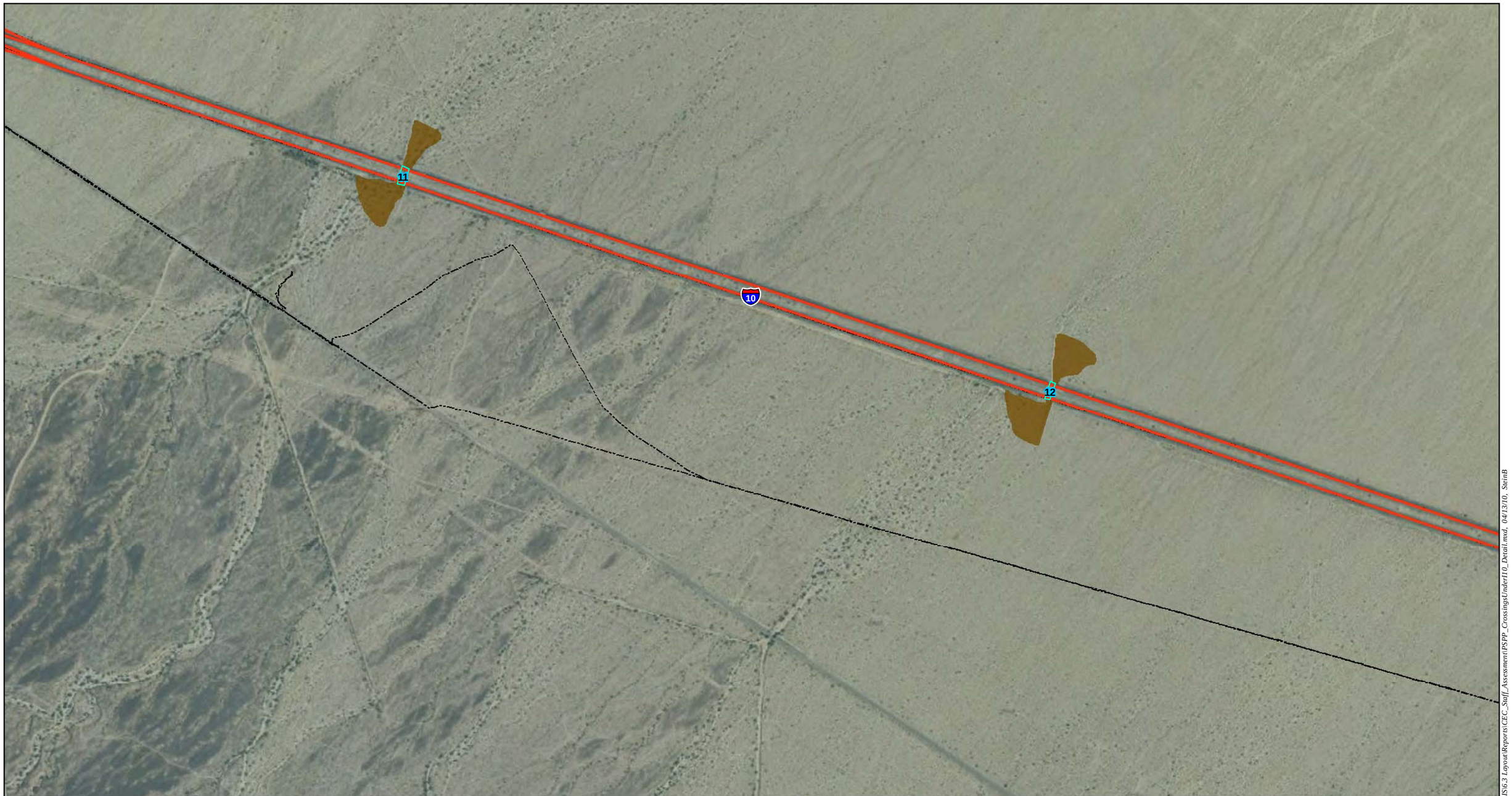

Map Location

Legend

- Crossings Under I-10
- Washes Within 500-feet of Crossing
- Access Routes

Source: ESRI 2010; AECOM 2010

N
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1 inch = 1,000 feet

0 1,000 2,000 Feet

Palen Solar Power Project
Figure 1
I-10 Wildlife Crossing Analysis in the Project Vicinity

