SNOWLINE SCHOOL DISTRICT PIÑON HILLS SOLAR PV PROJECT

GENERAL BIOLOGICAL RESOURCES ASSESSMENT

PIÑON HILLS AREA OF UNINCORPORATED SAN BERNARDINO COUNTY, CALIFORNIA
USGS 7.5' MESCAL CREEK, CA QUADRANGLE
TOWNSHIP 4 NORTH, RANGE 7 WEST, SOUTH ½ OF NORTHEAST ¼ OF SECTION 7
APN 3068-191-01 & APN 3068-191-02

Prepared for Owner/Applicant:
Reno Contracting, Inc.
1450 Frazee Road, Suite 100
San Diego, CA 92108
Office: (619) 220-0224 x 6228

Contact: Eric Scheidlinger
Project Manager

Prepared by:
AMEC Environment & Infrastructure, Inc.
3120 Chicago Avenue, Suite 110
Riverside, California 92507
Office: (951) 369-8060

Principal Investigator:
Nathan T. Moorhatch, Biologist

Biologists Who Performed Fieldwork On-Site:
Nathan T. Moorhatch
Scot Chandler
Ted Rado
Phillip Clevinger

August 2013
AMEC Project No. 1355400534

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

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 Piñon Hills (a census-designated place or CDP), San Bernardino County, California. Five special status wildlife species were observed, and Joshua trees (*Yucca brevifolia*) and golden cholla (*Cylindropuntia echinocarpa*) which are protected by county ordinance, are present. Habitat for several special status species is present. In addition, 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 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 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 Piñon Hills CDP, 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 Project site consists of two parcels: APN: 3068-191-01 and APN: 3068-191-02, both of which are 10.07 acres (for a total 20.14-acres). Additionally, there are two easements that are intended to serve as corridors for "gen-tie" lines. The northern 60 foot-wide easement extends from the northeast corner of APN: 3068-191-01 and runs east to Oasis Road, and the southern 30 foot-wide easement extends from the southeast corner of APN: 3068-191-02 and also runs east to Oasis Road. The property is bordered by undeveloped lands to the south and west; low density residential development and undeveloped land to the northwest and north respectively; and undeveloped land, a photovoltaic array, and the Piñon Hills Elementary School to the east (see Figure 1, Appendix A). The property is located on the 7.5-minute Mescal Creek, CA United States Geological Survey (USGS) quadrangle in Township 4 North, Range 7 West, southern ½ of the northeast ¼ of Section 7 (see Figure 2). The Project site is almost level, gently sloping from an elevation of approximately 3,880 feet above mean sea level (AMSL) on the southern edge of the site to approximately 3,850 feet AMSL on the northern edge of the site.

Vegetation on the Project site is an intergrade (ecotone) between Joshua Tree Woodland and Mojavean Juniper Woodland and Scrub elements. Dominant arborescent species include Joshua tree

(*Yucca brevifolia*) and California juniper (*Juniperus californica*). Dominant "understory" species include peach thorn (*Lycium cooperi*), Nevada ephedra (*Ephedra nevadensis*), blue sage (*Salvia dorrii*), California buckwheat (*Eriogonum fasciculatum*), Cooper's goldenbush (*Ericameria cooperi* var. *cooperi*), and bladder-sage (*Scutellaria mexicana*). Creosote bush (*Larrea tridentata*) is distributed sparsely on the Project site. The habitat shows signs of anthropogenic disturbance, such as mechanical disturbance of soil, vegetation removal, off road vehicle tracks, presence of dirt roads on some parts of the site, domestic dog "diggings" (dug out burrows), and trash. Two drainages cross the Project site, for more information on the hydrology of the site please refer to the separate Jurisdictional Delineation report that AMEC is preparing for this Project.

Three soil types are mapped on the Project site (USDA 2013): Tujunga Sand, 2 to 9 percent slopes, is the only soil type mapped on APNs -01 and -02. A small area of Cajon Sand, 2 to 9 percent slopes, is mapped on the eastern end of the northern "gen-tie" easement, and another small area of Soboba Gravelly Sand, 2 to 9 percent slopes, is mapped on the southern edge of the western end of the southern "gen-tie" easement (see Figure 2 in Appendix A). 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 Tujunga-Soboba soil association is similar to the Cajon series in that they are also formed in alluvium from granitic sources and are also very deep, somewhat excessively drained to excessively drained soils. The main "differences" from the Cajon series are that soils of the Tujunga-Soboba association have slopes that range from 0 to 9 percent, and are often associated with alluvial valley floors.

