

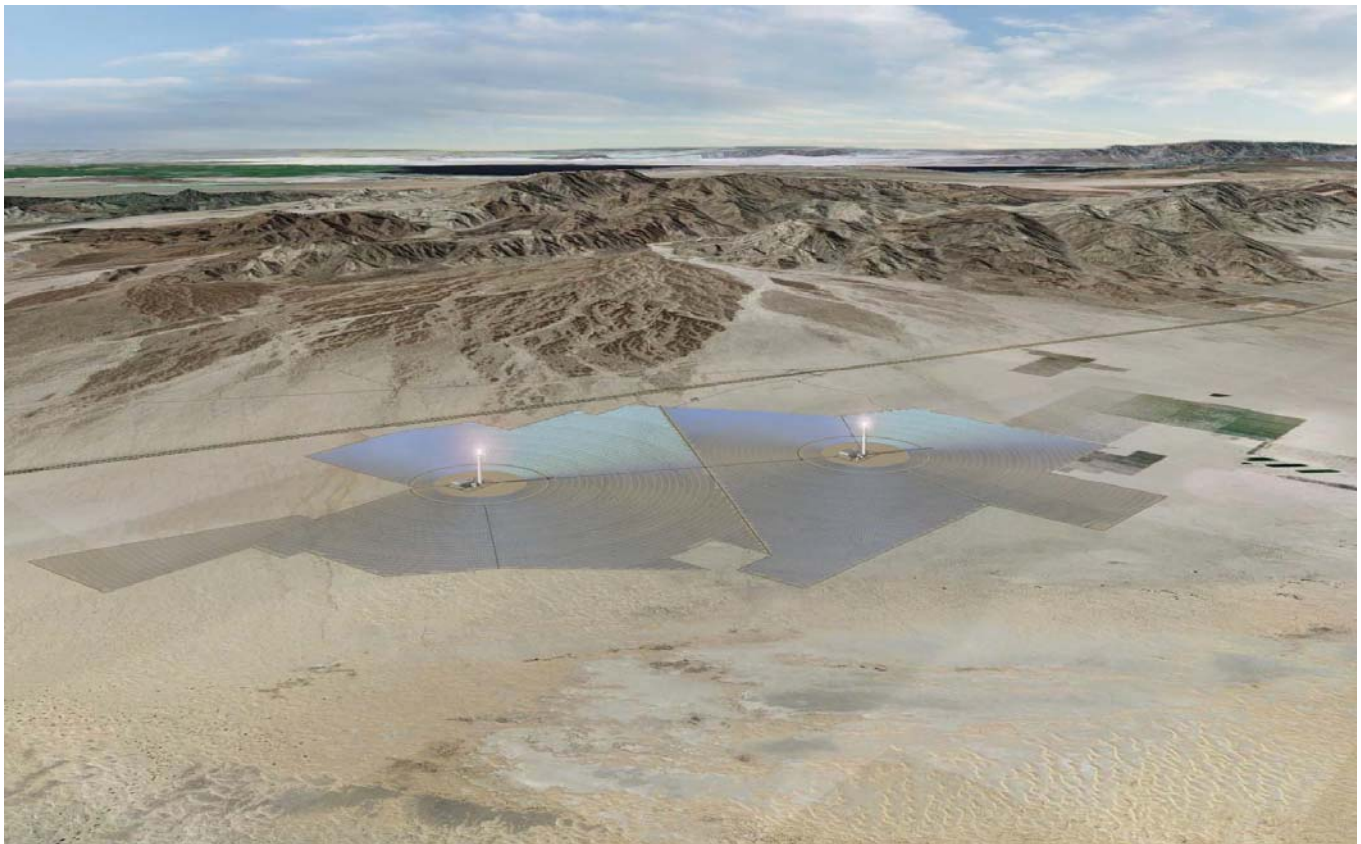
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# PALEN SOLAR ELECTRIC GENERATING SYSTEM

Final Staff Assessment - Supplement A

Amendment to the Palen Solar Power Project



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**PALEN SOLAR ELECTRIC GENERATING SYSTEM (09-AFC-7C)**  
**FINAL STAFF ASSESSMENT – SUPPLEMENT A**  
Amendment to the Palen Solar Power Project

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# PROJECT DESCRIPTION

Testimony of Christine Stora

## INTRODUCTION

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This Final Staff Assessment (FSA)-Supplement A is being published by California Energy Commission (Energy Commission) staff for the proposed amendment to the Palen Solar Power Project (PSPP). The modified project, owned by Palen Solar Holdings, LLC (PSH), is now called Palen Solar Electric Generating System (PSEGS) and proposes to change the solar thermal power-generating technology of the approved project from parabolic trough technology to solar power tower technology.

This FSA-Supplement A contains staff's independent, objective evaluation of activities occurring along the I-10 corridor related to the installation of desert tortoise fencing that is required for desert tortoise mitigation.

The FSA-Part A was published on September 10, 2013 and contains the Project Description; Biological Resources; Hazardous Materials Management; Land Use; Noise and Vibration; Public Health; Socioeconomics; Soil and Water Resources; Traffic and Transportation; Transmission Line Safety and Nuisance; Visual Resources; Waste Management; Worker Safety and Fire Protection; Facility Design; Geology and Paleontology; Power Plant Efficiency; Power Plant Reliability; and Transmission System Engineering.

The FSA-Part B was published on September 23, 2013 and contains Cultural Resources.

The FSA-Part C will contain staff's independent, objective evaluation of PSH's Petition to Amend (09-AFC-7C) for Air Quality. Part C has not been published.

The staff analyses in the FSA are similar to those normally contained in an Environmental Impact Report (EIR) required by the California Environmental Quality Act (CEQA) except they also include an engineering assessment.

For an amendment for an existing power plant over which it has regulatory oversight, the Energy Commission is the lead state agency under CEQA. The Energy Commission's certified regulatory program provides the environmental analysis that satisfies CEQA requirements. In fulfilling this responsibility, Energy Commission staff provides an independent assessment of the amendment's engineering design, evaluates its potential effects on the environment and on public health and safety, and determines whether the project, if modified, would remain in conformance with all applicable local, state, and federal laws, ordinances, regulations and standards (LORS). Energy Commission staff also recommends any needed modifications to existing mitigation measures (known as conditions of certification) in the Energy Commission Final Decision and proposes additional conditions of certification to mitigate any significant adverse environmental effects of the proposed modifications.

This FSA-Supplement A provides a description of the environmental setting of the activities occurring in the I-10 corridor. The general project description for the PSEGS amendment can be found in the **PROJECT DESCRIPTION** section provided in the FSA-Part A.

This FSA is not the decision document for these proceedings, nor does it contain findings of the Energy Commission related to environmental impacts or the project's compliance with local, state, and federal LORS. This document will serve as staff's testimony in evidentiary hearings to be held by the assigned Committee. In the evidentiary hearings, the Committee will consider the testimony presented by staff, the applicant, and intervenors, and will also consider the comments and recommendations of governmental agencies, tribes, and the public prior to submitting its proposed decision (Presiding Member's Proposed Decision [PMPD]) to the full Commission. Following a public hearing(s), the full Energy Commission will make a final decision on the proposed modifications.

## **DESCRIPTION OF THE I-10 CORRIDOR 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. A full project description of the PSEGS project can be found in the FSA-Part A.

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 must 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 **FSA Supplement A - Figure-1**),). The project owner will need to 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 will be designed to direct tortoises to existing undercrossings to provide safe passage under the freeway, and will need to be inspected per **BIO-9** item 2.d. and maintained for the life of the Project.

As described in the Condition **BIO-9**, 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 **FSA Supplement A - Figure 1**. **FSA Supplement A - Figure 1** has been taken directly from the document referenced in Condition of Certification **BIO-9**, entitled "Wildlife Movement and Desert Tortoise Habitat", dated April 2010, AECOM [tn56755]. The total length of desert tortoise fencing along each side of I-10 is approximately 9.4 miles. The typical depth of desert tortoise fencing is one foot.

## **PRECONSTRUCTION ACTIVITIES**

### **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 Energy Commission 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 travel at a reduced speed to allow avoidance of any tortoise on the roads or tracks.

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

### **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 BO and the Energy Commission 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 Energy Commission 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 authorized 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.

### **Cultural Monitoring**

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

## **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.

## **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.

## **DUST CONTROL**

A water truck will be employed to provide dust control water as required by the **AIR QUALITY CONDITIONS OF CERTIFICATION**.