Sheet 4

AECOM

Date: April 2010

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Map Location

Legend

- Crossings Under I-10
- Washes Within 500-feet of Crossing
- Access Routes

Source: ESRI 2010; AECOM 2010

N
W
E
S

1 inch = 1,000 feet

0 1,000 2,000 Feet

Palen Solar Power Project
Figure 1
I-10 Wildlife Crossing Analysis in the Project Vicinity

Sheet 5

AECOM

Date: April 2010

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ATTACHMENT B

USFWS DESERT TORTOISE FENCING SPECIFICATIONS

RECOMMENDED SPECIFICATIONS FOR
DESERT TORTOISE EXCLUSION FENCING
September 2005

These specifications were developed to standardize fence materials and construction procedures to confine tortoises or exclude them from harmful situations, primarily roads and highways. Prior to commencing any field work, all field workers should comply with all stipulations and measures developed by the jurisdictional land manager and the U.S. Fish and Wildlife Service for conducting such activities in desert tortoise habitat, which will include, at a minimum, completing a desert tortoise education program.

FENCE CONSTRUCTION

Materials

Fences should be constructed with durable materials (*i.e.*, 16 gauge or heavier) suitable to resist desert environments, alkaline and acidic soils, wind, and erosion. Fence material should consist of 1-inch horizontal by 2-inch vertical, galvanized welded wire, 36 inches in width. Other materials include: Hog rings, steel T-posts, and smooth or barbed livestock wire. Hog rings should be used to attach the fence material to existing strand fence. Steel T-posts (5 to 6-foot) are used for new fence construction. If fence is constructed within the range of bighorn sheep, 6-foot T-posts should be used (see New Fence Construction below). Standard smooth livestock wire fencing should be used for new fence construction, on which tortoise-proof fencing would be attached.

Retrofitting Existing Livestock Fence

Option 1 (see enclosed drawing). Fence material should be buried a minimum of 12 inches below the ground surface, leaving 22-24 inches above ground. A trench should be dug or a cut made with a blade on heavy equipment to allow 12 inches of fence to be buried below the natural level of the ground. The top end of the tortoise fence should be secured to the livestock wire with hog rings at 12 to 18-inch intervals. Distances between T-posts should not exceed 10 feet, unless the tortoise fence is being attached to an existing right-of-way fence that has larger interspaces between posts. The fence must be perpendicular to the ground surface, or slightly angled away from the road, towards the side encountered by tortoises. After the fence has been installed and secured to the top wire and T-posts, excavated soil will be replaced and compacted to minimize soil erosion.

Option 2 (see enclosed drawing). In situations where burying the fence is not practical because of rocky or undigable substrate, the fence material should be bent at a 90° angle to produce a lower section approximately 14 inches wide which will be placed parallel to, and in direct contact with, the ground surface; the remaining 22-inch wide upper section should be placed vertically against the existing fence, perpendicular to the ground and attached to the existing fence with hog rings at 12 to18-inch intervals. The lower section in contact with the ground should be placed within the enclosure in the direction of potential tortoise encounters and level with the ground surface. Soil and cobble (approximately 2 to 4 inches in diameter; can use larger rocks where soil is shallow) should be placed on top of the lower section of fence material

on the ground covering it with up to 4 inches of material, leaving a minimum of 18 inches of open space between the cobble surface and the top of the tortoise-proof fence. Care should be taken to ensure that the fence material parallel to the ground surface is adequately covered and is flush with the ground surface.

