SNOWLINE SCHOOL DISTRICT DUNCAN ROAD SOLAR PV PROJECT

GENERAL BIOLOGICAL RESOURCES ASSESSMENT

PHELAN AREA OF UNINCORPORATED SAN BERNARDINO COUNTY, CALIFORNIA
USGS 7.5' PHELAN, CA QUADRANGLE
TOWNSHIP 5 NORTH, RANGE 7 WEST, WEST ½ OF SOUTHEAST ¼ OF SECTION 36
APN 3098-311-11

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1.0 EXECUTIVE SUMMARY

AMEC Environment & Infrastructure, Inc. (AMEC) conducted a general biological resources assessment at the site of a proposed photovoltaic (PV) solar project site located in Phelan (a census-designated place or CDP), San Bernardino County, California. No special status species were observed, but Joshua trees (*Yucca brevifolia*), golden cholla (*Cylindropuntia echinocarpa*), and creosote (*Larrea tridentata*) rings, which are protected by county ordinance, are present. Habitat for several special status species is present. AMEC performed a habitat assessment and initiated focused surveys for burrowing owl (*Athene cunicularia*); and completed protocol United States Fish and Wildlife Service (USFWS) desert tortoise (*Gopherus agassizii*) surveys on the project site (complete with buffer surveys). No tortoises or their sign were detected on the project site or buffer transects. AMEC also performed surveys for rare plants, and no rare plant species were found on the project site. AMEC recommends preservation and/or relocation of the Joshua Trees, cacti, and creosote rings present on the site per county guidelines if applicable (the School District qualifies as exempt from this measure per County Code 88.01.030 [b]), and pre-construction nesting bird surveys if construction activities are scheduled during the nesting bird season. AMEC also recommends completing the protocol burrowing owl survey on the project site and buffer in accordance with the current California Department of Fish and Wildlife (CDFW – formerly CDFG) survey guidelines.

2.0 INTRODUCTION

AMEC Environment and Infrastructure, Inc. was contracted by Reno Contracting, Inc. to conduct a general biological resources assessment at the site of a proposed PV solar project site (Project) located in the City of Phelan, San Bernardino County (see Figure 1 in Appendix A). AMEC was also contracted to perform habitat assessments and focused surveys for a variety of sensitive biological resources that have potential to occur on or adjacent to the project site. This Biological Resources Assessment Report (BRAR) provides results and discussion of the assessment, and the results of those focused surveys that have been completed at the time of this writing.

2.1 Project and Property Description

The 25.89-acre (gross acreage) property is bordered by Greystone Road (dirt) and residential development on the southwest and west, Duncan Road on the south, residential development and Monte Vista Road (dirt) on the east, and a Southern Pacific Railroad line on the north (see Figure 1, Appendix A). The site is in the City of Phelan. The property is located on the 7.5-minute Phelan, CA United States Geological Survey (USGS) quadrangle in Township 5 North, Range 7 West, western ½ of the southeast ¼ of Section 36 (see Figure 2). The Project site gently slopes from an elevation of approximately 3,643 feet above mean sea level (AMSL) on the southern edge of the site adjacent to Duncan Road, down to approximately 3,602 feet AMSL on the northern edge of the site adjacent to the Southern Pacific Railroad line.

Vegetation on the Project site is an intergrade of Creosote Bush Scrub and Joshua Tree Woodland (see Figure 3 and photos in Appendix B), dominated by creosote bush, white bur-sage (*Ambrosia dumosa*), Joshua tree, peach thorn (*Lycium cooperi*), and cheesebush (*Ambrosia salsola*). The habitat shows signs of anthropogenic disturbance, such as mechanical disturbance of soil, vegetation removal, deposition of old sod and some soil piles (see Photo in Appendix B), off road vehicle tracks, domestic dog “diggings” (dug out burrows), and trash.

Only one specific soil type is mapped on the Project site (USDA 2013): Cajon Sand, 2 to 9 percent slopes. The Cajon series consists of very deep, somewhat excessively drained soils on alluvial fans and river terraces. Cajon soils formed in alluvium from dominantly granitic sources. Soils in this series have slopes ranging from 0 to 15 percent.

The solar power developer for this project will be Sun Edison (in partnership with Reno Consulting, Inc.). This project site is one of three sites that taken in sum total approximately 66.6 acres. These three sites are considered Phase 2 of a past project completed by Sun Edison and Reno Contracting in 2011. The surrounding area is a patchwork of undeveloped lands, paved and unpaved roads, and low density rural residences. The undeveloped lands provide potential wildlife corridors to/from the site between disturbed areas.

3.0 METHODS

3.1 Literature Review and Records Search

A literature review and records search was conducted to identify the historical occurrences of special-status biological resources in the project vicinity. The review included:

- The California Native Plant Society (CNPS)
- The Jepson Herbarium (University of California, Berkeley)
- A report from the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Data Base (CNDDB) for a five mile radius of the Project site including records from the following California USGS 7.5-minute topographic quadrangles: Phelan, Baldy Mesa, Adelanto, Shadow Mountains SE, and Mescal Creek (CDFW 2013)
- Recent aerial photographs
- Pertinent documents from the AMEC library and project files (*e.g.*, other biological surveys from the general vicinity)

3.2 General Biological Resources Assessment

A general biological assessment, focused USFWS protocol desert tortoise survey, and CDFW protocol burrowing owl habitat assessment/initial survey was conducted by AMEC Biologist Nathan T. Moorhatch and subconsultant Ted Rado on April 9, 10, and 15, 2013. AMEC subconsultant Phillip Clevinger also assisted on desert tortoise "zone of influence" transect surveys on April 15, 2013. Mr. Moorhatch revisited the site on 17 April 2013 to look for rare plants and any plant species in general that may have been overlooked during the previous visits. The time and weather data for the various biological surveys is presented in Table 1 on the following page.

Table 1. Biological Survey Data for the Duncan Road Surveys

Date/Survey Type	Observer(s)	Time	Temp. (°F) Wind (mph)	Sensitive species observed?
9 April 2013	Moorhatch & Rado	0610-1405	40-70°F 0-5 mph	No
10 April 2013	Moorhatch & Rado	0620-0900	55-61°F 0-3 mph	No
15 April 2013	Moorhatch, Rado & Clevinger	0806-1020	55-58°F 0-5mph	No
17 April 2013	Moorhatch	1005-1244	55-65°F 3-10mph	No

The biologists walked ten-meter wide belt transects throughout the Project site (as per USFWS 2010 survey protocol for desert tortoise), identifying habitat type, all plant and wildlife species observed, and sign. Special attention was paid for any sign of the desert tortoise and the burrowing owl. Walking the site in ten-meter wide transects exceeds the minimum requirement of twenty-meter wide transects as outlined in the most current CDFW survey protocol for the burrowing owl, and is also appropriate for the detection of rare plants. Note was also taken of any plant species meeting the criteria of the San Bernardino County Development Code, Chapter 88.01 *Plant Protection and Management* (Ordinance). This ordinance contains provisions for the protection of certain desert plants (88.01.060 Desert Native Plant Protection) as follows:

1. The following desert native plants with stems two inches or greater in diameter or six feet or greater in height:
    a. *Psorothamnus spinosus* (smoketree).
    b. All species of the genus *Prosopis* (mesquites).
2. All species of the family Agavaceae (century plants, nolinas, yuccas).
3. Creosote Rings, 10 feet or greater in diameter.
4. All Joshua trees.
5. Any part of any of the following species, whether living or dead:
    a. *Olneya tesota (*desert ironwood*).*
    b. All species of the genus *Prosopis (*mesquites*).*
    c. All species of the genus *Cercidium (*palo verdes*).*

Chapter 88.01.060 also states “Removal of all plants protected or regulated by the Desert Native Plants Act (Food and Agricultural Code Section 80001 et seq.) shall comply with the provisions of the Act before the issuance of development permit or approval of a land use application. All members of the family Cactaceae (Cactus Family) require a permit for harvesting under the Desert Native Plants Act.

According to the San Bernardino County Development Code Section 88.01.030 Exempt Activities:

The provisions in this Chapter, except those of Section 88.01.090 (Tree Protection From Insects and Disease) shall not apply to the removal of regulated trees or plants that may occur in the following situations: (b) Government owned lands. Removal from lands owned by the United States, State of California, or local government entity, excluding Special Districts (i.e., Special Districts shall be subject to the provisions of this Division.).

According to the San Bernardino County Code, the Snowline School District (as a local government entity) is exempt from the requirements of 88.01.060 Desert Native Plant Protection, as outlined above.

4.0 RESULTS

4.1 Literature Review and Records Search

The results of the literature review and records search are presented in Table 2 which lists the special-status biological resources with the potential to occur in the vicinity of the proposed Project.

Table 2. Special-Status Biological Resources with the Potential to Occur in the Vicinity of the Proposed Project

Scientific Name	Common Name	Status[1]			Habitat (for plants includes elevational range in meters & blooming period)	Occurrence Probability[2]
		Federal	State	CNPS (plants)		
Plants						
Astragalus lentiginosus var. *antonius*	San Antonio Milk-Vetch	None	S1?	1B.3	Lower and Upper Montane Coniferous Forest, dry slopes in open yellow pine forest. 1500-2,600m., April-July	Absent Habitat not present on site, site is below elevational range of species
Astragalus leucolobus	Big Bear Valley woollypod	None	S2	1B.2	Lower and Upper Montane Coniferous Forest, Pebble Plain, Pinyon and Juniper Woodland. Gravelly knolls among sagebrush, stony lake shores in the pine belt, dry pine woods. 1,670-2,515m., May-July	Absent Habitat not present on site, site is below elevational range of species
Canbya candida	White pygmy-poppy	None	S3.2	4.2	Joshua Tree woodland, Pinyon and Juniper Woodland, Mojavean Desert Scrub. Sandy and gravelly places, 725-1,250m., March-June	Low Potential habitat onsite, not observed during surveys, but poor rain year
Linanthus concinnus	San Gabriel linanthuss	None	S2?	1B.2	Lower and Upper Montane Coniferous Forest . Dry rocky slopes in Jeffrey Pine/Canyon Oak Forest. 1,575-2,545m., April-July	Absent Site is below known elevational range, no habitat present on site.
Loeflingia squarrosa var. *artemisiarum*	Sagebrush loeflingia	None	S2.2	2.2	Great Basin and Sonoran Desert Scrubs, Desert Dunes. Sandy flats and dunes, sandy areas around clay slicks with Sarcobatus, Atriplex, and Tetradymia. 700 -1,200m., April-May	Absent Habitat unsuitable onsite.