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: Lovejoy Buttes, El Mirage, Phelan, Valyermo, 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 10 and 11, 2013. AMEC subconsultant Phillip Clevinger assisted Mr. Moorhatch and Mr. Rado on April 11. Mr. Moorhatch was assisted by AMEC Biologist Scot Chandler (and Mr. Clevinger) during completion of the desert tortoise "zone of influence" transects on April 12, 2013. On April 17, 2013 Mr. Moorhatch visited the site to look for rare plants and any plant species in general that may have been overlooked during the previous visits. Mr. Moorhatch and Mr. Rado surveyed the two "gen-tie" easements on May 1, 2013. 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 Piñon Hills Surveys

Date/Survey Type	Observer(s)	Time	Temp. (°F) Wind (mph)	Sensitive species observed?
10 April 2013	Moorhatch & Rado	0906-1407	63-72°F 0-4 mph	No
11 April 2013	Moorhatch, Rado & Clevinger	0620-0817	60-60°F 0-6 mph	No
12 April 2013	Moorhatch, Chandler & Clevinger	1130-1330	78-83°F 0-5mph	No
17 April 2013	Moorhatch	1323-1524	62-64°F 0-8mph	No
1 May 2013	Moorhatch & Rado	1335-1445	79-80°F 3-9mph	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 may include 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
Calochortus palmeri var. *palmeri*	Palmer's mariposa-lily	None	S2.1	1B.2	Vernally moist areas in Yellow-pine forest & chaparral, such as meadows and seeps. 1,000-2,390m. April-July	Absent Moist microhabitat not present on site

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Calochortus striatus	Alkali mariposa-lily	None	S2	1B.2	Alkaline meadows and ephemeral washes in chaparral, chenopod and Mojavean Desert Scrub, meadows. 70-1,595m. April-June.	Absent Habitat not present on site, author is familiar with this species' habitat requirements (field observations)
Calystegia peirsonii	Peirson's morning-glory	None	S3.2	4.2	Chaparral, Chenopod & Coastal sage scrubs, cismontane woodland, lower montane coniferous forest: disturbed areas or along roadsides in open, grassy areas. 30-1,500m. April-June.	Absent No morning-glory species observed on site during surveys
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
Clarkia xantiana ssp. *parviflora*	Kern Canyon clarkia	None	S3	4.2	Dry slopes in cismontane woodland and Great Basin scrub, 800-3,620m. May-June	Absent Habitat present but no Clarkia species observed during surveys, single CNDDB record is disjunct from remainder of species' range, may be inaccurate
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.
Lupinus peirsonii	Peirson's lupine	None	S2	1B.3	Joshua Tree Woodland, Pinyon-Juniper Woodland, Upper Montane Coniferous Forest, 1,000-2,000m	Absent No lupines observed on site during surveys, no CNDDB records from Mescal Quad.
Malacothamnus davidsonii	Davidson's bush-mallow	None	S2	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, single CNDDB record is from 1929 and is > 9 miles southwest of the site
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, but two plants are present on the offsite buffer area

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		Federal	**State**	**CNPS (plants)**		
Oreonana vestita	Woolly mountain-parsley	None	S3	1B.3	High ridges; scree, talus, and gravel areas in Subalpine and Upper Montane Coniferous forest. 2,410-3,500m	Absent Habitat not present on site, site is far below elevational range of species
Orobanche valida ssp. *valida*	Rock Creek broomrape	None	S2	1B.2	Decomposed granite slopes in chaparral, pinyon-juniper woodland; 1,705-1,820m	Absent Habitat not present on site, site is below elevational range of species
Plagiobothrys parishii	Parish's popcornflower	None	S1	1B.1	Alkaline soils (mesic areas) in Great Basin Scrub, Joshua Tree Woodland. 750-1,400m. March-June (rarely November)	Absent Habitat not present on site, single CNDDB record is from 1917 and is ~16 miles NE of Palmdale
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
Amphibians & Reptiles						
Rana muscosa	Sierra Madre Yellow-legged Frog	**FE**	**CE**		In the mountains of southern California, inhabits rocky streams in narrow canyons and in the chaparral belt. Deep pools are important as summer refugia and for overwintering larvae	Absent No habitat onsite
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, habitat is not typical for this species
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 ~3 mi. SW of site. Site has some disturbance, close proximity to domestic cats and dogs