New Fence Construction

Options 1 or 2 should be followed except in areas that require special construction and engineering such as wash-out sections (see below). T-posts should be driven approximately 24 inches below the ground surface spaced approximately 10 feet apart. Livestock wire should be stretched between the T-posts, 18 to 24 inches above the ground to match the top edge of the fence material; desert tortoise-proof fencing should be attached to this wire with hog rings placed at 12 to 18-inch intervals. Smooth (barb-less) livestock wire should be used except where grazing occurs.

If fence is constructed within the range of bighorn sheep, two smooth-strand wires are required at the top of the T-post, approximately 4 inches apart, to make the wire(s) more visible to sheep. A 20 to 24-inch gap must exist between the top of the fence material and the lowest smooth-strand wire at the top of the T-post. The lower of the top two smooth-strand wires must be at least 43 inches above the ground surface.

(72-inch T-posts: 24 inches below ground + 18 inches of tortoise fence above ground + 20 to 24-inch gap to lower top wire + 4 inches to upper top wire = 66 to 70 inches).

INSPECTION OF DESERT TORTOISE BARRIERS

The risk level for a desert tortoise encountering a breach in the fence is greatest in the spring and fall, particularly around the time of precipitation including the period during which precipitation occurs and at least several days afterward. All desert tortoise fences and cattleguards should be inspected on a regular basis sufficient to maintain an effective barrier to tortoise movement. Inspections should be documented in writing and include any observations of entrapped animals; repairs needed including bent T-posts, leaning or non-perpendicular fencing, cuts, breaks, and gaps; cattleguards without escape paths for tortoises or needed maintenance; tortoises and tortoise burrows including carcasses; and recommendations for supplies and equipment needed to complete repairs and maintenance.

All fence and cattleguard inventories should be inspected at least twice per year. However, during the first 2 to 3 years all inspections will be conducted quarterly at a minimum, to identify and document breaches, and problem areas such as wash-outs, vandalism, and cattleguards that fill-in with soil or gravel. GPS coordinates and mileages from existing highway markers should be recorded in order to pinpoint problem locations and build a database of problem locations that may require more frequent checking. Following 2 to 3 years of initial inspection, subsequent inspections should focus on known problem areas which will be inspected more frequently than twice per year. In addition to semi-annual inspections, problem areas prone to wash-outs should

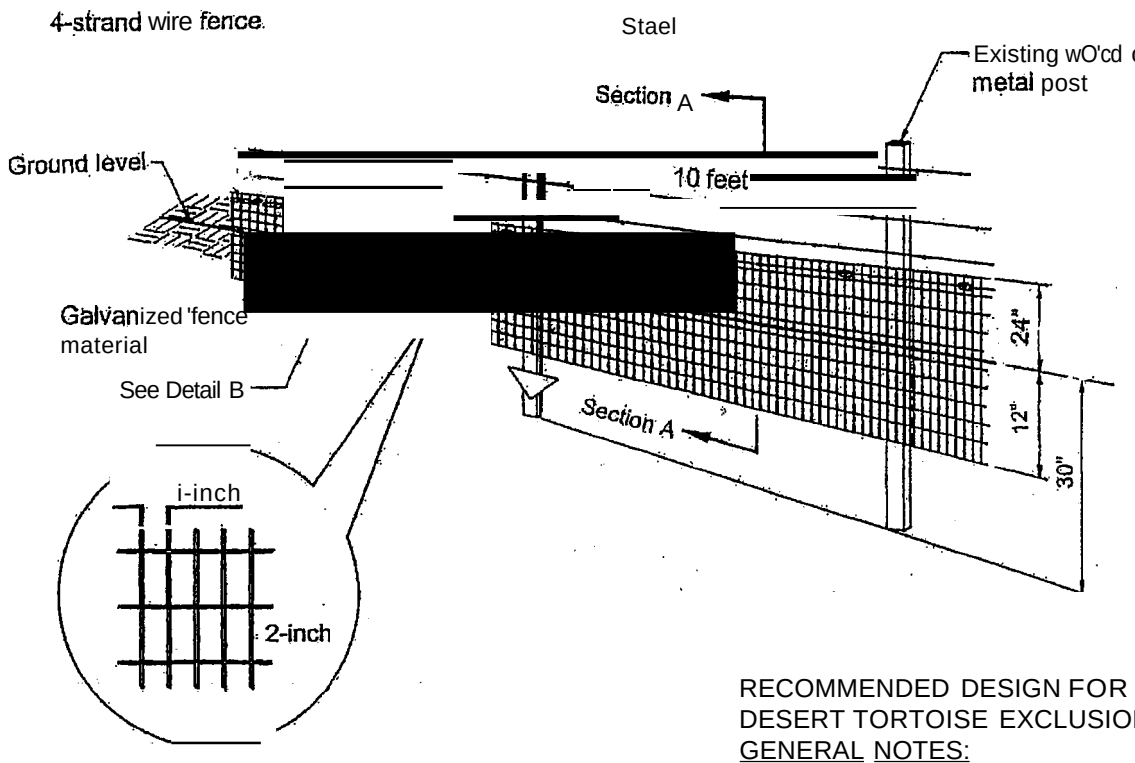
be inspected following precipitation that produces potentially fence-damaging water flow. A database of problem areas will be established whereby checking fences in such areas can be done efficiently.