Table 2. Special-Status Biological Resources with the Potential to Occur in the Vicinity of the Proposed Project

Scientific Name	Common Name	Status[1]			Habitat (for plants includes elevational range in meters & blooming period)	Occurrence Probability[2]
		Federal	State	CNPS (plants)		
Malacothamnus davidsonii	Davidson's bush-mallow	None	S1.1	1B.2	Coastal Scrub, Riparian Woodland, Chaparral (sandy washes). 180-855m. June-January	Absent Habitat not present onsite, site is above known elevational range of species
Muhlenbergia californica	California muhly	None	S3.3	4.3	Coastal sage, Chaparral, Lower Montane Coniferous Forest, Meadows, usually near streams or seeps. 400-2,000m., June-September	Absent Habitat not present onsite
Nemacladus secundiflorus var. *robbinsii*	Robbins' nemacladus	None	S2S3	1B.2	Chaparral, Valley and Foothill Grassland. Dry, sandy or gravelly slopes. 350 -1,700m., April-June	Absent Habitat not present onsite
Opuntia basilaris var. *brachyclada*	Short-joint beavertail	None	S3	1B.2	Chaparral, Mojavean desert scrub, Joshua Tree woodland, Riparian Woodland, and Pinyon-Juniper Woodland. Sandy soil or coarse, granitic loam. 425-1,800m., April-August	Absent This perennial cactus was not observed onsite during the surveys
Viola pinetorum ssp. *grisea*	Grey-leaved violet	None	S2	1B.3	Subalpine and Upper Montane Coniferous Forests. Dry mountain peaks and slopes, meadows and seeps. 1,800-2,600m., April-July	Absent Habitat not present on site, site is below elevational range of species
Yucca brevifolia	Joshua Tree	San Bernardino County Development Code 88.01.060 Desert Native Plant Protection			Various desert habitats	Occurs
Invertebrates						
Plebejus saepiolus aureolus	San Gabriel Mountains Blue Butterfly	None	S1		Type locality is a wet meadow seep in Yellow Pine Forest. Foodplant is *Trifolium wormskioldii*.	Absent No habitat onsite
Reptiles						
Gopherus agassizii	Desert Tortoise	**FT**	**ST**, S2		Most common in desert scrub, desert wash, and Joshua Tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Absent No sign observed on or adjacent to site during USFWS protocol surveys
Phrynosoma blainvillii	Coast Horned Lizard	None	SC, S3S4		Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	Low CNDDB record from ~1 mi. NE of site. Site has significant disturbance, close proximity to domestic cats and dogs
Birds						

Table 2. Special-Status Biological Resources with the Potential to Occur in the Vicinity of the Proposed Project

Scientific Name	Common Name	Status[1]			Habitat (for plants includes elevational range in meters & blooming period)	Occurrence Probability[2]
		Federal	State	CNPS (plants)		
Athene cunicularia	Burrowing Owl	BCC	SC, S2		Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, especially California Ground Squirrel.	Low Burrows capable of supporting owls found, but no owl sign found, CDFW protocol surveys initiated on site
Dendroica petechia brewsteri	Yellow Warbler	BCC	SC, S2		Riparian plant associations: prefers willows, cottonwoods, aspens, sycamores and alders for foraging and nesting	Absent Habitat not present onsite
Lanius ludovicianus	Loggerhead Shrike	BCC	SC, S4		Open areas in woodlands, savannah, Pinyon-Juniper, Joshua tree, and riparian woodlands. Also desert oases, scrub and washes. Needs fairly dense shrubs and/or small trees for nesting.	Moderate Foraging habitat present, not observed during surveys
Toxostoma lecontei	Le Conte's Thrasher	BCC	SC, S3		Desert resident; primarily of open desert wash, desert scrub, alkali desert scrub, and desert succulent scrub habitats. Commonly nests in a dense, spiny shrub or densely branched cactus in desert wash habitat, usually 2-8 feet above ground.	Absent California Thrasher observed onsite
Mammals						
Ammospermophilus nelsoni	Nelson's antelope squirrel	None	**ST**, S2		Western San Joaquin Valley from 200 – 1,200 feet elevation, on dry, sparsely vegetated loam soils in broken terrain with gullies and washes	Absent Site is outside range of species, too high in elevation
Chaetodipus fallax pallidus	Pallid San Diego Pocket Mouse	None	SC, S3		In desert wash, desert scrub, desert succulent scrub, pinyon-juniper, etc. Sandy, herbaceous areas, usually in association with rocks or coarse gravel.	Low Three CNDDB records are from 1951, none from the Phelan (project site) Quad
Eumops perotis californicus	Western Mastiff Bat	None	SC, S3?		A variety of open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	Absent (roosting) Low (foraging over site)
Microtus californicus stephensi	South Coast Marsh Vole	None	SC, S1S2		Tidal marshes in Los Angeles, Orange, and southern Ventura Counties.	Absent No habitat onsite
Myotis ciliolabrum	Western Small-footed Myotis	None	S2S3		Wide range of habitats: mostly arid wooded and brushy uplands near water, seeks cover in caves, buildings, mines, and crevices.	Absent (roosting)| Absent (foraging)

Table 2. Special-Status Biological Resources with the Potential to Occur in the Vicinity of the Proposed Project

Scientific Name	Common Name	Status[1]			Habitat (for plants includes elevational range in meters & blooming period)	Occurrence Probability[2]
		Federal	State	CNPS (plants)		
Taxidea taxus	American Badger	None	SC, S4		Most abundant in drier, open stages of most shrub, forest, and herbaceous habitats. Needs friable soils and open, uncultivated ground for burrows.	Absent No sign observed, not likely in close proximity to residential development
Xerospermophilus mohavensis	Mohave Ground Squirrel	None	**ST**, S2S3		Open desert scrub, alkali scrub, and Joshua Tree Woodland, also feeds in annual grasslands. Prefers sandy to gravelly soils, avoids rocky areas, burrows usually at base of shrubs.	Low Protocol trapping program ongoing on project site at the time of this writing.
Habitats						
Joshua Tree Woodland		None	S3.2		An open woodland dominated by Joshua Tree (can also include shrubby Juniper), with numerous shrub species and little or no herbaceous understory for much of the year. Intergrades with Mojave Creosote Bush Scrub.	"Occurs" Ecotonal with Creosote Bush Scrub, does not meet CDFW criteria for "High Priority Vegetation Type": has invasive exotics, disturbance, adjacent infrastructure.

[1]**Status Codes:**

Federal
FP = Fully Protected
FE = Federal Endangered
FT = Federal Threatened
FC = Federal Candidate
BCC = Bird of Conservation Concern

State
SE = State Endangered
ST = State Threatened
SR = State Rare
SC = State Species of Concern
INV = Communities that are known or believed to be of high priority for inventory in CNDDB

CDFW state rankings are a reflection of the overall condition of an element throughout its California range. The number after the decimal point represents a threat designation attached to the rank:
S1 =Critically Imperiled. Less than 6 Element Occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres
S1.1 = very threatened
S1.2 = threatened
S1.3 = no current threats known

S2 = Imperiled. 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres
S2.1 = very threatened
S2.2 = threatened
S2.3 = no current threats known

S3 = Vulnerable. 21-80 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres
S3.1 = very threatened
S3.2 = threatened

S3.3 = no current threats known

S4 = Apparently secure within California; this rank is clearly lower than **S3** but factors exist to cause some concern; e.g. there is some threat, or somewhat narrow habitat. No threat designation.

S5 = Demonstrably secure to ineradicable in California. No threat designation.

SH: All known California sites are historical, not extant

CNPS
1A = Presumed Extinct in California
1B = Rare, Threatened, or Endangered in California and elsewhere
2 = Rare, Threatened, or Endangered in California but more common elsewhere
3 = More information needed (Review List)
4 = Limited distribution (Watch List)
0.1 = Seriously Threatened in California
0.2 = Fairly Threatened in California
0.3 = Not very Threatened in California

[2]Occurrence Probability	
Occurs:	Observed on the site by AMEC personnel, or recorded there by other qualified biologists.
High:	Observed in similar habitat in region by qualified biologists, or habitat on the site is a type often utilized by the species and the site is within the known range of the species.
Moderate:	Reported sightings in surrounding region, or site is within the known range of the species and habitat on the site is a type occasionally used by the species.
Low:	Site is within the known range of the species but habitat on the site is rarely used by the species.
Absent:	A focused study failed to detect the species, or no suitable habitat is present.
Unknown:	Distribution and habitat use has not been clearly determined.

4.2 General Biological Resources Assessment

The vegetation community present throughout the Project site is an intergrade of Creosote Bush Scrub and Joshua Tree Woodland, dominated by creosote bush, white bur-sage, Joshua tree, peach thorn, and cheesebush (see Appendix B for photos). Wildlife and plant species observed are included in Appendix C. Annual plant numbers and diversity was low, and two nonnative, weedy species: redstem filaree (*Erodium cicutarium*) and Mediterranean schismus (*Schismus barbatus*) (see Photo) were the dominant annuals that had germinated on the site at the time of the surveys. Additional annual plants were identified from dried remains. A variety of small mammal burrows, not identifiable to the species using them, were also present onsite, although many of them had been dug out by canids (likely domestic dogs and coyotes). Three bird nests were also observed on the site, usually in golden cholla (*Cylindropuntia echinocarpa*) (see Figure 4, Appendix A). There were areas of relatively recent ground disturbance and vehicle tracks present (see Photos).

Several Joshua Trees and creosote rings protected by county code are present onsite, however the School District qualifies as exempt from this measure per County Code 88.01.030 [b].

It should be noted that relatively short-term inventories of this nature are limited in their scope by the seasonality, timing and duration of surveys, and the nocturnal and fossorial habits of many desert-dwelling animals. Therefore, the species observed does not necessarily reflect the total number of animals that potentially occupy the Project site.