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		Federal	**State**	**CNPS (plants)**		
Thamnophis hammondii	Two-striped Garter Snake	None	SC, S2		This highly aquatic snake is found in or near permanent/intermittent streams or ponds with rocky beds (streams) and riparian vegetation	Absent No habitat onsite
Birds						
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 underway on site
Accipiter striatus	Sharp-shinned Hawk	None	WL		This small raptor is considered an uncommon to fairly common transient and winter visitor from mid-Sept. to mid-April. Confirmed nesting rare in CA.	Occurs (Winter visitor to our area, breeds further north, rarely in CA, individual observed likely a migrant/wintering bird)
Falco mexicanus	Prairie Falcon	BCC	S3		Dry, open terrain (level or hilly), nests on cliffs	Low (foraging) Absent (nesting)
Calypte costae	Costa's Hummingbird	None	S3?		Widespread species in our area, usually nests in low desert areas from Jan. - March	Occurs (potential nesting habitat present)
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.	Occurs Foraging and nesting habitat present, observed during MGS 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.	Low No thrashers observed onsite during multiple visits, 1986 CNDDB record from <1 mile N of site. However, only the San Joaquin population is considered sensitive
Setophaga petechia	Yellow Warbler	BCC	SC, S2		Riparian-nesting species that has experienced a 40-80% population reduction due to habitat loss and alteration, nest predation and parasitism	Occurs (No riparian breeding habitat present, likely observed during migration)
Spizella breweri	Brewer's Sparrow	None	S3		Fairly common winter visitor over much of the Mohave Desert (less so in the southern Mohave). Most breeding areas are east of the Cascades/Sierras axis, and in Desert Mountain ranges (White and Inyo Mtns.)	Occurs (Does not normally breed in project area, birds observed likely wintering)

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		Federal	**State**	**CNPS (plants)**		
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, closest record is >3 miles west of site
Dipodomys merriami parvus	San Bernardino kangaroo rat	**FE**	SC, S1		Alluvial scrub vegetation on sandy loam substrates (early to intermediate vegetation growth stages).	Absent Single 1958 CNDDB record is from > 10 miles NW of site, vegetation on site is past the early to intermediate seral stage
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)
Myotis evotis	Long-eared Myotis	None	S4?		Has been found in nearly all brush, woodland and forest habitats from sea level to 9,000 ft., but prefers coniferous woodlands and forests. Roosts in caves, buildings, crevices.	Absent (roosting) Low (foraging)
Myotis volans	Long-legged Myotis	None	S4?		Most common in forest and woodland habitats above 4,000ft., Day roosts in trees, night roosts in caves and mines, nursery colonies under bark or in hollow trees	Absent (roosting)| Absent (foraging) Site is below preferred elevation, habitat not on site
Onychomys torridus ramona	Southern grasshopper mouse	None	SC, S3?		Desert areas in scrub habitats with friable soils for digging. Prefers low to moderate shrub cover.	Low Habitat present
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

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		Federal	**State**	**CNPS (plants)**		
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 Mojavean Juniper Woodland and Scrub.	"Occurs" Ecotonal with Mojavean Juniper Woodland and Scrub, does not meet CDFW criteria for "High Priority Vegetation Type": has invasive exotics, disturbance, adjacent infrastructure.
Canyon Live Oak Ravine Forest		None	S3.3		A forest community dominated by canyon live oak (may contain some conifers) that occurs on stream benches and terraces; may occur in canyon bottoms near streams. Soils shallow, well-drained.	Absent Habitat not present on or adjacent to site
Mojave Riparian Forest		None	S1.1		Open, broad-leaved, deciduous streamside forest dominated by Fremont cottonwood, black willow, and red willow. Understory includes rubber rabbitbrush, shadscale, and desert olive.	Absent Habitat not present on or adjacent to site
Southern Sycamore Alder Riparian Woodland		None	S4		Open (seldom closed-canopy), broad-leaved, deciduous streamside forest dominated by California sycamore and white alder	Absent Habitat not present on or adjacent to site

[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
CE = State Candidate for listing as Endangered
SC = State Species of Concern
INV = Communities that are known or believed to be of high priority for inventory in CNDDB
WL=Watch List

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 Semi-desert Chaparral and Joshua Tree Woodland, dominated by Joshua tree, California juniper, peach thorn, bladder-sage, blue sage, Cooper's goldenbush, and California buckwheat (see Appendix B for photos). Wildlife and plant species observed are included in Appendix C. Annual plant numbers and diversity were very low, and two nonnative, weedy species: redstem filaree (*Erodium cicutarium*) and Mediterranean schismus (*Schismus barbatus*) were the dominant annuals that had germinated on the site at the time of the surveys, although some native annual plants were also identified on the site. 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). Two bird nests were also observed on the site, both in golden cholla (*Cylindropuntia echinocarpa*) (see Figure 5,

Appendix A). These were likely cactus wren (*Campylorhynchus brunneicapillus*) nests. There were areas of relatively recent ground disturbance and vehicle tracks present (see Photos). Several Joshua trees protected by county code are present onsite.