REPAIR AND MAINTENANCE OF DESERT TORTOISE BARRIERS

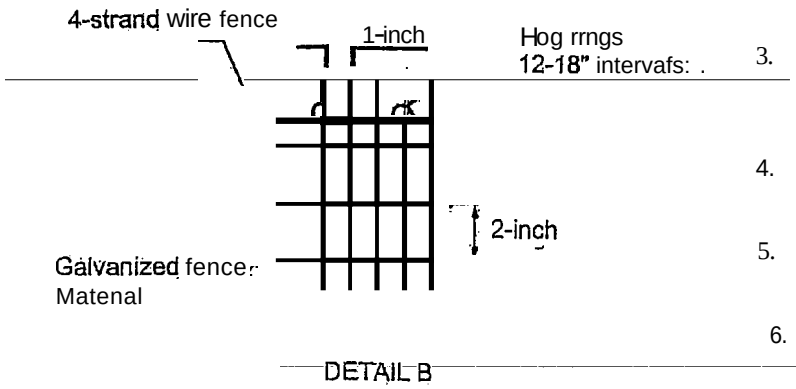
Repairs of fence wash-outs: (1) realign the fence out of the wash if possible to avoid the problem area, or (2) re-construct tortoise-proof fencing using techniques that will ensure that an effective desert tortoise barrier is established that will not require frequent repairs and maintenance.
Gaps and breaks will require either: (a) repairs to the existing fence in place, with similar diameter and composition of original material, (b) replacement of the damaged section to the nearest T-post, with new fence material that original fence standards, (c) burying fence, and/or (d) restoring zero ground clearance by filling in gaps or holes under the fence and replacing cobble over fence constructed under Option 2. Tortoise-proof fencing should be constructed and maintained at cattleguards to ensure that a desert tortoise barrier exists at all times.

All fence damage should be repaired in a timely manner to ensure that tortoises do not travel through damaged sections. Similarly, cattleguards will be cleaned out of deposited material underneath them in a timely manner. In addition to periodic inspections, debris should be removed that accumulates along the fence. All cattleguards that serve as tortoise barriers should be installed and maintained to ensure that any tortoise that falls underneath has a path of escape without crossing the intended barrier.

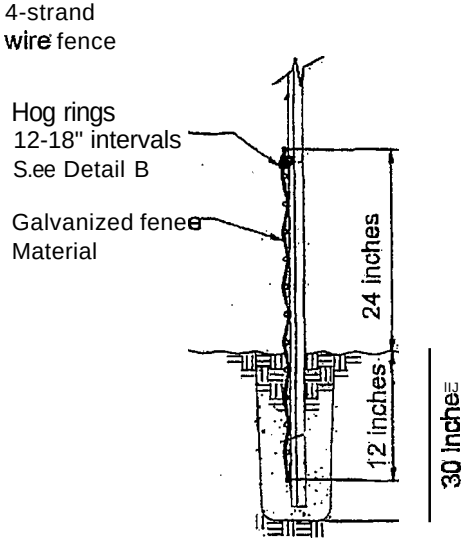
DESERT TORTOISE EXCLUSION FENCE (2005)



DETAIL A



DETAIL B



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.