5.0 IMPACTS AND RECOMMENDATIONS

5.1 Plants and Vegetation Communities

No rare plants were observed during the field visits or during a focused survey performed specifically for rare plants. Most rare plants known from the surrounding area lack appropriate habitat at the Project site, and would not be expected to occur on the site. Of the ten rare plants listed in Table 2, only one species: white pygmy-poppy (*Canbya candida*) is considered to have any probability (low) of occurrence on the project site. Precipitation in general has been very low this year in the Phelan area, with just 0.16 inches of rainfall recorded for March, and none recorded for April. This represents approximately 15% of the average rainfall total of 1.08 inches for March and April in the Phelan area. Germination of annual plants has been negatively affected by the lack of rain, and some annual plants simply may not have germinated this year. Therefore we cannot totally rule out the possibility of white pygmy-poppy occurring on the project site at this time, although we believe there is very little chance that this species occurs onsite, and on a site this small and disturbed no population of significance would be expected to occur. This plant is not state or federally listed as threatened or endangered. Therefore, no significant impacts to rare plants are anticipated.

The creosote rings, golden chollas, and Joshua trees located on the Project site are usually required to be preserved/transplanted or removed by permit in accordance with the San Bernardino County's *Title 8 Development Code, Division 9: Plant Protection and Management, Chapter 4: Desert Native Plant Protection*. If preservation were to be required, the provisions for this code can be found in Sections 89.0401 to 89.0435. Permits and authorization to remove, transport, or otherwise impact these plants would need to be obtained prior to Project approval and the Joshua trees and cacti would be relocated to pre-determined, agency-approved locations, made available to a local adoption program, transplanted per facility landscape design plans, and/or used in site habitat restoration. However, as a local government entity, the School District qualifies as exempt from this measure per County Code 88.01.030 [b]. Joshua Tree Woodland has a State sensitivity ranking of S3.2, and as such is considered a "Special Concern" community under the California Environmental Quality Act (CEQA). However, on this Project site this community is an intergrade (ectone) with Mojave Creosote Bush Scrub, and has been subjected to a variety of disturbances and impacts (as discussed in 2.1). The expression of this plant community on the site does not meet the standard as presented by the CDFW for classifying this habitat as a "High Priority" vegetation type because it does not "exemplify high quality, sustainable, old growth characteristics" (CDFW 2013). Therefore, modification or loss of a small amount of this quality of habitat would not be expected to constitute a significant impact under CEQA.

5.2 Unlisted Invertebrates, Reptiles, and Mammals

There is a low possibility that four unlisted sensitive species could occur onsite: burrowing owl, loggerhead shrike (nesting), coast horned lizard, and pallid San Diego pocket mouse. Marginal habitat for the coast horned lizard and pallid San Diego pocket mouse exists onsite, but even if present, impacts to any populations on this small, disturbed lot would be insignificant. No loggerhead shrikes were present onsite at the time of the field visits, but there is a moderate possibility that this species could occasionally forage on the Project site, this species has a low potential to nest onsite. Burrowing owls will be discussed in more detail in Section 5.4 of this report. Apart from the burrowing owl, specific mitigation is not usually required for these unlisted species, although the loggerhead shrike is protected by the Migratory Bird Treaty Act (MBTA) when nesting (as are all native bird species – please see Section 5.6).

5.3 Desert Tortoise

The Mojave population segment of the desert tortoise is federally and state listed as threatened by the USFWS and CDFW, respectively. The Mojave population segment includes all tortoises occurring west and north of the Colorado River. The desert tortoise is most common in desert scrub, desert wash, and Joshua Tree habitats in a variety of terrain types, including alluvial fans, valleys, rocky hillsides, and washes. They require friable soil for burrow and nest construction. Burrows are typically found at the base of shrubs, in the interspaces between shrubs, and occasionally in caliche soil bank areas or underneath boulders/rocks. They are herbivores and feed on a variety of plants including annual herbs and perennial grasses.

Tortoise activity is greatest during the spring and early summer, and to a lesser extent during the fall; however, tortoises can be active at any time of the year during appropriate weather conditions. Although tortoises hibernate during the winter and typically emerge in late February or early March, hatchlings and juveniles can be fairly active during the winter months. Adults will also emerge from their burrows to drink if water resources have been limited during the previous activity season and/or winter

precipitation has provided standing water. Their activity is usually much reduced during hot summer months, but they may be active following summer rains or if temperatures are moderate (Boarman 2003).

Threats to desert tortoises include loss or degradation of habitat, vandalism, poaching, intentional killing, predation on young tortoises by the common raven (*Corvus corax*) and other predators (*e.g.* kit fox, snakes, etc.), and disease (*e.g.* Mycoplasmosis). Off-road vehicles, military training maneuvers, mining, and livestock grazing also affect tortoise habitat by collapsing burrows, eroding soils, reducing availability of food plants, eliminating shrubs which would provide shade for tortoises and support for their burrows, and ultimately results in surface disturbance that promotes conditions more conducive to invasion by exotic plant species, which provide less nutritional value to tortoises than the native species that were replaced. Human activities, including garbage dumping, landfills, roads, increased nesting opportunities, irrigation, and increased vehicle use have led to increased numbers of common ravens in California deserts. Ultimately, the increased predation on young tortoises by common ravens reduces recruitment into breeding populations (Boarman 2003).

Tortoises are most often detected by their scats and burrows. Tortoises themselves can sometimes be detected in burrows by reflecting sunlight inside the burrow with a mirror. Other tortoise sign include carcasses, or fragments thereof, courtship rings, and drinking depressions. Any of these signs are an indication that tortoises either occur, or have recently occurred, at a particular location. Sign can be detected at any time of the year and always indicates suitable habitat, if not occupied habitat.

Although there is no desert tortoise critical habitat present on or near the Project site, the vegetation community occurring on the Project site (*e.g.* Creosote Bush Scrub and Joshua Trees) is a type of habitat typically utilized by desert tortoises. AMEC performed a USFWS protocol focused survey for the desert tortoise on the site and no tortoises or sign were observed. AMEC biologists also performed three belt transect rings spaced at 200, 400, and 600 meters from the perimeter of the project to determine if tortoises were present in the immediate project vicinity (see Figure 2 Appendix A). No tortoises or their sign were encountered during these “Zone of Influence” surveys. The presence of busy paved roads, residential development, and the Southern Pacific Railroad line on the northern boundary of the site, together with the fragmented nature of the habitat around the Project site make it unlikely that a desert tortoise would wander onto the Project site from adjacent lands. Based on the results of the focused survey, desert tortoise is not present on the project site, or in the immediate vicinity.

5.4 Burrowing Owl

The burrowing owl is federally designated as a Bird of Conservation Concern (BCC) and state designated as a California Species of Concern. It is a small ground-dwelling owl that occurs in open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation (Haug et al. 1993). In southern California, burrowing owls are not only found in undisturbed natural areas, but also fallow agricultural fields, margins of active agricultural areas, livestock farms, airports, and vacant lots. It is a subterranean nester, typically utilizing pre-existing burrows (*e.g.* California ground squirrel, kit fox, drain pipes, culverts, etc.). The entrance of the burrow is often adorned with animal dung, feathers, debris, and other small objects (CDFG 2005). Among the avian species of our region, their underground nests and roosts make them uniquely vulnerable to ground disturbing activities.

The species is active both day and night, and may be seen perching conspicuously on fence posts or standing at the entrance of their burrows. Burrowing owl populations in California are clearly declining and, if declines continue, the species may qualify for listing under the state and/or federal ESA(s) (CDFG 1995). The declines in burrowing owl populations are attributed to loss and degradation of habitat, ongoing residential and commercial development, and rodent control programs.

Although no burrowing owls or their sign were observed on the Project site during the focused survey, at least four California ground squirrel (*Spermophilus beecheyi*) burrows are present in the 500 foot buffer area (area established by the CDFG 2012 survey protocol – see Figure 3 Appendix A). Although it is unlikely that a burrowing owl would occupy this site near a rural residence with associated "edge effects" (presence of dogs and cats, children, noise), it cannot be ruled out. AMEC has already completed the first two of four required survey visits, and recommends completion of a focused survey conducted in accordance with the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012) on the site and buffer area. Impacts and mitigation measures would be determined if focused surveys detected burrowing owls on or adjacent to the Project site.

5.5 Mohave Ground Squirrel

The Mohave ground squirrel is a medium-sized squirrel that is endemic to the Mohave Desert. Total length, including the tail, is about 9 inches. Tail length accounts for about 2.5 inches of the total length. The average weight of an adult is about 3.5 ounces. The upper body is grayish brown, pinkish gray, cinnamon gray, and/or pinkish cinnamon, without stripes or spots. The underparts of the body and the tail are silvery white and the tail is bushy. This species is listed as threatened by the State of California, but is not listed as threatened or endangered by the federal government. AMEC is currently conducting a protocol trapping program for Mohave ground squirrel on the project site, the results of which will be presented in a separate report.

5.6 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits actions resulting in the pursuit, capture, killing, and/or possession of any protected native migratory bird, nest, egg or parts thereof. State code also protects these species. Birds nesting within the Project site could be impacted by Project activities. To comply with the MBTA, any vegetation removal or grading occurring during the bird nesting season (generally February 1 through August 31) would require at least one nesting bird survey (more if deemed necessary) to be conducted by a qualified Biologist. If no nests are found, construction would proceed. If active nests are found, impact avoidance measures (*e.g.*, buffers) would be required. The measures above will also protect any special status bird species found onsite. AMEC biologists observed three bird nests on the project site (mostly located in golden chollas) and two additional nests on the perimeter of the project site (see Figure 4 in Appendix A).

5.7 Jurisdictional Waters

An ephemeral drainage enters on the western edge of the southern portion of the site, and travels slightly northeast to where it exits on the north central portion of the parcel (see Figure 6 in Appendix A). This drainage is largely unvegetated, and does not have any associated riparian vegetation. This feature qualifies as both CDFW jurisdictional and as a "Waters of the State" per the Regional Water Quality Control Board. AMEC is preparing a separate Jurisdictional Delineation Report that will discuss this topic in more detail.