## **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.

## **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 A). 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.



## **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.

## **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.

## **STAFF'S ANALYSIS OF THE I-10 CORRIDOR**

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Energy Commission technical staff reviewed the I-10 corridor activities for potential environmental effects and consistency with applicable laws, ordinances, regulations and standards (LORS). Staff has determined that the technical or environmental areas of: Air Quality, Hazardous Materials Management, Land Use, Noise and Vibration, Public Health, Socioeconomics, Soil and Water Resources, Traffic & Transportation, Transmission Line Safety and Nuisance, Visual Resources, Waste Management, Worker Safety & Fire Protection, Facility Design, Geology & Paleontology, Power Plant Efficiency, Power Plant Reliability, Transmission System Engineering, Alternatives, and Compliance Conditions and Compliance Monitoring Plan are not affected by the proposed changes, and no revisions or new conditions of certification are needed to ensure the project remains in compliance with all applicable LORS.

Staff determined that the technical areas of Biological Resources and Cultural Resources would be affected by the proposed project changes and has proposed new and/or revised conditions of certification in order to assure compliance with LORS and/or to reduce potential environmental impacts to a less than significant level. Additional analysis for Biological Resources and Cultural Resources is provided in this FSA-Supplement A.

TECHNICAL AREAS REVIEWED	STAFF RESPONSE		Additional Conditions of Certification Recommended**
	Technical Area Affected	Potential Significant Environmental Impact*	
Air Quality	Yes	Yes	No
Biological Resources	Yes	Yes	Yes
Cultural Resources	Yes	Yes	Yes
Hazardous Materials Management	Yes	Yes	No
Land Use	No	No	No
Noise and Vibration	Yes	Yes	No
Public Health	Yes	Yes	No
Socioeconomics	No	No	No
Soil and Water Resources	Yes	Yes	No
Traffic & Transportation	Yes	Yes	No
Transmission Line Safety and Nuisance	No	N/A	No
Visual Resources	No	No	No
Waste Management	No	No	No
Worker Safety & Fire Protection	Yes	Yes	No
Facility Design	No	N/A	No
Geology & Paleontology	Yes	Yes	No
Power Plant Efficiency	No	N/A	No
Power Plant Reliability	No	N/A	No
Transmission System Engineering	No	N/A	No
Alternatives	N/A	N/A	N/A
Compliance Conditions and Compliance Monitoring Plan	No	N/A	No

\*If not mitigated by currently proposed Conditions of Certification

\*\*Additional Conditions of Certification or modifications proposed in addition to those proposed in the FSA-Part A and B or other supplemental documents to the PSEGS amendment.

## AIR QUALITY

Staff finds that all staff proposed Preliminary Staff Analysis (PSA) Air Quality conditions of certification, especially **AQ-SC3** and **AQ-SC7**, which require water trucks to be used for dust control during construction and operations, would be adequate to mitigate air quality impacts associated with installing the tortoise fence along the I-10 corridor. No additional conditions of certification or changes to the proposed conditions are recommended for Air Quality for the installation of the desert tortoise fencing along the I-10 corridor.

## HAZARDOUS MATERIALS MANAGEMENT

During the construction of the I-10 corridor Desert Tortoise fencing, petroleum hydrocarbon-based motor fuels, hydraulic oil, lube oil, and diesel fuel will be used by vehicles and motor powered equipment. No acutely toxic hazardous materials will be used on site during construction of the I-10 corridor Desert Tortoise fencing, and none of these materials pose significant potential for off-site impacts as a result of the quantities on site, their relative toxicity, their physical state, and/or their environmental mobility. Any impact of spills or other releases of these materials will be limited to the site because of the small quantities involved, their infrequent use (and therefore reduced chances of release), and/or the temporary containment berms used by contractors. Petroleum hydrocarbon-based motor fuels, hydraulic oil, lube oil, and diesel fuel are all very low volatility and represent limited off-site hazards even in larger quantities. Staff finds that the existing and newly proposed or revised Conditions of Certification found in the FSA would be adequate and no revision or new conditions are needed to ensure the project remains in compliance with applicable LORS.

## NOISE AND VIBRATION

Operation of trenching and fence installation equipment could create noise that would impact sensitive receptors. Staff concludes that the proposed FSA-Part A noise conditions of certification **NOISE-1**, **NOISE-2**, **NOISE-3**, and **NOISE-6** would be adequate to address construction of the tortoise fence along the I-10 corridor. Staff proposed Conditions of Certification **NOISE-1** and **NOISE-2**, would establish a public notification and noise complaint process requiring the project owner to resolve any problems caused by construction noise. **NOISE-3** Employee Noise Control Program, as proposed, would ensure that construction workers are adequately protected from construction noise. **NOISE-6** limits the time of day that heavy equipment operation and noisy construction can occur. No additional conditions of certification or changes to the proposed conditions are recommended for Noise.

## PUBLIC HEALTH

Staff finds that the proposed PSA Air Quality conditions of certification **AQ-SC3** and **AQ-SC7** that require water trucks to be used for dust control during construction and operations would be adequate for dust suppression to mitigate the potential for construction workers or the general public to contract Valley Fever. No additional conditions of certification changes are recommended for Air Quality or Public Health for the installation of the desert tortoise fencing along the I-10 corridor.

## SOIL AND WATER RESOURCES

Staff finds that the proposed condition of certification **SOIL&WATER-1** in the FSA-Part A which would mitigate the potential storm water and sediment impacts by requiring Best Management Practices (BMPs) during project construction is adequate to address construction of the tortoise fence along the I-10 corridor. Examples of BMPs typically used during trenching activities include: wetting soil and covering stockpiled materials for wind erosion control, and use of wash stations or grated crossings that will mitigate

off-site tracking of sediment from construction vehicles. No additional conditions of certification or changes to the proposed conditions are recommended for Soil and Water Resources regarding the installation of the desert tortoise fencing along the I-10 corridor.

## **TRAFFIC & TRANSPORTATION**

Staff finds that proposed FSA-Part A Traffic and Transportation Condition of Certification **TRANS-4**, which requires the project owner to obtain all necessary encroachment permits from Caltrans for encroachment into the public right-of-way, would be adequate for addressing construction activities within the I-10 right-of-way. With this condition, the proposed project changes would have no significant Traffic and Transportation impacts.

## **WORKER SAFETY/FIRE PROTECTION**

Staff finds that the proposed PSA Air Quality conditions of certification **AQ-SC3** and **AQ-SC7** that require water trucks to be used for dust control during construction and operations, along with proposed FSA-Part A Condition of Certification **Worker Safety- 8** (enhanced dust control measures) would be adequate for dust suppression to mitigate the potential for construction workers to contract Valley Fever. Furthermore, implementation of FSA-Part A proposed Conditions of Certification **Worker Safety-1**, through **Worker Safety-4**, modifications to **Worker Safety-5** (as proposed below), **Worker Safety-8**, and **Worker Safety-12** would ensure that worker safety and fire protection during the fenced construction would be adequate. Modifications to condition of certification **Worker Safety-5** are provided below to ensure that a portable automatic external defibrillator (AED) and Trauma/First-Aid kits are available to work crews along all linears associated with the project.

Staff proposes the following edits to **Worker Safety-5**. New text is **double bold and underlined** and removed text is shown as ~~double strikethrough~~.

**WORKER SAFETY-5** The project owner shall ensure that a portable automatic external defibrillator (AED) **and Trauma/First-Aid kits sufficient to handle anticipated industrial accidents are located so as to be quickly available to work crews** on-site **and along all linears** during construction and operations and shall implement a program to ensure that workers are properly trained in its **AED use and basic first aid (which includes CPR)** and that the equipment is properly maintained and functioning at all times. During construction and commissioning, the following persons shall be trained in its **AED use and basic first aid (which includes CPR)** and **at least one of the following supervisors** shall be on-site whenever the workers that they supervise are on-site: the Construction Project Manager or delegate, the Construction Safety Supervisor or delegate, and all shift foremen. During operations, all power ~~plant~~ **plant** employees shall be trained in its **AED use and basic first aid (which includes CPR)**. The training program shall be submitted to the CPM for review and approval.

**Verification:** ~~At least 60~~ **Within 14** days prior to **after** the start of site mobilization, the project owner shall submit to the CPM proof that a portable automatic external defibrillator (AED) **and trauma/first aid kits exists on-site. At least 60 days prior to the start of site mobilization, the project owner shall provide** ~~and a copy of the training and maintenance program for review and approval.~~

## **GEOLOGY AND PALEONTOLOGY**

Attachment A provides two different designs for installing tortoise fence. Detail A, Section A indicates a trench would be dug 12 inches deep and steel T-posts would be embedded 18 inches deep in the bottom of the trench. The fence would be attached to the T-posts and the spoil material backfilled and compacted into the trench. Detail B, Section B describes how the tortoise fence should be installed if trenching is not possible. If trenching occurs below 18 inches then **PAL-5** will apply. Staff finds that the proposed condition of certification **PAL-5** listed in the FSA-Part A for Geology and Paleontology which require paleontological monitoring and reporting of project related excavations would be adequate to address construction of the tortoise fence along the I-10 corridor. No additional conditions of certification or changes to the proposed conditions are recommended for Geology and Paleontology regarding the installation of the desert tortoise fencing along the I-10 corridor.