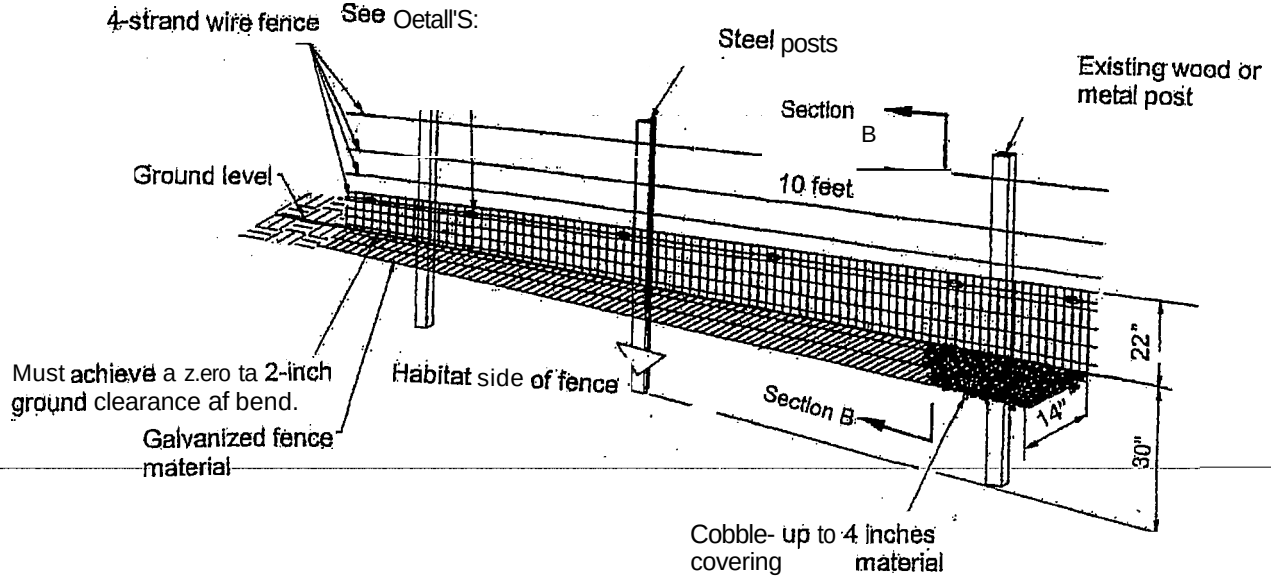
2. Ensure that the fence height above ground level is no less than 22 inches.

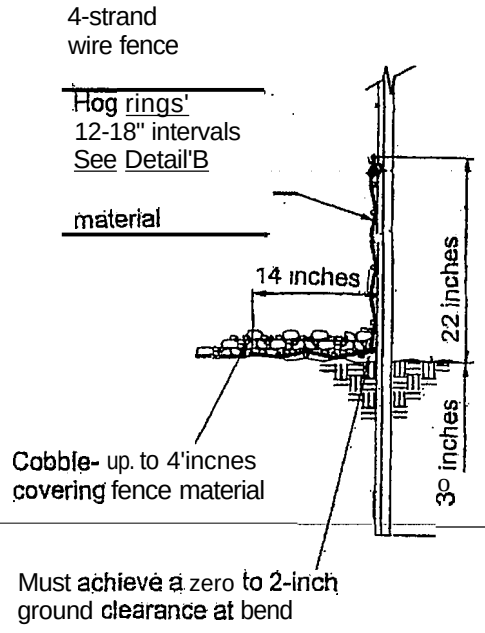
3. Ensure that there is a zero to 2-inch ground clearance at the bend.

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