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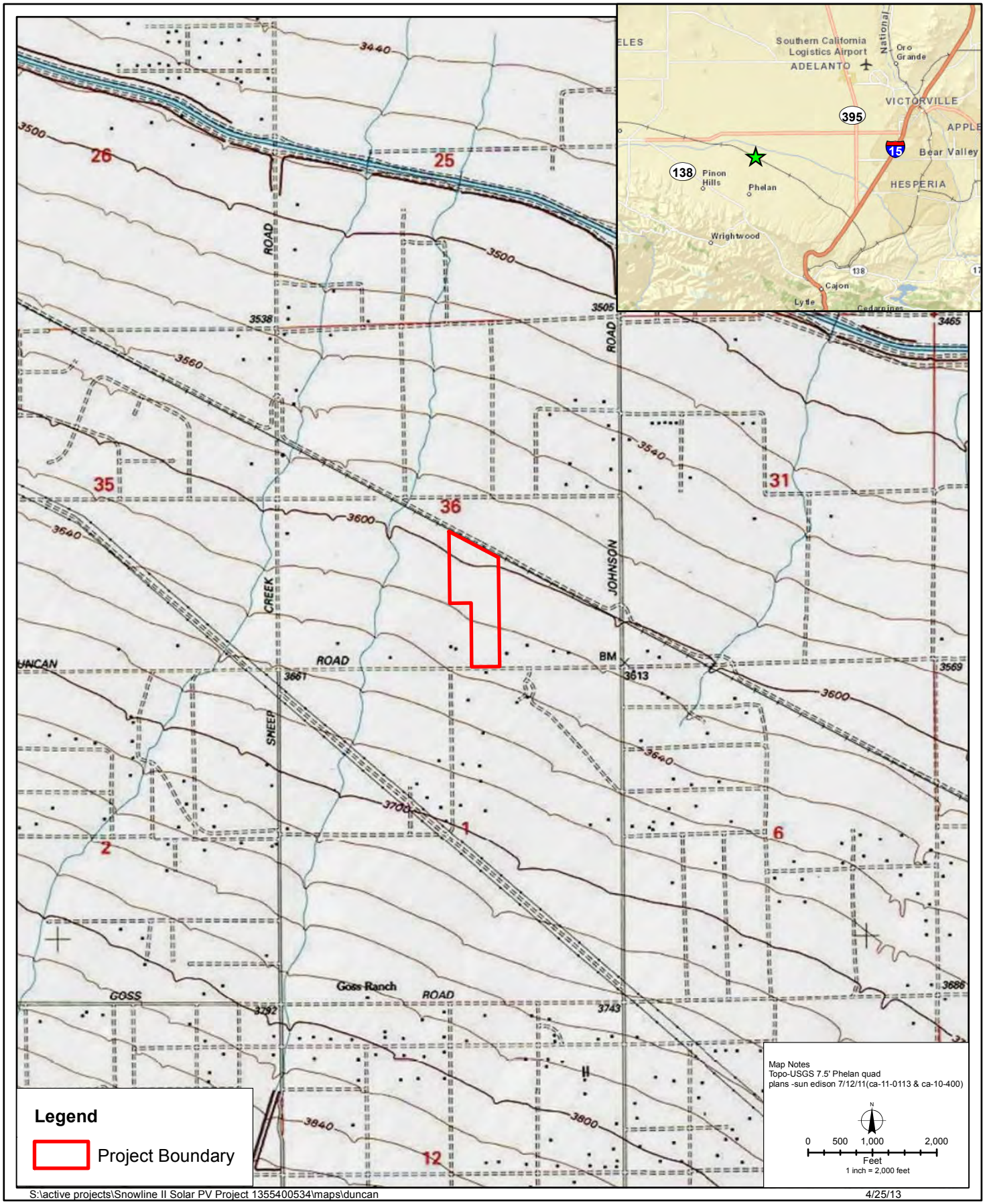
7.0 CERTIFICATION

CERTIFICATION: “I hereby certify that the statements furbished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief. Field work conducted for this assessment was performed by me or under my direct supervision. I certify that I have not signed a non-disclosure or consultant confidentiality agreement with the project applicant or applicant’s representative and that I have no financial interest in the project.”

DATE: 26 April 2013 SIGNED: 

1) Fieldwork Performed By:
   Nathan T. Moorhatch

Appendix A Project Map Figures



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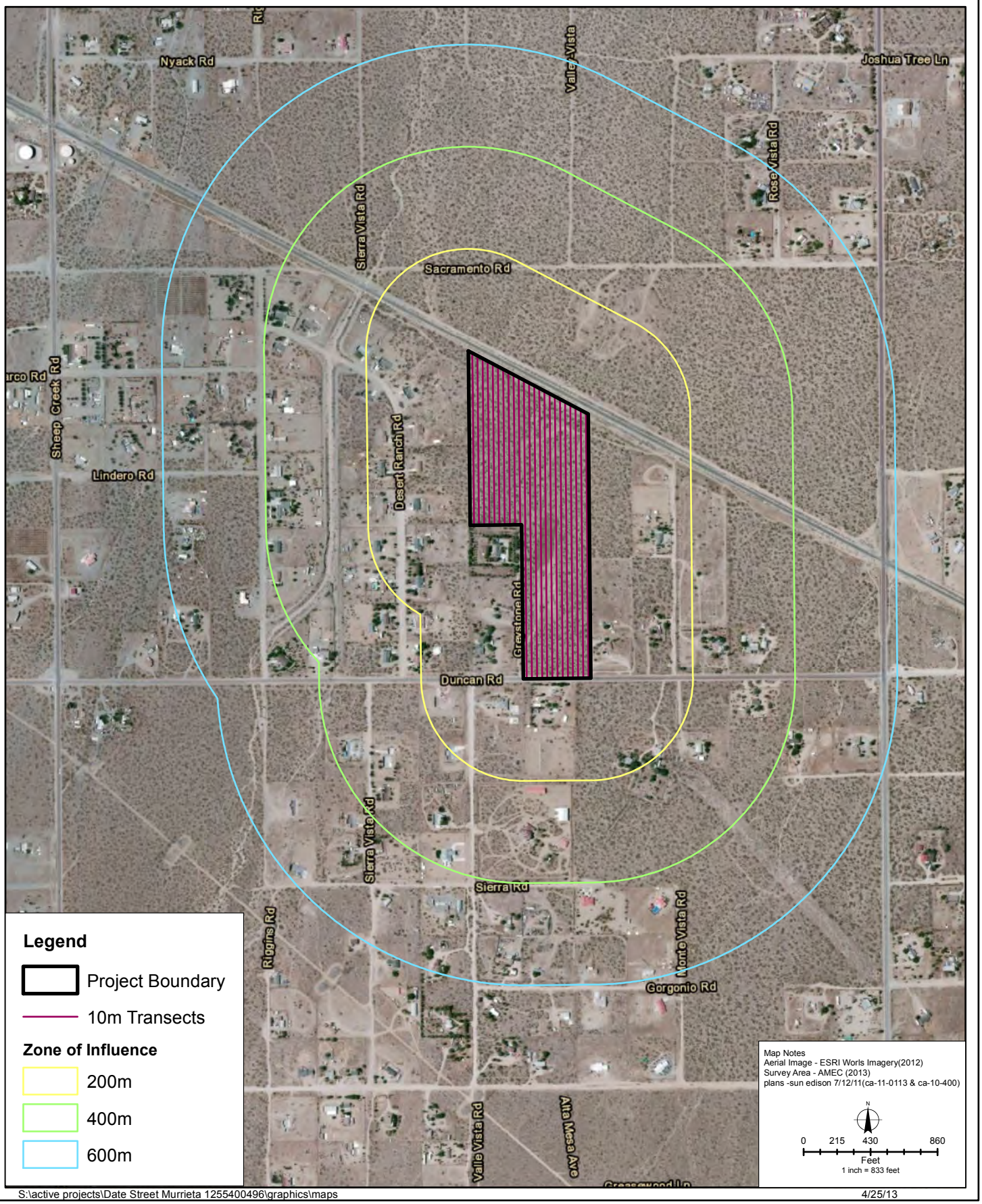
4/25/13

FIGURE

1

Vicinity & Location
General Biological Assessment



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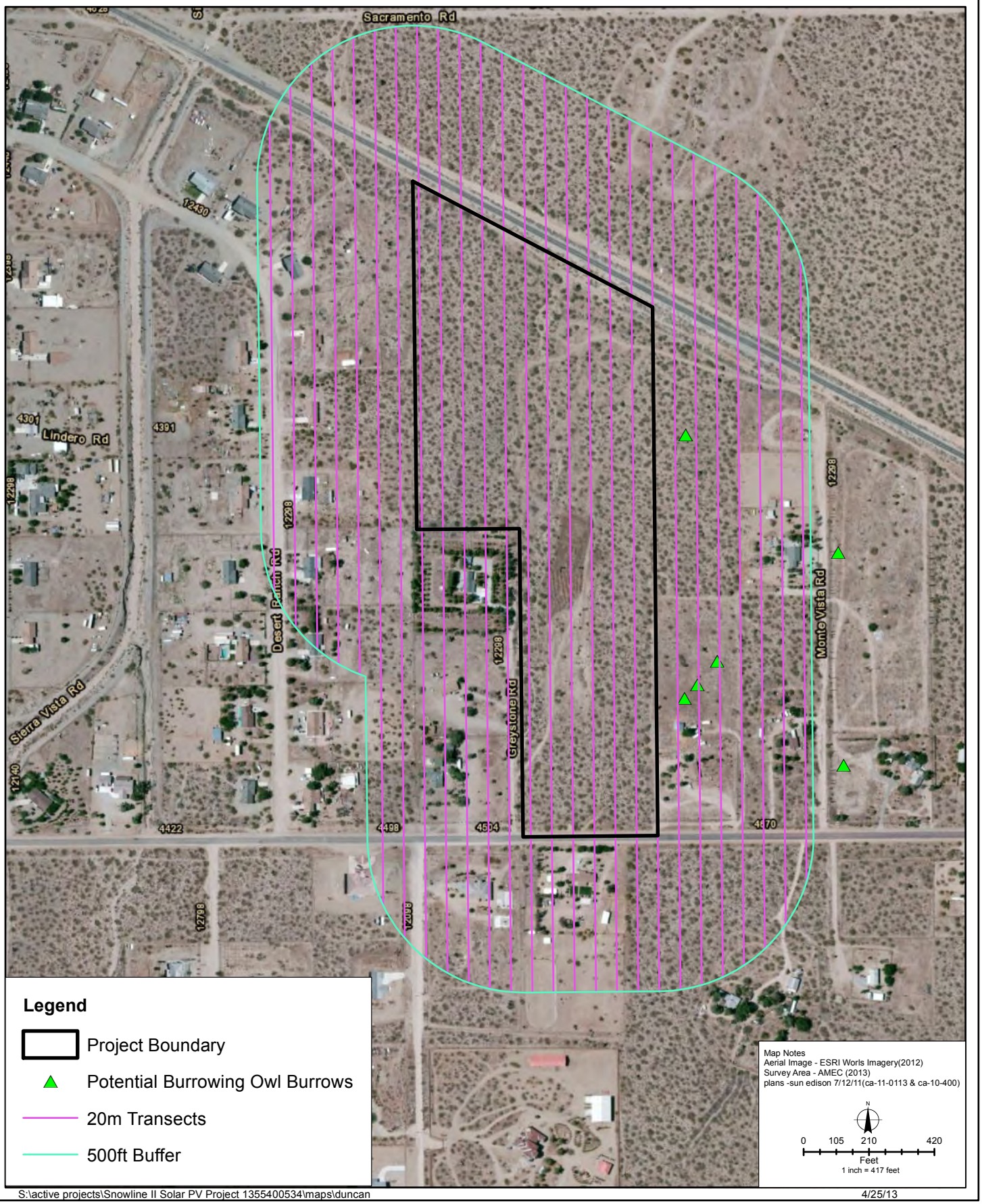
4/25/13