## REFERENCES

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- CEC 2010h** – California Energy Commission/Alan Solomon (TN 56755). Wildlife Movement and Desert Tortoise Habitat Connectivity, dated May 14, 2010. Submitted to CEC/Docket Unit on May 17, 2010
- CEC 2013r** – California Energy Commission/C. Stora (TN 71434). Preliminary Staff Assessment for the Palen Solar Electric Generating System-Amendment to the Palen Solar Power Plant, dated June 28, 2013. Submitted to CEC/Docket Unit on June 28, 2013
- CEC 2013aa** – California Energy Commission/Christine Stora (TN 200442). Final Staff Assessment, dated September 10, 2013. Submitted to CEC/Docket Unit on September 10, 2013
- CEC 2013bb** – California Energy Commission/Christine Stora (TN 200564). Final Staff Assessment – Part B, dated September 23, 2013. Submitted to CEC/Docket Unit on September 23, 2013
- Palen 2013ggg** – Galati Blek/Marie Fleming (TN 200848). PSEGS 1-10 Desert Tortoise Exclusion Fence Project Description, dated October 15, 2013. Submitted to CEC/Docket Unit on October 15, 2013

# BIOLOGICAL RESOURCES STAFF ANALYSIS I-10 CORRIDOR DESERT TORTOISE FENCING

Testimony of Chris Huntley

## INTRODUCTION

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This document contains supplemental information describing potential direct and indirect impacts to biological resources from the implementation of Condition of Certification **BIO-9** (Desert Tortoise Clearance Surveys and Fencing). One component of this condition requires installation of desert tortoise exclusion fencing along an approximate five-mile section of Interstate 10 (I-10) south of the Palen Solar Electric Generating System (PSEGS) project area. Desert tortoise exclusion fencing would be installed on both sides of I-10 on California Department of Transportation (Caltrans) right-of-way (ROW) between culverts 10 and 13 (See **FSA Supplement A- Figure 1, I-10 Desert Tortoise Exclusion Fencing**) for a total of approximately 9.4 miles of fencing (approximately 4.7 miles on each side of I-10). The project owner is required to conduct all appropriate biological surveys and implement the conditions of certification required in the Final Staff Assessment (FSA) and also would be required to acquire an encroachment permit from Caltrans to install the desert tortoise exclusionary fence within its ROW. The desert tortoise exclusion fence would be maintained through a project owner- funded Maintenance Agreement between Caltrans and the Bureau of Land Management (BLM) which is also separately considering approval of the PSEGS project.

As described in the FSA-Part A (Special-status Species: Impacts and Mitigation, Desert Tortoise) construction of the PSEGS project would result in a barrier to desert tortoise in the region. The placement of perimeter fencing will exclude desert tortoise from the site and remove approximately 3,948 acres of habitat for this species. Similarly, the facility will eliminate the large washes and other ephemeral drainages within the Project Disturbance Area and would impair local wildlife movement and reduce habitat connectivity for desert tortoise. Desert tortoise traveling around the project from the north may attempt to cross I-10 at grade rather than use the underpass, increasing risk of mortality. Fencing on the west side of the project could guide desert tortoise directly onto I-10. Condition of Certification **BIO-9** was developed for the Palen Solar Power Project (PSPP) to reduce the risk of mortality by preventing tortoise from entering the roadway. While intended to benefit desert tortoises, this condition has the potential to result in direct and indirect impacts to biological resources.

Biological resources in the proposed fence location were described in the FSA-Part A and are located within the biological survey areas for the PSPP and PSEGS (See **Biological Resource Figure 2, Biological Survey Areas; Biological Resource Figure 6, Special Status Plant Species; Biological Resource Figure 7, Desert Tortoise; and Biological Resource Figure 8, Special Status Wildlife**).

## **VEGETATION AND WILDLIFE**

The proposed desert tortoise fence would be located in the same vegetation communities and land forms described in the FSA-Part A. Most of the ROW is dominated by Sonoran creosote bush scrub. Unvegetated ephemeral dry wash and dry wash desert woodland occur along many of the drainages that cross I-10. In a few locations, particularly near culvert 13 (see **Biological Resource Figure 1, I-10 Desert Tortoise Exclusion Fencing**) the soils become increasingly sand dominated.

Habitat in the proposed ROW has been subject to a series of anthropogenic disturbances. The north side of I-10 has been disturbed from historic construction of the interstate and the placement of existing fencing. The loss of hydrology from the construction of I-10 has contributed to the decline in vegetation along the ROW. Natural lands south of I-10 have been subject to similar development impacts. In a few locations drainages deposit water along the south side of I-10, which is channeled to culverts and flows under the highway. Weeds prevalent in the region occur to some degree across the entire ROW.

## **SPECIAL-STATUS SPECIES**

The proposed fence location is expected to support the same types of sensitive plant and wildlife species that were described in the FSA-Part A. Please see **Biological Resources Table 4** of the FSA-Part A for a list of special-status species that are known or could potentially occur in the project area. However, in many locations the proximity of the ROW to I-10 is expected to provide marginal habitat for many rare plants and generally express decreased habitat values for wildlife due to noise, headlights, and other physical disturbances. Disturbance tolerant species including a variety of reptiles and rodents likely occupy the area. In addition, some species including ravens, kit foxes, and coyotes would be expected to opportunistically forage on road kill along the highway.

## **WATERS OF THE STATE**

The proposed fence locations support a variety of large washes and ephemeral drainages that meet the criteria as Waters of the State. The US Army Corps of Engineers determined that the project site does not support waters meeting the definition of Waters of the United States and wetlands are not present in the project footprint (Palen 2013a).

## **Impacts and Mitigation**

Impacts from fence construction would be similar to those described for the PSEGS and include disturbance from vehicle traffic, fence placement, the spread of weeds and routine inspection activities. However, the fence would be placed along existing Caltrans ROW adjacent to I-10 where habitat conditions are expected to be of lower quality than the PSEGS site. Significant habitat disturbance has already occurred within the ROW, including a pre-existing fence erected by Caltrans and an eroded dirt access road. Fence construction may require an access road along the fence line; however, it may be possible for vehicles to access the fence line from existing entry points without



grading new roads. Worst case permanent disturbance from road construction is expected to be approximately 13.7 acres (assuming a 12 foot road approximately 9.4-miles in length).

### **Waters of the State**

Construction of the proposed desert tortoise fence would result in the same types of direct and indirect impacts to ephemeral streams and washes that occur along the ROW as the PSEGS project. Direct impacts to state jurisdictional waters would include removal of native vegetation including some areas characterized by microphyll woodland, discharge of fill, and degradation of water quality. Indirect impacts could include minor alterations to existing hydrology and the introduction of non-native, invasive plant species. Operational impacts would include routine inspection of the fence after major storms and periodic repairs.

Staff considers direct and indirect impacts to state jurisdictional waters from fence installation to be significant. However, fence construction would be temporary and would likely occur in somewhat degraded habitats. Waters of the United States do not occur on the project site or linear facilities.

**Biological Resources Table 6a** in the FSA-Part A summarizes the project's direct and indirect impacts to waters of the state and mitigation for these impacts, including compensatory mitigation. To reduce potential impacts to state waters from the installation of desert tortoise fencing the project owner would implement the same conditions identified in the FSA-Part A. No new conditions of certification are proposed. Condition of Certification **BIO-21** provides compensatory mitigation (for the project footprint, including all linears) and avoidance and minimization measures for impacts to ephemeral drainages and would reduce impacts to state waters from fence construction to less-than-significant levels.

### **Impacts to Wildlife Connectivity**

The PSEGS project and I-10 pose major barriers to wildlife movement in the region. Construction of the proposed desert tortoise fence would result in the same types of direct and indirect impacts to movement; however by design the desert tortoise fence would further impede the movement of small animals including desert tortoise from moving onto the highway. Existing wire strand fences occur on both sides of I-10 and tortoise fencing would occur on or adjacent to these fences. The placement of fencing is expected to funnel small wildlife to existing culverts and reduce the potential for road kill to small animals and desert tortoise. Implementation of desert tortoise fencing would be considered beneficial to many species of small wildlife. Implementation of standard best management practices identified in Condition of Certification **BIO-8** would reduce impacts to wildlife to less than significant levels during the installation of the fence.

## **Impacts to Sand Transport Corridor and Sand Dune Habitat**

The northeastern portion of the PSEGS is located in the Palen Dry Lake–Chuckwalla sand transport corridor. It is also likely that portions of I-10 inhibit sand transport to some degree. Construction of the proposed desert tortoise fence is not expected to result in further interference with the sand transport corridor. The 18-inch desert tortoise fence is not expected to substantially alter wind flow or sand transport above baseline conditions and impacts would be considered less than significant. No new conditions of certification are recommended.