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 on the Project site during the field visits or during a focused survey performed specifically for rare plants. Two short-joint beavertail cacti (*Opuntia basilaris* var. *brachyclada*) were found within the 500 foot buffer area surveyed for burrowing owl, north of the main Project site (APNs -01 and -02, see Figure 3), but no short-joint beavertail were observed on the actual Project site. 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 eighteen 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 Piñon Hills 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 Project 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 Joshua trees and golden cholla 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 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 Mojavean Juniper Woodland and 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 Special Status (Unlisted) Wildlife

Five sensitive bird species were observed on the Project site during the performance of the protocol Mohave ground squirrel trapping program: sharp-shinned hawk, Costa's Hummingbird, loggerhead shrike, yellow warbler, and Brewer's sparrow. Of these five species, only the loggerhead shrike and yellow warbler are considered by the CDFW as "Species of Special Concern" (SC). The sharp-shinned hawk is considered a "Watch List" species by the CDFW. Costa's hummingbird and Brewer's sparrow do not have a formal sensitivity designation, apart from a State ranking of S3 (Vulnerable). Both sharp-shinned hawk and Brewer's sparrow are considered uncommon to common wintering birds in the Project area, and are not expected to breed in the Project vicinity. Yellow warblers are riparian-nesting birds, and since this habitat is not present on the Project site, it is likely that the observation of this bird on the site represents a migrating individual. There is some potential for both Costa's hummingbird and loggerhead shrike to nest on the Project site (although no nests of either species were observed during the surveys). Whereas loggerhead shrikes can be encountered throughout the year in the Mohave Desert; Costa's hummingbirds usually withdraw from the hotter desert regions by the end of May (coinciding with a general decline of flowers). Apart from the conditions of the Migratory Bird Treaty Act (MBTA – please see Section 5.6 for discussion and provisions), specific mitigation is not usually required for these five unlisted bird species. Additionally, AMEC biologists are unaware of any specific mitigations applied to wintering and migrating birds.

There is a low possibility that an additional seven unlisted and one State-listed sensitive species could occur onsite (or periodically utilize the site for foraging): coast horned lizard, burrowing owl, prairie falcon, pallid San Diego pocket mouse, southern grasshopper mouse, Mojave ground squirrel, western mastiff bat, and long-eared myotis. Marginal habitat for the coast horned lizard, southern grasshopper mouse 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 prairie falcons 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. No thrashers were observed on the site during multiple field visits; the only Mimid observed on the Project site and vicinity was northern mockingbird. Although there are CNDDB records for Le Conte's thrasher less than a mile north of the Project site, the CDFW only considers the San Joaquin population to be sensitive. This geographically isolated population of Le Conte's thrasher only inhabits the southern San Joaquin Valley and adjacent Cuyama Valley and Carrizo Plain, and as a permanent resident of those areas would not be expected on the Project site. Both the western mastiff bat and long-eared myotis would not be expected to roost on the project site, but have a low potential to occasionally forage over the site. Burrowing owls will be discussed in more detail in Section 5.4 of this report. The State-listed threatened Mojave ground squirrel is discussed in a separate report. None of these seven species are formally listed as threatened or endangered by the state and federal agencies, although all but the prairie falcon and long-eared myotis are considered "Species of Concern" by the CDFW.

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 and proximity to known tortoise range provides a low potential for desert tortoises to occur on the site and/or surrounding area. 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 presence of an elementary school on the eastern 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 two Coyote (*Canis latrans*) burrows are present in the 500 foot buffer area (area established by the CDFG 2012 survey protocol – see Figure 3 Appendix A). One California ground squirrel (*Spermophilus beecheyi*) burrow is present within the northern "Gen-tie" alignment (see Figure 4 in Appendix A). Although it is unlikely that burrowing owls would occupy these areas (the vegetation is fairly dense with less open ground), it cannot be ruled out. AMEC has already completed 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 migratory native bird, nest, egg or parts thereof. Introduced species such as house sparrow, European starling, and rock pigeon are not protected. 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 two bird nests on the Project site (located in golden chollas), one on the site proper, and one on the northern "Gen-tie" alignment (see Figure 5 in Appendix A).