Desert Tortoise Survey Areas
General Biological Assessment

FIGURE
2



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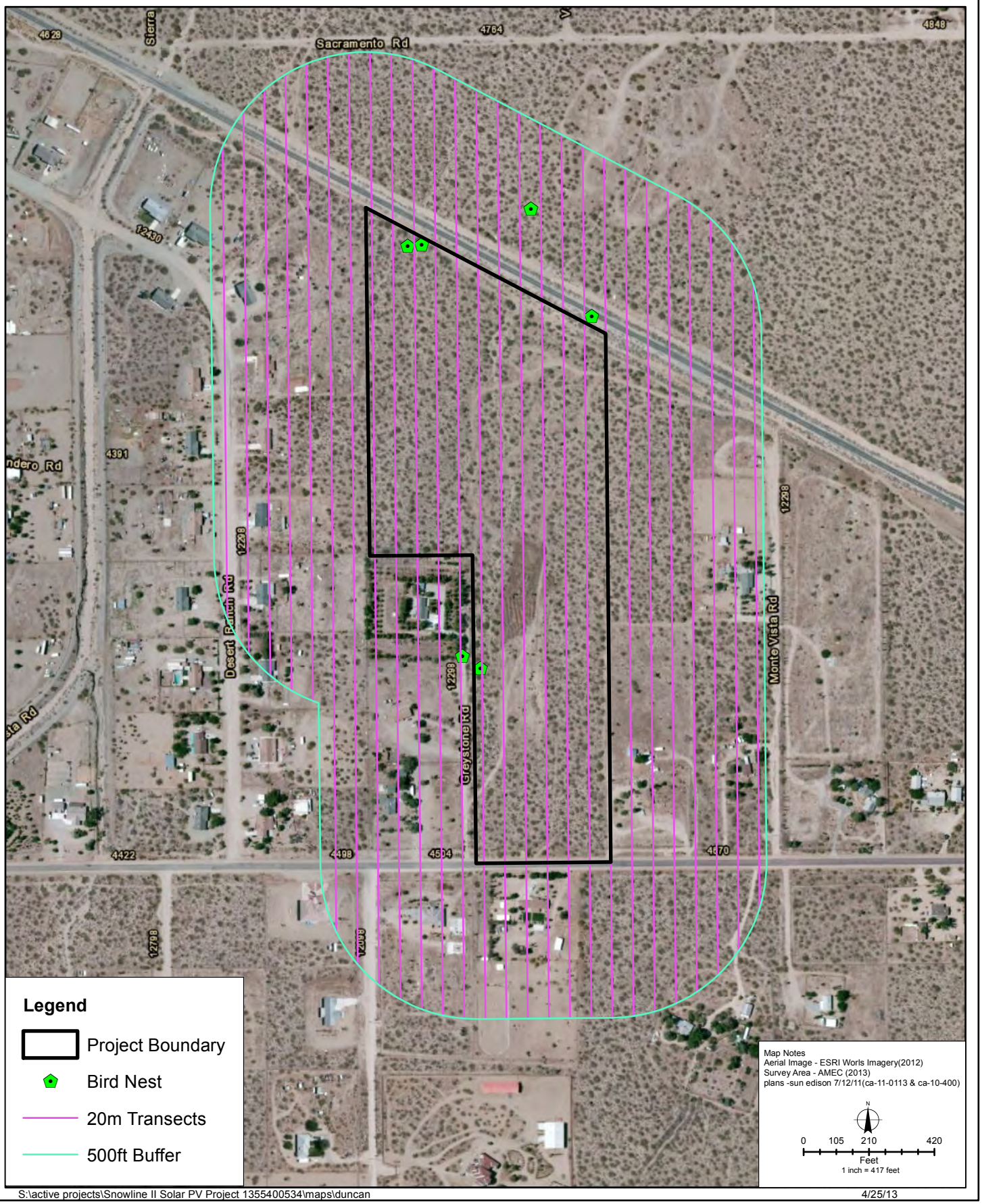
4/25/13

Burrowing owl Survey Areas & Results
General Biological Assessment

FIGURE 3



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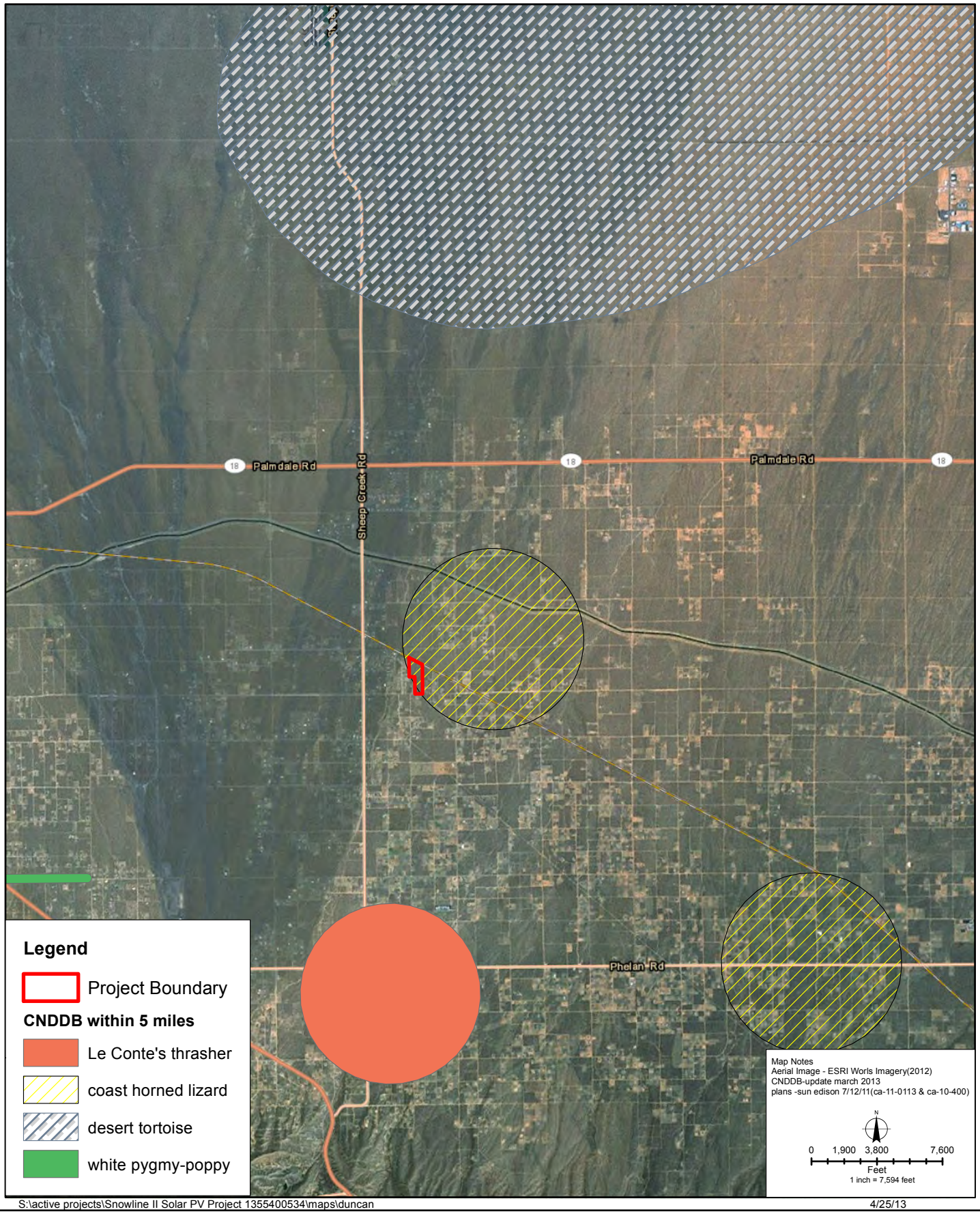
4/25/13

Bird Nest Locations
General Biological Assessment

FIGURE
4



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4/25/13

FIGURE

5

CNDDB
General Biological Assessment

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5/17/13

FIGURE

6

Jurisdictional Delineation
Duncan Rd

Appendix B Site Photographs

Photograph 1. Representative view of Creosote Bush Scrub/Joshua Tree Woodland intergrade habitat on the Duncan Road project site.

Photograph 2. Trash deposition on buffer area north of project site.

Photograph 3. Cleared ground and sod/soil piles on the central portion of the site.

Photograph 4. Closer view of the sod piles on the project site.

Photograph 5. Tire tracks from cross country driving on Duncan site.

Photograph 6. Stunted annuals (due to lack of rainfall) on Duncan site, dominated by nonnative redstem filaree and Mediterranean schismus.

Photograph 7. Bird nest in golden cholla on the Duncan project site.

Photograph 8. View of one of the California Ground Squirrels present on the buffer just east of the project perimeter. Potential for burrowing owl use.