## **Impacts to Groundwater-Dependent Vegetation from Groundwater Pumping and Project Groundwater Use**

Construction of the proposed desert tortoise fence is not expected to result in any changes to the proposed ground water pumping regime identified in the FSA-Part A. Therefore construction of desert tortoise fencing is not expected to have any impact to groundwater-dependent ecosystems above baseline conditions and impacts would be considered less than significant. No new conditions of certification are recommended.

## **Impacts to Desert Tortoise**

Construction of the proposed desert tortoise fence would result in the same types of direct and indirect impacts to desert tortoise as the PSEGS project. Direct and indirect impacts would include disturbance from vegetation clearing, trenching, vehicle traffic, fence placement, the spread of weeds, and routine inspection activities. However, the fence would be placed along the existing Caltrans ROW adjacent to I-10 where habitat conditions are expected to be lower quality than most of the PSEGS site. Within the ROW significant habitat disturbance has already occurred. By design, the fence would be placed to prevent desert tortoise from entering I-10. Construction of the desert tortoise fence would reduce indirect effects of the PSEGS by increasing the likelihood that desert tortoise moving through the area are funneled through existing culverts rather than attempting to cross the traffic lanes of I-10.

Construction of the fence may result in the loss of habitat for desert tortoise. In addition, portions of the proposed fence line would span designated Critical Habitat for this species. However, it is possible that vehicles could access portions of the fence line from existing entry points. As described above approximately 13.7 acres of degraded habitat, at most, would be subject to project disturbance. However as a requirement of Condition for Certification **BIO-12** (Desert Tortoise Compensatory Mitigation) the total acreage of disturbance would be calculated at the conclusion of fence construction .

Impacts to desert tortoise from fence construction would be significant; however, the placement of fencing in this area is expected to reduce the potential for tortoise mortality on I-10 and would be considered beneficial to the species. Post construction it is possible that some desert tortoises may be trapped between the fences and I-10. However this number is expected to be extremely low and the project owner would be required to conduct clearance surveys of the area prior to and after fence construction. Based on the existing conditions in the area and the low densities of desert tortoise in the region the potential for these impacts to occur is expected to be low.

To reduce potential impacts to desert tortoise from the installation of desert tortoise fencing the project owner would implement the same conditions identified in the FSA-Part A. No new conditions of certification are proposed. Conditions of Certification **BIO-1** through **BIO-5** require qualified biologists with authority to implement mitigation measures be on site during all construction activities. Condition of Certification **BIO-6** requires the development and implementation of a Worker Environmental Awareness Program to train all workers to minimize impacts to sensitive species and their habitats. Condition of Certification **BIO-7** requires the project owner to prepare and implement a Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) that incorporates the mitigation and compliance measures required by local, state, and federal LORS regarding biological resources. Condition of Certification **BIO-8** describes best management practices and other impact avoidance and minimization measures.

Conditions of Certification **BIO-9** through **BIO-11** are specific to desert tortoise. Condition of Certification **BIO-9**, the condition for which this analysis has been included, requires the installation and desert tortoise exclusionary fencing on portions of I-10 south of the project area and has prescriptive measures addressing pre-construction clearance surveys and monitoring. **BIO-10** requires the development and implementation of a desert tortoise relocation/translocation plan to move any desert tortoises found during fence construction. Long distance translocation is not expected to occur. During fence construction any desert tortoises detected would be moved outside the existing fence line. Condition of Certification **BIO-11** requires verification that all desert tortoise impact avoidance, minimization, and compensation measures have been implemented. Condition of Certification **BIO-12** requires acquisition and enhancement of desert tortoise habitat within the Colorado Desert Recovery Unit. Habitat impacts from fence construction would be mitigated at the same ratios identified for the PSEGS and would be included in the total acreage calculations identified in Condition of Certification **BIO-12**. Implementation of these Conditions of Certification would reduce impacts to desert tortoise to less-than-significant levels.

### **Impacts to Mojave Fringe-toed Lizard**

Construction of the proposed desert tortoise fence would result in the same types of direct and indirect impacts to Mojave fringe-toed lizard as the PSEGS project. Direct and indirect impacts would include disturbance from vegetation clearing, trenching, vehicle traffic, fence placement, the spread of weeds and routine inspection activities. However, the fence is primarily located in areas outside of core habitat for this species. Stabilized sand becomes more prevalent toward the eastern end of the proposed desert tortoise fence near culvert 13 (see **Biological Resource Figure 1, I-10 Desert Tortoise Exclusion Fencing**); however, the majority of disturbance would occur in relatively degraded areas near I-10. Fence construction is not expected to substantially alter Mojave fringe-toed lizard habitat or disrupt areas of wind-blown sand. Nonetheless construction related impacts would be significant if animals are subject to mortality or habitat degradation.

To reduce potential impacts to Mojave fringe-toed lizard from the installation of desert tortoise fencing the project owner would implement the same conditions identified in the FSA-Part A. No new conditions of certification are proposed. Impacts to Mojave fringe-toed lizards and their habitat would be mitigated to less-than-significant levels with implementation of Conditions of Certification in **BIO-6**, **BIO-8**, and **BIO-20**. Condition of Certification **BIO-6** requires the development and implementation of a Worker Environmental Awareness Program to train all workers to minimize impacts to sensitive species and their habitats. Condition of Certification **BIO-8** includes a variety of best management practices including limiting vehicle speeds in Mojave fringe-toed lizard habitat and monitoring along project access roads during fence installation. To reduce potential impacts from habitat loss associated with the fence construction the project owner will include all permanent disturbance calculations in Condition of Certification **BIO-20**. **BIO-20** requires impacts to stabilized and partially stabilized sand dunes be mitigated at a 3:1 ratio. Impacts to non-dune habitats occupied by Mojave fringe-toed lizards (sand fields vegetated with sparse creosote bush scrub) would be mitigated at a ratio of 1:1.

### **Impacts to Couch's Spadefoot Toad**

It is possible that the proposed fence line could span areas that contain ponded water for long enough periods of time to support Couch's spadefoot toads. If present, construction of the proposed desert tortoise fence would be expected to result in the same types of direct and indirect impacts as the PSEGS project. Impacts to this species should it occur would be significant particularly during trenching. To reduce potential impacts to this species during fence construction to less than significant levels the project owner would implement Condition of Certification **BIO-8**, which requires a variety of best management practices including limiting vehicle speeds, salvaging wildlife, and monitoring during construction. In addition, construction of the desert tortoise fence would reduce the potential for road related mortality to Couch's spadefoot toads by restricting access to I-10. No new conditions of certification are recommended.

### **Western Burrowing Owl**

Burrowing owl and their sign (feathers, whitewash, and/or pellets) were detected on the PSEGS project site and this species is expected to occur along the desert tortoise fence ROW. If present, construction of the proposed desert tortoise fence would result in the same types of direct and indirect impacts to burrowing owls as the PSEGS project. Direct and indirect impacts would include disturbance from vegetation clearing, trenching, vehicle traffic, fence placement, noise, dust, the spread of weeds, and routine inspection activities. During the breeding season active burrows could be subject to disturbance which could result in nest failure or the abandonment of burrows. Impacts to this species would be considered significant absent mitigation.

The proposed desert tortoise fence would be placed along existing Caltrans ROW adjacent to I-10 where habitat conditions are expected to be of lower quality than the PSEGS site. Birds nesting in this area would be subject to routine disturbance from vehicle traffic, noise, vehicle lighting. Birds using this area may have an increased risk from road kill if flushed from burrows. Staff expects the potential for burrowing owls to

occur on the proposed fence alignment to be relatively low. To reduce impacts to this species the project owner would implement the same conditions identified in the FSA-Part A. No new conditions of certification are proposed. Condition of Certification **BIO-18** would require the project owner to prepare and implement a Burrowing Owl Mitigation Plan that would avoid or minimize impacts to burrowing owls and would reduce impacts to less-than-significant levels. Impacts to foraging habitat would be reduced to less-than-significant levels by implementation of Condition of Certification **BIO-12**, which requires acquisition of desert tortoise compensatory mitigation lands.

### **Golden Eagle**

Golden eagles are known from the area and would be expected to periodically forage along the I-10 corridor. Construction of the proposed desert tortoise fence would result in the same general types of direct and indirect impacts to golden eagles as the PSEGS project. Fence construction is not expected to result in direct impacts to nesting eagles but may have indirect effects to birds foraging in the area. However, the existing level of disturbance along the ROW likely reduces the potential for disturbance to this species. The fence is not expected to pose a collision risk and the risk from accidental road kill may decrease if the fence reduces the number of small prey items golden eagles may scavenge from the highway. Operational impacts are not expected to occur. To reduce impacts to less than significant levels the project owner would implement the same conditions identified in the FSA-Part A. No new conditions of certification are proposed. Potential impacts to golden eagle foraging habitat would be reduced to less-than-significant levels by implementation of Conditions of Certification **BIO-12** (acquisition of desert tortoise compensatory mitigation lands), **BIO-21** (acquisition of state waters compensatory mitigation lands), and **BIO-14** (implementation of a weed management plan).

### **Special-status Avian Species**

The same types of special status birds identified in the FSA-Part A have the potential to occur in or near the proposed desert tortoise fence ROW. If present, construction of the proposed desert tortoise fence would result in the same types of direct and indirect impacts to birds as the PSEGS project. Direct and indirect impacts would include disturbance from vegetation clearing, trenching, vehicle traffic, fence placement, noise, dust, and the spread of weeds and routine inspection activities. During the breeding season nesting birds could be subject to disturbance which could result in nest failure or abandonment. Impacts to nesting special status birds would be considered significant absent mitigation.

Nesting birds are expected to occur in lower numbers along I-10 compared to more remote areas of the desert. Vehicle noise, the existing level of disturbance along the ROW, and existing vegetation types likely reduce the potential for disturbance to nesting species. The fence is not expected to pose a substantial collision risk and operational impacts are not expected to be significant. To reduce impacts to special status birds the project owner would implement the same conditions identified in the FSA-Part A. No new conditions of certification are proposed.

Condition of Certification **BIO-8** includes impact avoidance and minimization measures; **BIO-15**, describes guidelines for performing pre-construction surveys; and **BIO-16a**, provides funding toward habitat restoration and enhancement. These conditions would reduce impacts to special status birds from construction of the desert tortoise fencing to less than significant levels. Condition of Certification **BIO-12**, the desert tortoise compensatory mitigation plan and **BIO-21**, mitigation for impacts to state waters, would offset the loss of habitat for these species.

## **Bats**

Construction of the proposed desert tortoise fence is not expected to result in substantial risks to bats. Construction related impacts would be similar to those identified in the FSA-Part A. The primary risk to bats would include vehicle strikes and disturbance to day or night roosts. The proposed desert tortoise fence would be placed within close proximity to approximately four culverts and a variety of desert wash vegetation that support potential bats roosts. Disturbance to roost sites could flush bats from cover leading to injury or mortality. These impacts would be considered significant absent mitigation. To reduce impacts to less than significant levels the project owner would implement the same conditions identified in the FSA-Part A. No new conditions of certification are recommended.

Conditions of Certification **BIO-1** through **BIO-8** would minimize project impacts to habitat, require worker training to minimize disturbances, and include pre-construction surveys and biological monitoring. Condition of Certification **BIO-12**, the desert tortoise compensatory mitigation plan and **BIO-21**, mitigation for impacts to state waters, would offset the loss of habitat for sensitive bats.

## **American Badger and Desert Kit Fox**

American badgers and desert kit fox are known from the area and would be expected to occur along the proposed desert tortoise fence alignment. They may also occur along access roads or near laydown areas. Construction of the proposed desert tortoise fence would result in the same types of direct and indirect impacts to American badger and desert kit fox as the PSEGS project. Direct and indirect impacts would include disturbance from vegetation clearing, trenching, vehicle traffic, fence placement, the spread of weeds and routine inspection activities. Clearing or grading could kill or injure animals by crushing individuals with heavy equipment or could entomb them within a den. Construction activities could also result in disturbance or harassment of individuals. These impacts would be considered significant absent mitigation.

To reduce impacts to less than significant levels the project owner would implement the same conditions identified in the FSA-Part A. No new conditions of certification are recommended. Condition of Certification **BIO-17** requires development of an American Badger and Desert Kit Fox Mitigation and Monitoring Plan. This condition requires pre-construction surveys, provides avoidance mechanisms, and requires the implementation of avoidance buffers should a den be discovered. Condition of Certification **BIO-12**, the desert tortoise compensatory mitigation plan and **BIO-21**, mitigation for impacts to state waters, would offset the loss of habitat for these species.

In addition, although both these species are capable of scaling the desert tortoise fencing, the fencing may reduce the potential for road kill along I-10.

### **Nelson's Bighorn Sheep**

The PSEGS site is not within any of the bighorn sheep connectivity corridors identified in the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO); in addition the NECO identifies I-10 as a barrier to bighorn sheep movement (BLM CDD 2002). The proposed desert tortoise fencing would be located adjacent to I-10 and would not be expected to pose an additional barrier to bighorn sheep or disrupt the movement of this species. Big horn sheep may forage in the alluvial plain south of I-10 but the project is not expected to disrupt or limit foraging in this area. Construction of the proposed desert tortoise fence is not expected to result in any substantial impacts to big horn sheep. Therefore construction of desert tortoise fencing is not expected have any significant impacts to this species. No new conditions of certification are recommended.

### **Impacts to Special-Status Plants**

Rare plants have the potential to occur on the desert tortoise fence ROW. Construction of the proposed desert tortoise fence would result in the same types of direct and indirect impacts to sensitive plants as the PSEGS project. Direct and indirect impacts would include disturbance from vegetation clearing, trenching, fence placement, fugitive dust, and the spread of weeds. The types of plants that would be impacted are similar to the PSEGS project with the exception that dune associated species are less likely to occur within the proposed ROW. Stabilized sand becomes more prevalent toward the eastern end of the ROW near culvert 13 (see **Biological Resource Figure 1, I-10 Desert Tortoise Exclusion Fencing**); however, the majority of disturbance would occur in relatively degraded areas near I-10. If present, construction related impacts to rare plants would be significant. To reduce potential impacts to rare plants from the installation of desert tortoise fencing the project owner would implement the same conditions identified in the FSA-Part A. No new conditions of certification are proposed.

Impacts to rare plants would be mitigated to less-than-significant levels with implementation of Conditions of Certification **BIO-8**, **BIO-12**, **BIO-19**, and **BIO-20**. Condition of Certification **BIO-8** provides a series of avoidance and minimization actions to protect sensitive species; Condition of Certification **BIO-12**, the desert tortoise compensatory mitigation plan, would off-set the loss of habitat for many plants; **BIO-19** provides specific requirements for sensitive plant surveys, avoidance mechanisms, and compensatory mitigation requirements should rare plants be found in the alignment. Condition of Certification **BIO-20**, the Mojave fringe-toed lizard compensatory mitigation plan, would require the preservation of important dune habitat that would benefit dune dependent species.

## **Biotic Soil Crusts and Other Carbon Sinks**

Construction of the proposed desert tortoise fence is not expected to result in any substantial impacts to biotic soil crusts or other carbon sinks that were not identified in the FSA-Part A. Project impacts would be minimal and limited to an area that has been subject to historic disturbance from road construction. In the FSA-Part A staff concluded there is currently no acceptable means to quantify the carbon sequestration that occurs on the project site. Therefore staff concluded that significant impacts to these resources were speculative at this time. No new conditions of certification are recommended at this time; however the implementation of Conditions of Certification **BIO-12**, the desert tortoise compensatory mitigation plan and **BIO-20**, the Mojave fringe-toed lizard compensatory mitigation plan would off-set impacts to biotic soil crusts.

## **Cacti, Yucca, and Native Trees**

The proposed desert tortoise fence ROW may support a variety of cacti, succulents and native trees that are protected by the local ordinances. If present, construction of the proposed desert tortoise fence would result in the same types of direct and indirect impacts as the PSEGS project. Direct and indirect impacts would include disturbance from vegetation clearing, trenching, fence placement, fugitive dust, and the spread of weeds. To reduce potential impacts to cacti, succulents and native trees the project owner would implement the same conditions identified in the FSA-Part A. No new conditions of certification are proposed. Impacts would be mitigated to less-than-significant levels with implementation of Conditions of Certification **BIO-8** and **BIO-14**. Condition of Certification **BIO-8** provides a series of avoidance and minimization actions to protect sensitive species, and Condition of Certification **BIO-14**, the weed management plan would reduce the spread on invasive plants in the region.

## **CUMULATIVE IMPACT ANALYSIS**

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The disturbance associated with implementation of Condition of Certification **BIO-9** (Desert Tortoise Clearance Surveys and Fencing) would be extremely limited and does not result in any new or unanticipated impacts to biological resources. On the contrary, **BIO-9** is expected to reduce long term operational impacts of the project (i.e., road kill and injuries sustained from crossing I-10) to desert tortoise and other small species of wildlife. Construction of the proposed desert tortoise fence is not expected to combine with the effects of past, present, and foreseeable future projects or contribute to significant cumulative impacts to biological resources.