Appendix C Species Lists

Plant Species Observed on the Project Site

GNETAE (GNETOPHYTA)	
Ephedraceae	**Ephedra Family**
Ephedra nevadensis	Nevada ephedra
DICOTS	
Asteraceae	**Sunflower Family**
Ambrosia acanthicarpa	annual bur-sage
Ambrosia dumosa	white bur-sage (Burrobrush)
Ambrosia salsola	cheesebush
Encelia actoni	Acton encelia
Ericameria nauseosa	rubber rabbitbrush
Eriophyllum wallacei	Wallace's woolly daisy
Gutierrezia microcephala	sticky snakeweed
Lessingia glandulifera var. *glandulifera*	vinegar weed
Malacothrix glabrata	desert dandelion
Boraginaceae	**Borage Family**
Amsinckia tessellata	checker fiddleneck
Pectocarya penicillata	northern pectocarya
Brassicaceae	**Mustard Family**
* *Sisymbrium altissimum*	tumble mustard
Cactaceae	**Cactus Family**
Cylindropuntia echinocarpa	golden/silver cholla
Chenopodiaceae	**Goosefoot Family**
Atriplex canescens	four-wing saltbush
Grayia spinosa	spiny hopsage
Krascheninnikovia lanata	winter fat
**Salsola tragus*	Russian thistle
Geraniaceae	**Geranium Family**
**Erodium cicutarium*	redstem filaree
Lamiaceae	**Mint Family**
Scutellaria mexicana	bladder-sage
Nyctaginaceae	**Four O'Clock Family**
Mirabilis laevis	desert wishbone-bush
Polygonaceae	**Buckwheat Family**
Eriogonum fasciculatum	California buckwheat
Solanaceae	**Nightshade Family**
Lycium andersonii	Anderson's desert-thorn
Lycium cooperi	peach thorn

Zygophyllaceae	**Caltrop Family**
Larrea tridentata	creosote bush
MONOCOTS	
Liliaceae	**Lily Family**
*** *Yucca brevifolia*	Joshua tree
Poaceae	**Grass Family**
**Bromus madritensis* ssp. *rubens*	red brome
**Bromus tectorum*	cheat grass
**Hordeum murinum*	mouse barley
**Schismus barbatus*	Mediterranean schismus
Stipa speciosa	desert needle grass

Vertebrate Species Observed on the Project Site and Buffer Transects

REPTILIA	**REPTILES**
Phrynosomatidae	**Spiny and Horned Lizards**
Uta stansburiana	Side-blotched Lizard
Teiidae	**Whiptails and Relatives**
Aspidoscelis tigris tigris	Great Basin Whiptail
AVES	**BIRDS**
Odontophoridae	**New World Quail**
Callipepla californica	California Quail
Columbidae	**Pigeons and Doves**
Columba livia	Rock Pigeon
Streptopelia decaocto	Eurasian Collared-dove
Zenaida macroura	Mourning Dove
Trochilidae	**Hummingbirds**
Calypte costae	Costa's Hummingbird
Picidae	**Woodpeckers and Allies**
Picoides scalaris	Ladder-backed Woodpecker
Tyrannidae	**Tyrant Flycatchers**
Myiarchus cinerascens	Ash-throated flycatcher
Corvidae	**Crows, Jays**
Corvus corax	Common Raven
Remizidae	**Penduline Tits and Verdins**
Auriparus flaviceps	Verdin
Troglodytidae	**Wrens**
Campylorhynchus brunneicapillus	Cactus Wren
Mimidae	**Mockingbirds and Thrashers**
Mimus polyglottos	Northern Mockingbird
Toxostoma redivivum	California Thrasher
Sturnidae	**Starlings**
Sturnus vulgaris	European Starling
Parulidae	**Wood-Warblers**
Setophaga nigrescens	Black-throated Gray Warbler
Emberizidae	**Emberizids**
Spizella breweri	Brewer's Sparrow

Amphispiza bilineata	Black-throated Sparrow
Zonotrichia leucophrys	White-crowned Sparrow
Icteridae	**Blackbirds**
Sturnella neglecta	Western Meadowlark
Fringillidae	**Fringilline and Cardueline Finches, Allies**
Haemorhous mexicanus	House Finch
Passeridae	**Old World Sparrows**
Passer domesticus	House Sparrow
MAMMALIA	**MAMMALS**
Leporidae	**Rabbits, Hares**
Sylvilagus audubonii	Desert cottontail
Sciuridae	**Squirrels and Chipmunks**
Spermophilus beecheyi	California Ground Squirrel
Ammospermophilus leucurus	White-tailed Antelope Squirrel
Geomyidae	**Pocket Gophers**
Thomomys bottae	Botta's Pocket Gopher (mounds)
Canidae	**Wolves, Foxes, Coyote**
Canis latrans	Coyote (scat, tracks)

KEY

* = non-native species
** = special-status species
*** = locally-protected species
cf. = compares favorably with
sp. = plant identified to genus only

This list reports only plants and animals observed on the site by this study. Other species may have been overlooked or undetectable due to their growing season (plants) or their activity patterns and/or subterranean habitats (animals). Plants were identified from keys, descriptions and drawings in Jepson Flora Project (2013). Some specimens were identified or confirmed by Andrew C. Sanders (University of California Riverside Herbarium). Unless noted otherwise, plant nomenclature and systematics follows Jepson Flora Project (2013) and/or Calflora (2013). Nomenclature and taxonomy for fauna generally follows the American Ornithologists' Union Checklist (2013) for avifauna and CDFG (2008) for herpetofauna and mammals.

Appendix D USFWS Desert Tortoise Survey Data Sheets

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 15/4/13 (day, month, year) Survey biologist(s): N. Moorhatch (name, email, and phone number)

Site description: Disturbed/Mojave CBS w/ JT (project name and size; general location)

County: San Bndo. Quad: _____ Location: Duncan Road, Phelan (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling (20I) Area size to be surveyed: _____ Transect #: 600m E/N Transect length: >1.5mi.

GPS Start-point: 449045 3814398 1072m (easting, northing, elevation in meters) Start time: 0806 am/pm

GPS End-point: 447636 3815212 1065m (easting, northing, elevation in meters) End time: 0858 am/pm

Start Temp: 58 °F End Temp: 55 °F

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

NONE

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1				
2				
3				
4				
5				
6				
7				
8				

NONE

2010 Field Season

EUST MODO ECDO BTSP CORA HOSP BTGW BRSP NOMO CACW VERD HOFI WCSP

Winterfat Ephedra nev. Ambrosia acanthicarpa
Encelia actoni Lycium cooperi Amsinckia tess.
Ambrosia salsola Chryso. nauseo. Schismus sp.
Cylindro. echino. Erioq. fasc.
Salazaria mex. Erodium cicu.
Ephedra viridis? *

Larrea (Dominant)
Yucca brev. (")
Ambrosia dumosa (")

Page: _____ of _____

Transect number: 600m 20I E/N

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 15/4/13 (day, month, year) Survey biologist(s): N. Moorhatch (name, email, and phone number)

Site description: Disturbed Mojave CBS w/ JT, low density residential (project name and size; general location)

County: San Bndo. Quad: _____ Location: Duncan Rd, Phelan (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling (ZOI) Area size to be surveyed: _____ Transect #: 600m SE ZOI Transect length: 7

GPS Start-point: 449031 3814289 1074m (easting, northing, elevation in meters) Start time: 0938 am/pm

GPS End-point: 448610 3813826 1085m (easting, northing, elevation in meters) End time: 0952 am/pm

Start Temp: 56 °F End Temp: 58 °F

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1				
2				
3				
4				
5				
6				
7				
8				

NONE

LBVO (w/bill 2x normal length & curved!) ♂

CORA BRSP
VERD
CAQU
BTSP

Page: _____ of _____

Transect number: 600m SE ZOI

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 5/4/13 (day, month, year) Survey biologist(s): Philip Clevinger (name, email, and phone number)

Site description: _____ (project name and size; general location)

County: San Bernardino Quad: _____ Location: Duncan Rd. (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: ~201 Transect #: 4005 Transect length: _____

GPS Start-point: 443864 3814399 3627ft (easting, northing, elevation in meters) Start time: 9:35 am/pm

GPS End-point: 447930 3814408 3654 (easting, northing, elevation in meters) End time: 10:08 am/pm

Start Temp: 58 °C End Temp: 55 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1	None					
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	None			
2				
3				
4				
5				
6				
7				
8				

CAWR AGS
CORA BASW

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 15/4/13 (day, month, year) Survey biologist(s): Philip Clevinger (name, email, and phone number)

Site description: _____ (project name and size; general location)

County: San Bernardino Quad: _____ Location: Duncan Rd (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: 207 Transect #: 400 (N) Transect length: 1.44 mi

GPS Start-point: 644894 3814707 3624 ft (easting, northing, elevation in meters) Start time: 8:05 am/pm

GPS End-point: 447843 3815203 3590 ft (easting, northing, elevation in meters) End time: 8:44 am/pm

Start Temp: 58 °C End Temp: 55 °C

7.80 − 20.36 = 1.44

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1	none					
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	none			
2				
3				
4				
5				
6				
7				
8				

Active Bird nest (4 eggs, Adult flew off nest)
Xantusia NOMO
CORA HOFI
BTSP
RTHA

Page: _____ of _____
Transect number: 400 (N)

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 4/15/13 (day, month, year) Survey biologist(s): Ted Rado (name, email, and phone number)

Site description: creosote / Joshua (project name and size; general location)

County: San Bernardino Quad: _____ Location: Phelan - Duncan Rd (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: 20I Transect #: 600 Transect length: _____

GPS Start-point: NA (easting, northing, elevation in meters) Start time: SW END 8:03 am/pm 20I

GPS End-point: NA (easting, northing, elevation in meters) End time: 9:26 am/pm

Start Temp: 58 °F End Temp: 55 °F Est. wind 2-3 MPH

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (Yes, No or Unknown)	Existing tag # and color, if present
1	None					
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	None			
2				
3				
4				
5				
6				
7				
8				

Parking WP216 western kingbird sighting

owl buffer

USFWS 2010 Desert Tortoise Pre-Project Survey Data Sheet

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 4 10 13 (day, month, year) Survey biologist(s): Ted Rado (name, email, and phone number)

Site description: creosote / Joshua tree scrub w/ scattered houses (project name and size; general location)

County: San Bernardino Quad: ______ Location: Phelan - Duncan Rd (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: (100% coverage) or Sampling Area size to be surveyed: ______ Transect #: BO Buffer Transect length: 500 ft buffer

GPS Start-point: NA (easting, northing, elevation in meters) Start time: 6:20 (am)/pm

GPS End-point: NA (easting, northing, elevation in meters) End time: 8:35 (am)/pm

Start Temp: 55 °F End Temp: 61 °F Start Wind 0-1 MPH End wind 1-3 MPH

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (Yes, No or Unknown)	Existing tag # and color, if present
1		None				
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1		None		
2				
3				
4				
5				
6				
7				
8				

WP 185 3 hole CGS burrow (coyote scat)
187 2 hole CGS burrow

tetradymia stenolepis
WP 184 inverted cup nest in cholla

Starling
Brown towhee
CA quail
Eurasian collared dove

Mourning dove
house finch
California ground squirrel
WP 186 2-hole CGS burrow (past owl)

WP188 3 hole CGS
WP189 3 hole CGS
WP190 1 hole coyote
WP191 2 hole CGS
Start 137

Page: 1 of 1

Transect number: Burrowing owl R. Ofr Survey

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 4/9/13 (day, month, year) Survey biologist(s): Ted Rado (name, email, and phone number)

Site description: creosote / Joshua tree scrub w/ scattered adjacent houses (project name and size; general location)

County: San Bernardino Quad: _____ Location: Phelan - Duncan Rd (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: (100% coverage) or Sampling Area size to be surveyed: _____ Transect #: 1 Transect length: 0.42 mi

GPS Start-point: 11S 0448438 / 3814922 (easting, northing, elevation in meters) Start time: 6:10 (am)/pm

GPS End-point: 0448438 / 3814413 (easting, northing, elevation in meters) End time: 6:22 (am)/pm

Start Temp: 40 °F End Temp: 40 °F Ave wind speed 5.5 MPH 3626 ft Elev.