## **CONCLUSIONS**

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Construction of the desert tortoise exclusion fencing on both sides of I-10 is not expected to result in any new or unmitigated impacts to biological resources. Disturbance would largely occur in degraded habitat within the Caltrans ROW where functional values for many species have been reduced due to the proximity of the I-10. In addition, placement of desert tortoise fencing would reduce impacts for many species including snakes, lizards, small mammals, and desert tortoise by restricting access to I-



10. With the implementation of the same conditions of certification for the PSEGS, impacts to biological resources would be reduced to less than significant levels.

Staff proposes the following edits to **BIO-9** (Desert Tortoise Clearance Surveys and Fencing). New text is double bold and underlined and removed text is shown as ~~double strikethrough~~.

## **BIO-9**

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 Project~~ **PSEGS** site and the easternmost wash associated with the ~~proposed Project~~ **PSEGS** site (labeled as #10 and ~~#13~~<sup>#12</sup> 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. ~~If either Reconfigured Alternative 2 or Reconfigured Alternative 3 is selected, the fence shall extend from the westernmost wash (#10) to the wash immediately east of the alternative disturbance area (#13).~~ 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. **The project owner shall conduct any necessary biological resource surveys required by the land management entity (BLM or Caltrans) to acquire an encroachment permit and fund a maintenance agreement with Caltrans.**

## REFERENCES

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Palen 2013a – Galati Blek/Scott A. Galati (TN 69471). Supplement No. 1 to Support Palen Solar Holdings, LLC's Petition for Amendment, dated February 8, 2013. Submitted to CEC/C. Stora on February 14, 2013

BLM CDD 2002. Bureau of Land Management California Desert District and California Department of Fish and Game Inland, Desert, and Eastern Sierra Region. Proposed Northern and Eastern Colorado Desert Coordinated Management Plan and Final EIS, July 2002.

AECOM 2010f – AECOM Environment (TN: 56755): Wildlife Movement and Desert Tortoise Habitat, dated 5/14/2010.

# **CULTURAL RESOURCES STAFF ANALYSIS I-10 CORRIDOR DESERT TORTOISE FENCING**

Testimony of Matthew Braun and Michael McGuirt

## **DESERT TORTOISE EXCLUSION FENCING (BIO-9)**

### **INTRODUCTION**

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This document contains supplemental information describing potential direct and indirect impacts to cultural resources from the implementation of Condition of Certification **BIO-9** (Desert Tortoise Clearance Surveys and Fencing). One component of this condition requires installation of desert tortoise exclusion fencing along an approximate five-mile section of I-10, south of the Palen Solar Electric Generating Systems (PSEGS) project area. Desert tortoise exclusion fencing would be installed on both sides of I-10 on California Department of Transportation (Caltrans) right-of-way (ROW) between culverts 10 and 13 (See **FSA Supplement A - Figure 1**) for a total of approximately 10 miles of fencing. Hereafter, the area where the desert tortoise exclusion fencing will be placed will be referred to as the Desert Tortoise Fence project area of analysis (PAA).

The environmental review in this supplement addresses the potential impacts of the desert tortoise exclusion fencing installation. The project owner would be required to acquire an encroachment permit from Caltrans to install the desert tortoise exclusionary fence within its ROW, and to obtain any necessary fieldwork or right-of-way approvals from the US Department of Interior Bureau of Land Management (BLM) for fence construction and installation that may occur on BLM-owned land. The desert tortoise exclusion fence would be maintained in perpetuity through a project owner-funded Maintenance Agreement between Caltrans and the BLM.

### **LAWS, ORDINANCES, REGULATIONS, AND STANDARDS**

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Projects subject to the Energy Commission's licensing process are reviewed and conditions of certification are imposed, as needed, to ensure compliance with all applicable local, state, and federal laws, ordinances, regulations, and standards (LORS); plans; and policies that are applicable to the proposed project and related facilities, or would be applicable but for the Energy Commission's exclusive authority. Cultural Resources Table 1 in the FSA-Part B presents applicable LORS for the PSEGS project; however, because the desert tortoise fencing will be located in the Caltrans ROW and on BLM land, three additional LORS apply to the desert tortoise fencing.

**Cultural Resources FSA Supplement A - Table 1  
Applicable Laws, Ordinances, Regulations, and Standards (LORS)**

<b>Applicable LORS</b>	<b>Description</b>
Caltrans Environmental Handbook, Volume 2, <i>Cultural Resources</i>	This document outlines the policies and procedures to which Caltrans Professionally Qualified Staff (PQS) must adhere in order to comply with applicable federal and state laws, and to hold up Caltrans' portion of the Section 106 Programmatic Agreement (see below). Also addressed in this Handbook are policies and procedures regarding Native American Consultation, the identification of cultural resources, and the evaluation and treatment of prehistoric, historic, and built-environment resources.
Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act as it Pertains to the Administration of the Federal-Aid High-way Program in California	This document outlines the responsibilities for the involved agencies, and establishes professional qualification standards, procedures for consultation with Indian tribes and other consulting parties, procedures for the identification and evaluation of historic properties, and procedures for findings of effect, the assessment of effects, and the resolution of these effects. A phased approach to identification, evaluation and findings of effect is also outlined in this document, in addition to the treatment and disposition of Native American human remains and associated funerary items, the curation of artifacts, treatment of post-review discoveries, and documentation procedures.
Bureau of Land Management 8100 Series Manuals	The sections in this series of manuals establish the policies and procedures for cultural resource management by the BLM. Sections include, <i>The Foundations for Managing Cultural Resources, Identifying and Evaluating Cultural Resources, Tribal Consultation Under Cultural Resource Authorities, Planning Uses for Cultural Resources, Protecting Cultural Resources, Permitting Uses of Cultural Resources, Preserving Museum Collections, and Interpreting Cultural Resources for the Public.</i>

**DESERT TORTOISE FENCE PAA**

The specific amount of ground-disturbance necessary for the installation of the desert tortoise exclusion fence has not been determined. Staff is assuming that direct ground disturbance will impact a 15-foot wide corridor on either side of the I-10 freeway, i.e., a 5 foot wide corridor of ground disturbance for the fence, and a 5 foot buffer on either side of that corridor to account for disturbance created by machinery and ground crews. However, the PAA encompasses a buffer area on both sides of the fence in order to ensure that any sites that could potentially be impacted by construction of the fencing will be included in this analysis. The buffer on the southern fence extends approximately 300 feet south of the proposed fencing and parallels the fence for five miles. On the northern fence, the buffer extends approximately 300 feet north of the proposed fencing,

except in the segment of the fence that parallels the PSEGS project area, where the buffer extends north to the PSEGS project fence. The estimated acreage for the Desert Tortoise Fence PAA is about 181 acres.

## GEOMORPHOLOGY AND POTENTIAL FOR BURIED DEPOSITS

Based on geoarchaeological investigations conducted by Nials (2013:24, 45), the Desert Tortoise Fence PAA appears to be located on Quaternary intermediate alluvium, estimated to be between 200,000 and 2,000 years old (FSA 4.3-13). The potential for buried deposits is assumed to be low in this area; however, monitoring in this landform was recommended by Nials (2013:24) because this portion of the Corn Springs Wash Alluvial fan has not been tested.

## PREVIOUS SURVEYS WITHIN THE DESERT TORTOISE FENCE PAA

Five previous studies have been conducted in the Desert Tortoise Fence PAA. These are summarized in the **Cultural Resources FSA Supplement A - Table 2**. It appears that most, if not all, of the Desert Tortoise Fence PAA has been previously surveyed; however, portions have not been surveyed for over 20 years, and thus do not meet current survey standards and would need to be resurveyed.

**Cultural Resources FSA Supplement A - Table 2  
Previous Surveys in the Desert Tortoise Fence (DTF) PAA**

Report No.	Date	Within DTF PAA	Author(s)	Title
0190	1981	Y	Hammond	Archaeological Survey Report For the Proposed Safety Project on Interstate Route 10 Between Chiraco Summit and Wiley's Well Overcross Riverside County, California.
2210	1986	Y	Underwood, Cleland, Woods, and Apple	Preliminary Cultural Resources Survey Report for the US Telecom Fiber Optic Cable Project from San Timoteo Canyon, California to Socorro, Texas: The California Segment.
7790	2003	Y	Schaefer	A Class II Cultural Resources Assessment for the Desert-Southwest Transmission Line, Colorado Desert, Riverside and Imperial Counties, California.
8181	2008	Y	Martinez, Sikes, and Arrington	Cultural Resources Study Regarding Motorized Vehicle Routes of Travel on Lands Managed by the Bureau of Land Management California Desert District in Imperial, Riverside, and San Bernardino Counties, California.
Unknown	2009	Y	Tennyson and Apple	Cultural Resources Class III Report Prepared for the Proposed Palen Solar Power Project (PSPP), Riverside County, California.

## PREVIOUSLY RECORDED CULTURAL RESOURCES

At least 12 previously recorded resources were identified in the Desert Tortoise Fence PAA, all of which are historic archaeological sites (see **Cultural Resources FSA Supplement A - Table 3**). These include historic debris scatters, historic roads, work camp, rock cairns, mining claim, and segments of a water diversion dike, in addition to an unknown number of isolated artifacts.

**Cultural Resources FSA Supplement A - Table 3  
Previously Recorded Cultural Resources**

Period	Primary # (P-33-)	Site Trinomial (CA-RIV-)	Site Type (s)	Constituents	In 15-foot Wide Ground Disturbance Area
Historic	13171	7337	Work camp	Architectural foundations, numerous can/bottle dumps, construction debris, a road, and a water diversion dike.	Y
	13172	7338	Rock cairns	Seven rock cairns, an oil dump, and a water diversion dike.	N
Historic	13173	7339	Debris scatter	Lumber debris, small hearth, oil dump, two road segments, and a water diversion dike.	N
	17766		Road	Section of Chuckwalla Valley Road, trash scatter, and a water diversion dike.	N
	19044	9833	Debris scatter	Car parts, sanitary cans, evaporated milk cans, punched beverage cans, church-key opened cans, can lids, and key-strip opened meat tins.	Possibly
	19395	9834	Debris scatter	Church-key opened beverage cans, food canisters, cone-top cans, glass Coca-Cola bottle.	Possibly

Period	Primary # (P-33-)	Site Trinomial (CA-RIV-)	Site Type (s)	Constituents	In 15-foot Wide Ground Disturbance Area
	19396	9835	Debris scatter	Oil cans, key-strip opened cans, water soluble coffee tin, beverage cans, and glass bottle fragment.	N
	19411	9850	Debris scatter	Sanitary cans, oil cans, crown cap/cone top cans, and fuel cans.	N
	19456	9895	Debris scatter	Sanitary cans, beverage cans, and sardine cans, and 2 or 3 wooden stakes.	Y
	19457	9896	Debris scatter	Food and beverage cans, oil cans, aerosol cans, a paint bucket, and beverage bottles.	Possibly
Historic	19458	9897	Debris scatter	Food and beverage cans, oil can and glass bottle fragments, and 2 wooden stakes.	Y
	19462	9901	Debris scatter and mining claim	Sanitary cans, milled wood fragments, communication wire fragment, sardine cans, glass bottle fragments, galvanized utility bolts, can lids, and D- cell battery.	N

### **Impacts to Previously Recorded Cultural Resources**

There are three previously recorded resources located in the ground disturbance area that will potentially be impacted by construction of the desert tortoise fencing installation. These sites include P-33-13171/CA-Riv-7337, P-33-19456/CA-Riv-9895, and P-33-19458/CA-Riv-9897. There are three additional sites that may be located in the ground disturbance area; however due to the large-scale of the current maps and inexact concept concerning the ground disturbance area for the fencing, it is difficult to ascertain if these sites will be impacted. These sites include P-33-19044/CA-Riv-9833, P-33-19045/CA-Riv-9834, and P-33-19457/CA-Riv-9896.

Determinations for California Register of Historical Resources (CRHR) eligibility have not been completed for all of these sites. However, two of the sites, P-33-19456/CA-Riv-9895 and P-33-19457/CA-Riv-9896 were assumed eligible when analyzed for the PSPP (RSA 2010: C.3-64 – 65). Currently there is insufficient information known about these sites, and thus for the purposes of this supplement staff assumes that the remaining four sites are also eligible for inclusion in the CRHR. Therefore, at least these six sites in the ground disturbance are assumed eligible for the CRHR and will potentially be significantly impacted by construction of the desert tortoise fencing. However, formal evaluations for CRHR eligibility of these sites, and any newly discovered sites found as a result of subsequent surveys of the Desert Tortoise Fence PAA will be completed as part of staff's proposed Condition of Certification **CUL-18**, below.

### **Cumulative Impact Analysis**

The disturbance associated with implementation of Condition of Certification **BIO-9** (Desert Tortoise Clearance Surveys and Fencing) potentially would directly impact six sites which are assumed eligible for the CRHR. Construction of the proposed desert tortoise fence would combine with the effects of past, present, and foreseeable future projects and would contribute to significant cumulative impacts on cultural resources. Thus, Condition of Certification **CUL-1** would apply to the Desert Tortoise Fencing and the assumed aggregate impacted acreage that will be included in the costs for the *Treatment of Cumulative Effects* under **CUL-1**.

## **CONDITION OF CERTIFICATION**

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Staff proposed the additional condition of certification, to address the potential impacts to cultural resources resulting from the construction, installation and maintenance of the desert tortoise exclusion fence.

### **CUL-18 TREATMENT OF DESERT TORTOISE EXCLUSION FENCE ALONG I-10 RIGHT-OF-WAY PROXIMATE THE PROJECT**

- 1. To comply with Condition of Certification BIO-9 (Desert Tortoise Clearance Surveys and Fencing), permanent desert tortoise-proof fencing shall be installed along the existing Interstate 10 (I-10) right-of-way fencing. The project owner shall determine the precise location of the alignments for the exclusion fence relative to the extant Caltrans ROW fence and verify whether said alignments are subject to the Bureau of Land Management's (BLM) or Caltrans environmental jurisdiction.**
- 2. The project owner shall design and conduct a class III pedestrian archaeological survey, per the Energy Commission's siting regulations. The design of the class III archaeological survey shall be submitted to the CPM for review and approval prior to submittal of a request for encroachment permit to Caltrans and/or fieldwork authorization from BLM for conducting the survey.**



3. If the exclusion fence is in Caltrans' jurisdiction, refer to the Caltrans Environmental Handbook, Volume 2 and determine which forms and technical reports would typically be requisite for an applicant for a Caltrans ROW encroachment permit. If the exclusion fence or associated staging/ construction area is in BLM's jurisdiction, refer to the BLM Manual (Section 8110, Identifying and Evaluating Cultural Resources).
4. The project owner shall prepare a technical report of the above class III pedestrian survey, for review and approval by the CPM. The report shall include a catalogue and evaluation of all cultural resources encountered in the survey, the eligibility of the resources for inclusion on the California Historic Resources Inventory. The report shall promulgate any necessary avoidance, minimization and mitigation measures to assure impacts to cultural resources resulting from the construction, installation and maintenance of the exclusion fence are less than significant. Such measures shall be consistent with the criteria and protocol for recordation and the avoidance, minimization and mitigation measures contained in CUL-10 (FLAG AND AVOID), CUL-11 (DATA RECOVERY FOR SIMPLE PREHISTORIC SITES), CUL-12 (DATA RECOVERY FOR COMPLEX PREHISTORIC SITES) and CUL-13 (DATA RECOVERY FOR HISTORIC-PERIOD REFUSE SCATTERS). The technical report prepared for the class III survey shall be incorporated into the Cultural Resources Monitoring and Mitigation Plan required in CUL-5, either as an addendum or appendix.

#### Verification

1. The design for the class III survey shall be submitted to the CPM for review and approval at least 30 days prior to submitting a request for encroachment permit to Caltrans and/or fieldwork authorization from BLM for conducting the survey.
2. The technical report of the class III survey shall be submitted to the CPM for review and approval at least 30 days prior to submitting a request to Caltrans for an encroachment permit and/or BLM for right-of-way grant prior to construction and installation of the exclusion fence.
3. Monitoring of exclusion fence construction shall be in accordance with Condition of Certification CUL-8, and treatment of any unanticipated discoveries of cultural resources during construction shall be in accordance with the provisions of Conditions of Certification CUL-9 through CUL-13.