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1		None				
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1		None		
2				
3				
4				
5				
6				
7				
8				

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 4/9/13 (day, month, year) Survey biologist(s): Ted Rado (name, email, and phone number)

Site description: creosote / Joshua tree scrub w/scattered adjacent homes (project name and size; general location)

County: San Bernardino Quad: _____ Location: Phelan – Duncan Rd (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 2 Transect length: 0.42

GPS Start-point: 0448429 / 3814930 (easting, northing, elevation in meters) Start time: 10:40 (am)/pm

GPS End-point: 0448428 / 3814413 (easting, northing, elevation in meters) End time: 10:55 (am)/pm

Start Temp: 56 °F End Temp: 56 °F

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1		None				
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1		None		
2				
3				
4				
5				
6				
7				
8				

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 4/9/13 (day, month, year) Survey biologist(s): Ted Rado (name, email, and phone number)

Site description: creosote / Joshua tree scrub w/ scattered adjacent houses (project name and size; general location)

County: San Bernardino Quad: _____ Location: Phelan - Duncan Rd (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: (100% coverage) or Sampling Area size to be surveyed: _____ Transect #: 3 Transect length: 0.42 mi

GPS Start-point: 0448419 / 3814936 (easting, northing, elevation in meters) Start time: 6:25 (am)/pm

GPS End-point: 0448419 / 3814413 (easting, northing, elevation in meters) End time: 6:40 am/(pm)

Start Temp: 40 °F End Temp: 40 °F

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1		None				
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1		None		
2				
3				
4				
5				
6				
7				
8				

WP 16 - cactus wren nest in golden cholla
woodpecker
house finch
desert cottontail

Page: 1 of 1

Transect number: 3

USFWS 2010 Desert Tortoise Pre-Project Survey Data Sheet

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 4/9/13 (day, month, year) Survey biologist(s): Ted Rado (name, email, and phone number)

Site description: creosote/ Joshua tree scrub w/ scattered adjacent house (project name and size; general location)

County: San Bernardino Quad: ________ Location: Phelan - Duncan Rd (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: (100% coverage) or Sampling Area size to be surveyed: ________ Transect #: 8 Transect length: 0.39

GPS Start-point: 0448398/ 3814405 (easting, northing, elevation in meters) Start time: 6:40 (am)/pm

GPS End-point: 0448399/ 3814405 (easting, northing, elevation in meters) End time: 6:55 (am)/pm

Start Temp: 41 °F End Temp: 44 °F

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (Yes, No or Unknown)	Existing tag # and color, if present
1		None				
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1		None		
2				
3				
4				
5				
6				
7				
8				

ash-throated flycatcher

Transect number: 5

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 4/9/13 (day, month, year) Survey biologist(s): Ted Rado (name, email, and phone number)

Site description: creosote / Joshua tree scrub w/ scattered adjacent houses (project name and size; general location)

County: San Bernardino Quad: _____ Location: Phelan - Dunsmuir Rd (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 6 Transect length: 0.36

GPS Start-point: 0448388 / 3814411 (easting, northing, elevation in meters) Start time: 11:12 am/pm

GPS End-point: 0448389 / 3814952 (easting, northing, elevation in meters) End time: 11:23 am/pm

Start Temp: 56 °F End Temp: 56 °F

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1		None				
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1		None		
2				
3				
4				
5				
6				
7				
8				

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 4/9/13 (day, month, year) Survey biologist(s): Ted Rado (name, email, and phone number)

Site description: creosote / Joshua tree scrub w/ scattered adjacent houses (project name and size; general location)

County: San Bernardino Quad: _____ Location: Phelan - Duncan Rd (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 9 Transect length: 0.40

GPS Start-point: 0448379 / 3814957 (easting, northing, elevation in meters) Start time: 7am (am)/pm

GPS End-point: 0448378 / 3814405 (easting, northing, elevation in meters) End time: 7:10 am/(pm)

Start Temp: 44 °F End Temp: 45 °F

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (Yes, No or Unknown)	Existing tag # and color, if present
1		None				
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1		None		
2				
3				
4				
5				
6				
7				
8				

Mourning dove
house sparrow

Page: 1 of 1

Transect number: 7

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 4/9/13 (day, month, year) Survey biologist(s): Ted Rado (name, email, and phone number)

Site description: creosote / Joshua tree scrub w/scattered adjacent houses (project name and size; general location)

County: San Bernardino Quad: _____ Location: Phelan (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 8 Transect length: 0.38mi

GPS Start-point: 0448367/3814969 (easting, northing, elevation in meters) Start time: 11:30 am/pm

GPS End-point: 0448370/3814413 (easting, northing, elevation in meters) End time: 11:42 am/pm

Start Temp: 56 °F End Temp: 57 °F

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (Yes, No or Unknown)	Existing tag # and color, if present
1		none				
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1		none		
2				
3				
4				
5				
6				
7				
8				

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 4/9/13 (day, month, year) Survey biologist(s): Tad Rando (name, email, and phone number)

Site description: Creosote / Joshua tree scrub w/ scattered adjacent houses (project name and size; general location)

County: San Bernardino Quad: ____ Location: Phelan - Duncan Rd (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: (100% coverage) or Sampling Area size to be surveyed: ____ Transect #: 9 Transect length: 0.42 mi

GPS Start-point: 6448358 / 3814405 (easting, northing, elevation in meters) Start time: 7:13 (am)/pm

GPS End-point: 6448359 / 3914976 (easting, northing, elevation in meters) End time: 7:25 (am)/pm

Start Temp: 45 °F End Temp: 47 °F

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (Yes, No or Unknown)	Existing tag # and color, if present
1		None				
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1		None		
2				
3				
4				
5				
6				
7				
8				

Mockingbird
WP 171 Nest (Active) in cholla (Baker)

Page: 1 of 1

Transect number: 9

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

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Date of survey: 4/9/13 (day, month, year) Survey biologist(s): Ted Rado (name, email, and phone number)

Site description: creosote / Joshua tree scrub w/scattered adjacent homes (project name and size; general location)

County: San Bernardino Quad: _____ Location: Phelan - Duncan Rd (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 11 Transect length: 0.41

GPS Start-point: 644338/3814988 (easting, northing, elevation in meters) Start time: 7:30 am/pm

GPS End-point: 644336/3814410 (easting, northing, elevation in meters) End time: 7:41 am/pm

Start Temp: 76 °F End Temp: 91 °F

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (Yes, No or Unknown)	Existing tag # and color, if present
1		None				
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1		None		
2				
3				
4				
5				
6				
7				
8				

rock dove
white-crowned sparrow
western meadowlark
side-blotched lizard

Jackrabbit
coyote tracks

Page: 1 of 1

Transect number: 11

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 4/9/13 (day, month, year) Survey biologist(s): Ted Rado (name, email, and phone number)

Site description: creosote / Joshua tree scrub w/scattered adjacent houses (project name and size; general location)

County: San Bernardino Quad: _____ Location: Phelan - Duncan Rd (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 12 Transect length: 0.39 mi

GPS Start-point: 0448328 / 3814414 (easting, northing, elevation in meters) Start time: 11:52 am/pm

GPS End-point: 0448330 / 3814994 (easting, northing, elevation in meters) End time: 12:04 am/pm

Start Temp: 68 °C End Temp: 68 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (Yes, No or Unknown)	Existing tag # and color, if present
1		None				
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1		None		
2				
3				
4				
5				
6				
7				
8				

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 4/9/13 (day, month, year) Survey biologist(s): TJ Rado (name, email, and phone number)

Site description: Creosote / Joshua tree scrub w/scattered adjacent houses (project name and size; general location)

County: San Bernardino Quad: _____ Location: Phelan - Dwight Rd (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 13 Transect length: 0.42

GPS Start-point: 0448318/3814411 (easting, northing, elevation in meters) Start time: 7:45 am/pm

GPS End-point: 0448717/3815001 (easting, northing, elevation in meters) End time: 7:57 am/pm

Start Temp: 47 °F End Temp: 47 °F

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (Yes, No or Unknown)	Existing tag # and color, if present
1		None				
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1		None		
2				
3				
4				
5				
6				
7				
8				

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 4/9/13 (day, month, year) Survey biologist(s): Ted Rado (name, email, and phone number)

Site description: creosote / Joshua tree scrub w/ scattered adjacent houses (project name and size; general location)

County: San Bernardino Quad: _____ Location: Phelan - Dawson Rd (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 15 Transect length: 0.21

GPS Start-point: 0448291 3815009 (easting, northing, elevation in meters) Start time: 7:59 am/pm

GPS End-point: 0448297 / 3814709 (easting, northing, elevation in meters) End time: 8:07 am/pm

Start Temp: 48 °F End Temp: 49 °F

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (Yes, No or Unknown)	Existing tag # and color, if present
1		None				
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1		None		
2				
3				
4				
5				
6				
7				
8				

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 4/9/13 (day, month, year) Survey biologist(s): Ted Rado (name, email, and phone number)

Site description: creosote / Joshua tree scrub w/ scattered adjacent homes (project name and size; general location)