## REFERENCES

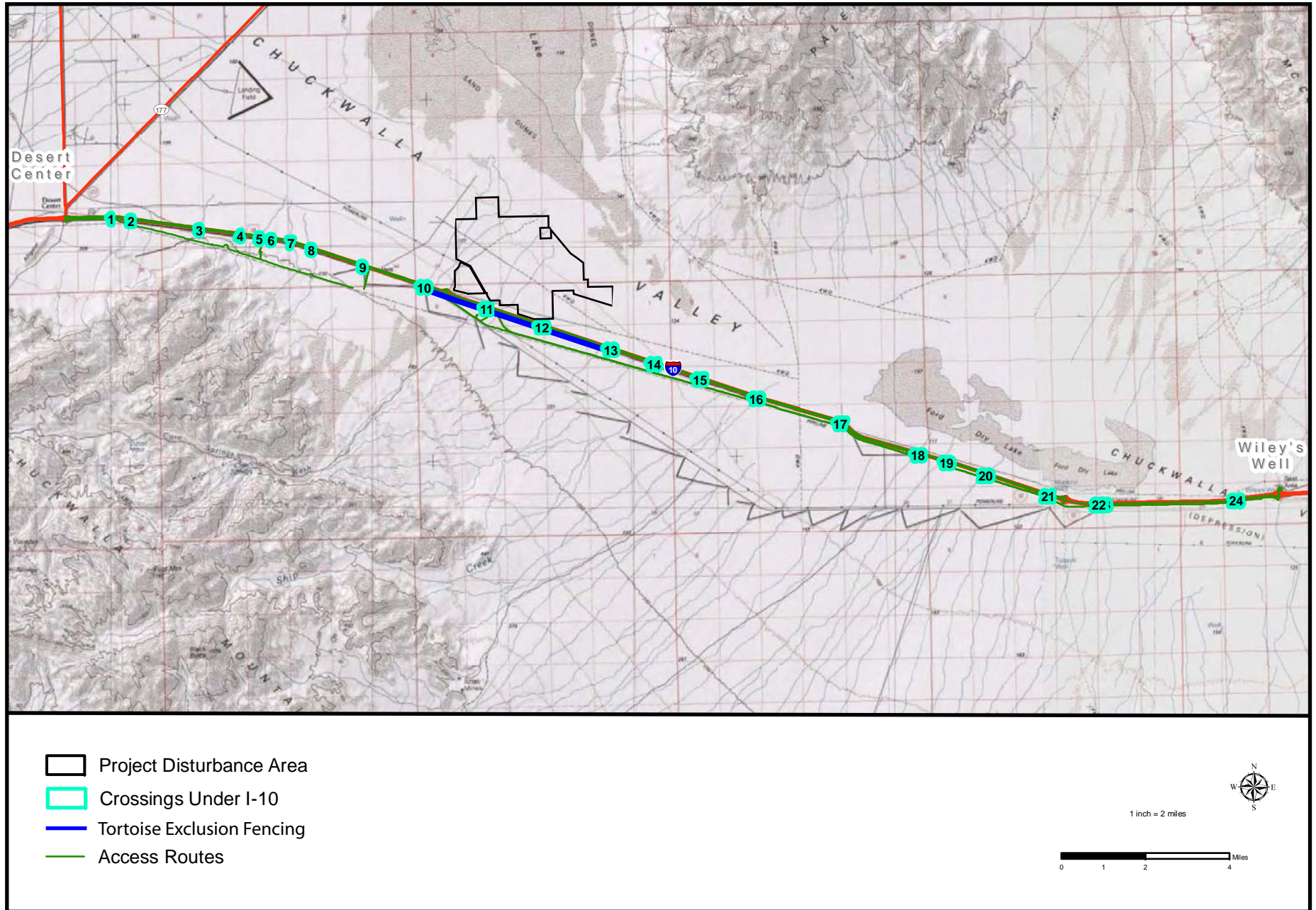
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**CEC 2013bb** – California Energy Commission/Christine Stora (TN 200564). Final Staff Assessment - Part B, dated September 23, 2013. Submitted To CEC/Docket Unit on September 23, 2013

**CEC 2010C** – California Energy Commission/A. Solomon (TN 58497). Revised Staff Assessment Part II, dated September 16, 2010. Submitted to CEC/Docket Unit on September 16, 2010

**NIALS 2013** – Nials, Fred L. *Geoarchaeology of The Palen Solar Electric Generating System Project Area*. Report Submitted to California Energy Commission.

**FSA Supplement A - Figure 1**  
**Palen Solar Electric Generating System - I-10 Desert Tortoise Exclusion Fencing**



**ATTACHMENT A:  
RECOMMENDED SPECIFICATIONS FOR DESERT TORTOISE  
EXCLUSION FENCING  
DECEMBER 2009**

**RECOMMENDED SPECIFICATIONS FOR  
DESERT TORTOISE EXCLUSION FENCING  
December 2009**

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 to 18-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.

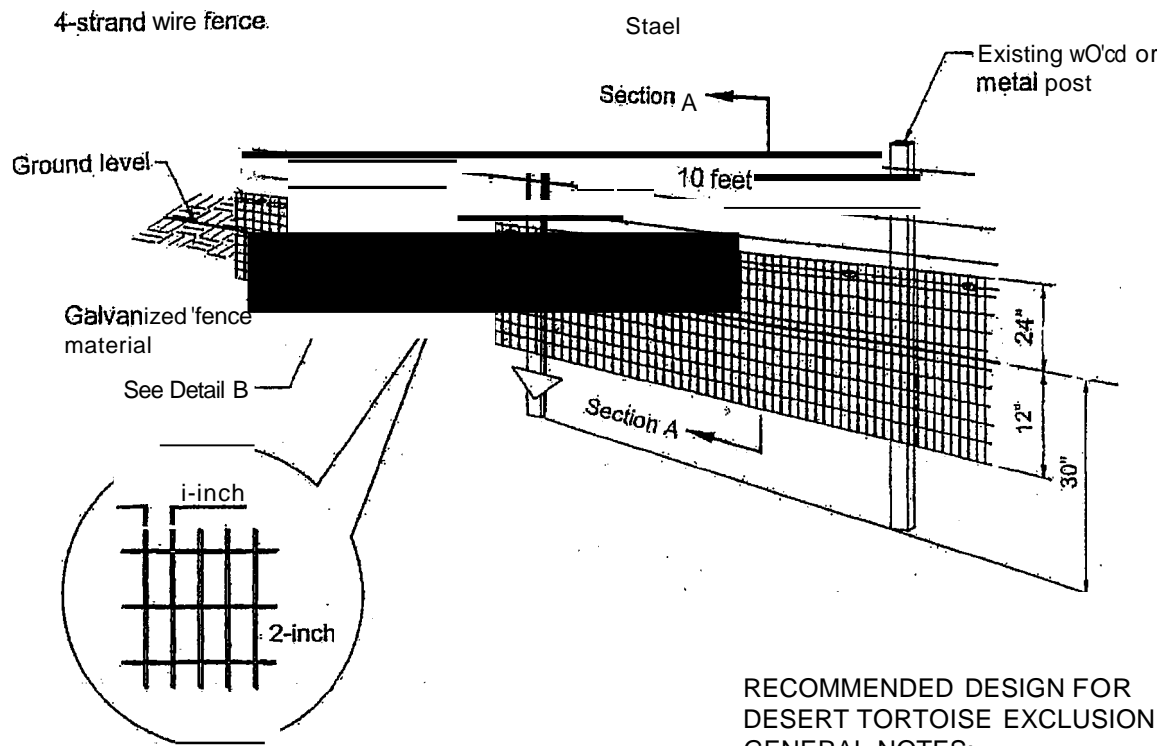
## **REPAIR AND MAINTENANCE OF DESERT TORTOISE BARRIERS**

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.

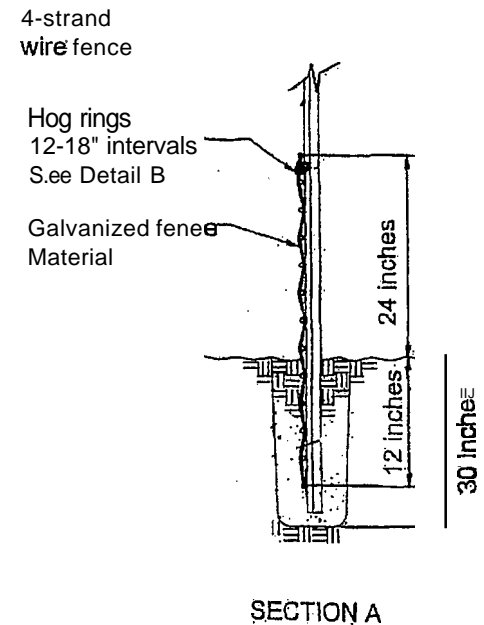
Gaps and breaks will require either: (a) repairs to the existing fence in place, with similar diameter and composition of original material, (b) replacement of the damaged section to the nearest T-post, with new fence material that original fence standards, (c) burying fence, and/or (d) restoring zero 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)

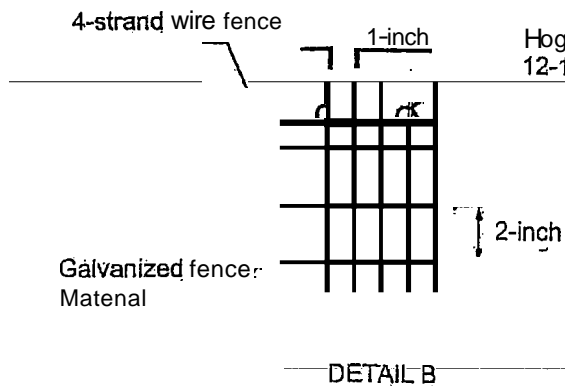


DETAIL A



## 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.







**PALEN SOLAR ELECTRIC GENERATING SYSTEM (09-AFC-7C)  
FINAL STAFF ASSESSMENT – SUPPLEMENT A**  
Amendment to Palen Solar Power Project

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