County: San Bernardino Quad: _____ Location: Phelan (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 16 Transect length: 0.21

GPS Start-point: 0448287 / 3815014 (easting, northing, elevation in meters) Start time: 12:09 am/pm

GPS End-point: 0448286/3814710 (easting, northing, elevation in meters) End time: 12:16 am/pm

Start Temp: 68 °C End Temp: 68 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (Yes, No or Unknown)	Existing tag # and color, if present
1		None				
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1		None		
2				
3				
4				
5				
6				
7				
8				

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 4/9/13 (day, month, year) Survey biologist(s): Ted Rado (name, email, and phone number)

Site description: creosote / Joshua tree scrub w/scattered adjacent houses (project name and size; general location)

County: San Bernardino Quad: _____ Location: Phelan - Duncan Rd (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 17 Transect length: 0.23 mi

GPS Start-point: 0448278 / 3814710 (easting, northing, elevation in meters) Start time: 8:09 am/pm

GPS End-point: 0448279 / 3815023 (easting, northing, elevation in meters) End time: 8:26 am/pm

Start Temp: 49 °C End Temp: 48 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (Yes, No or Unknown)	Existing tag # and color, if present
1		None				
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1		None		
2				
3				
4				
5				
6				
7				
8				

COP163 Inactive nest in shell

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 4/9/13 (day, month, year) Survey biologist(s): Ted Rado (name, email, and phone number)

Site description: creosote / Joshua tree scrub w/ scattered adjacent houses (project name and size; general location)

County: San Bernardino Quad: _____ Location: Phelan - Dixon Rd (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 19 Transect length: 0.22

GPS Start-point: 0448257 / 3815030 (easting, northing, elevation in meters) Start time: 8:20 am/pm

GPS End-point: 0448257 / 3814770 (easting, northing, elevation in meters) End time: 8:25 am/pm

Start Temp: 49 °F End Temp: 50 °F

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1		none				
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1		none		
2				
3				
4				
5				
6				
7				
8				

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 4/9/13 (day, month, year) Survey biologist(s): Ted Rado (name, email, and phone number)

Site description: Creosote / Joshua tree scrub w/ scattered adjacent houses (project name and size; general location)

County: San Bernardino Quad: ______ Location: Phelan (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: (100% coverage) or Sampling Area size to be surveyed: ______ Transect #: 20 Transect length: 0.24

GPS Start-point: 0448247/3814718 (easting, northing, elevation in meters) Start time: 12:22 am/pm

GPS End-point: 0448247/3815038 (easting, northing, elevation in meters) End time: 12:30 am/pm

Start Temp: 70 °C End Temp: 70 °C

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1		None				
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1		None		
2				
3				
4				
5				
6				
7				
8				

WP174 – inactive nest in cholla ([illegible] cactus wren)

Page: 1 of 1

Transect number: 20

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 4/9/13 (day, month, year) Survey biologist(s): [illegible] (name, email, and phone number)

Site description: Creosote / Joshua tree, Scrub w/Scattered adjacent houses (project name and size; general location)

County: San Bernardino Quad: ______ Location: Phelan - Duncan Rd (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: ______ Transect #: 21 Transect length: 0.25 mi

GPS Start-point: 0448238/3814713 (easting, northing, elevation in meters) Start time: 8:28 am/pm

GPS End-point: 0448238/3815044 (easting, northing, elevation in meters) End time: 8:35 am/pm

Start Temp: 50 °F End Temp: 50 °F

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (Yes, No or Unknown)	Existing tag # and color, if present
1		None				
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1		None		
2				
3				
4				
5				
6				
7				
8				

WP164 Possibly active cactus wren nest in Joshua near N end.

Transect number: 21

USFWS 2010 Desert Tortoise Pre-Project Survey Data Sheet

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 4/9/13 (day, month, year) Survey biologist(s): Ted Rado (name, email, and phone number)

Site description: Creosote / Joshua tree scrub w/ scattered adjacent houses (project name and size; general location)

County: San Bernardino Quad: ______ Location: Phelan (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: (100% coverage) or Sampling Area size to be surveyed: ______ Transect #: 23 Transect length: 0.26

GPS Start-point: ______ (easting, northing, elevation in meters) Start time: 8:40 (am)/pm

GPS End-point: 0448217 / 3815050 → 0448217 / 3814716 (easting, northing, elevation in meters) End time: 8:49 (am)/pm

Start Temp: 50 °F End Temp: 52 °F

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1		None				
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1		None		
2				
3				
4				
5				
6				
7				
8				

NOTE: 20 m buffer west of 23 (0448197) - no owl signs (housing to west) verdin

Page: 1 of 1

Transect number: 23

USFWS 2010 Desert Tortoise Pre-Project Survey Data Sheet

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 4/9/13 (day, month, year) Survey biologist(s): Nate Moorhatch + Ted Kado (name, email, and phone number)

Site description: Creosote/Joshua Tree scrub w/ scattered adjacent houses (project name and size; general location)

County: San Bernardino Quad: ______ Location: 200 M DT Rkclm (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: Buffer Transect #: 200M DT Buffer Transect length: 2.70 mi

GPS Start-point: 0448389/3815178 (easting, northing, elevation in meters) Start time: 12:53 am/pm

GPS End-point: ______ (easting, northing, elevation in meters) End time: 1:45 am/pm

Start Temp: 68 °F End Temp: 68 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1		None				
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1		None		
2				
3				
4				
5				
6				
7				
8				

start WP 175
WP 178 Ironton nest
Antelope ground squirrel
WP 177 (200 m buffer)
no owl sign
Malacothrix glabrata
Atriplex canescens
Western whiptail
Stylocline wallacei

Page: 1 of 1

Transect number: 200 M DT Buffer

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 9/04/13 (day, month, year) Survey biologist(s): N. Moorlatt (name, email, and phone number)

Site description: _____ (project name and size; general location)

County: San Bndo Quad: _____ Location: _____ (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 4 Transect length: 0.36 mi.

GPS Start-point: 0448408 / 3814412 (easting, northing, elevation in meters) Start time: 11:12 (am)/pm

GPS End-point: 0448408 / 3814948 (easting, northing, elevation in meters) End time: 11:23 (am)/pm

Start Temp: 56 °C/F End Temp: 56 °C/F

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1				
2				
3				
4				
5				
6				
7				
8				

Page: _____of_____

Transect number: _____

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 9/04/13 (day, month, year) Survey biologist(s): N. Moorhatch (name, email, and phone number)

Site description: _____ (project name and size; general location)

County: San Bndo. Quad: _____ Location: Phelan - Duncan Rd. (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 5 Transect length: 0.38 mi.

GPS Start-point: 0448399 3814957 (easting, northing, elevation in meters) Start time: 11:30 am/pm

GPS End-point: 0448398 3814410 (easting, northing, elevation in meters) End time: 11:42 am/pm

Start Temp: 56 °C End Temp: 57 °C

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2			NONE			
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1				
2			NONE	
3				
4				
5				
6				
7				
8				

2010 Field Season

☆ Erodium cicutarium
☆ Bromus mad. rubens
Krascheninnokia lanata
Cylindropuntia echinocarpa
Ambrosia

Eriog. fasc.
Guiterrezia sp.
Lycium cooperi
Ephedra nev.
Vinegar weed (Lessingia)

HOSP

Page: _____ of _____

Transect number: _____

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 9/24/13 (day, month, year) Survey biologist(s): N. Marchasek (name, email, and phone number)

Site description: _____ (project name and size; general location)

County: San Bndo. Quad: _____ Location: Duncan (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage of Sampling Area size to be surveyed: _____ Transect #: 10 Transect length: 0.39 mi

GPS Start-point: 448348 3814411 (easting, northing, elevation in meters) Start time: 11:52 am/pm

GPS End-point: 448348 3814982 (easting, northing, elevation in meters) End time: 12:04 am/pm

Start Temp: 68 °C/F End Temp: 68 °C

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3			NONE			
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1				
2				
3			NONE	
4				
5				
6				
7				
8				

Grayia spinosa (hop-sage)
Lycium cooperi
☆ Bromus tectorum
Amsinckia tesselata
☆ Schismus sp.
Ambrosia acanthicarpa
Salsola tragus
Ambrosia salsola
Salazaria mex.

CACW
HOFI
COHU

Page: _____ of _____

Transcribe number: _____

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 9/04/13 (day, month, year) Survey biologist(s): N. Moorhatch (name, email, and phone number)

Site description: _____ (project name and size; general location)

County: San Bndo. Quad: _____ Location: Phelan - Duncan Rd. (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 14 Transect length: 0.21 mi.

GPS Start-point: 449307 3815005 (easting, northing, elevation in meters) Start time: 12:09 am/pm

GPS End-point: 448306 3814696 (easting, northing, elevation in meters) End time: 12:16 am/pm

Start Temp: 68 °C End Temp: 68 °C

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2			NONE			
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1				
2			NONE	
3				
4				
5				
6				
7				
8				

BTSP

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 9/04/13 (day, month, year) Survey biologist(s): N. Moorhatch (name, email, and phone number)

Site description: _____ (project name and size; general location)

County: San Bndo. Quad: _____ Location: Phelan-Duncan Rd. (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage of Sampling Area size to be surveyed: _____ Transect #: 18 Transect length: 0.24 mi.

GPS Start-point: 448268 3814711 (easting, northing, elevation in meters) Start time: 12:22 am/pm

GPS End-point: 448268 3815023 (easting, northing, elevation in meters) End time: 12:29 am/pm

Start Temp: 70 °C End Temp: 70 °C

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3				None		
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1				
2				
3			NONE	
4				
5				
6				
7				
8				

NOMO

Page: _____ of _____

Transect number: _____

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date of survey: 9/04/13 (day, month, year) Survey biologist(s): N. Moorhatch (name, email, and phone number)

Site description: _____ (project name and size; general location)

County: San Bndo Quad: _____ Location: Phelan - Duncan Rd. (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 22 Transect length: 0.25 mi.

GPS Start-point: 448 227 3815043 (easting, northing, elevation in meters) Start time: 1234 am/pm

GPS End-point: 448227 3815715 (easting, northing, elevation in meters) End time: 1240 am/pm

Start Temp: 70 °C End Temp: 70 °C

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3			NONE			
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1				
2				
3				
4			NONE	
5				
6				
7				
8				

MODD HOSP

Page: _____ of _____

Transect number: _____