5.7 Jurisdictional Waters

Three ephemeral drainages are present on the Project site (see Figure 7 in Appendix A). These drainages are largely unvegetated, and do not have any associated riparian vegetation. All three of these features qualify as both CDFW jurisdictional and as "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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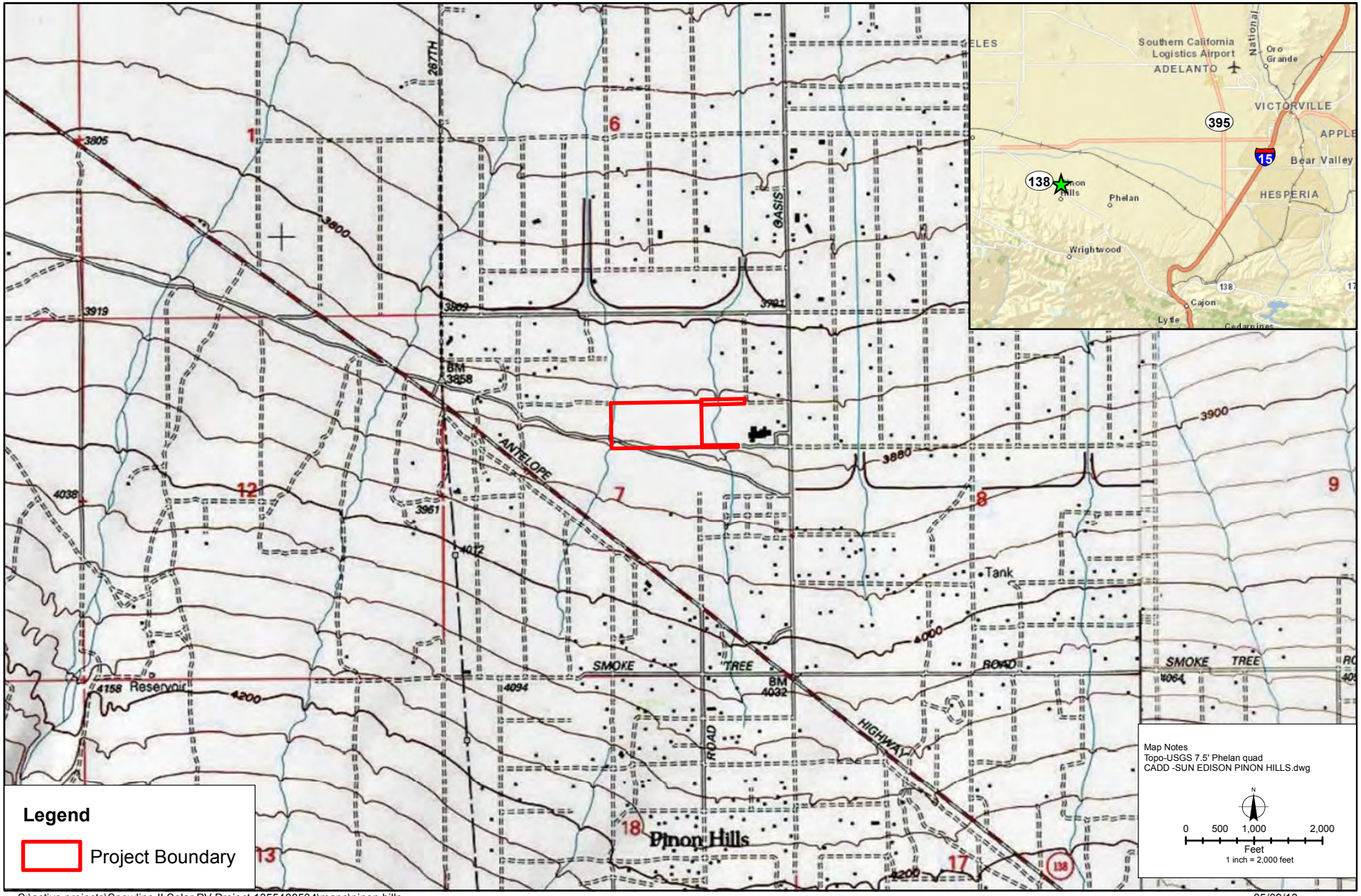
7.0 CERTIFICATION

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: 20 May 2013 SIGNED: Nathan Moorhatch

1) Fieldwork Performed By:
   Nathan T. Moorhatch

Appendix A Project Map Figures



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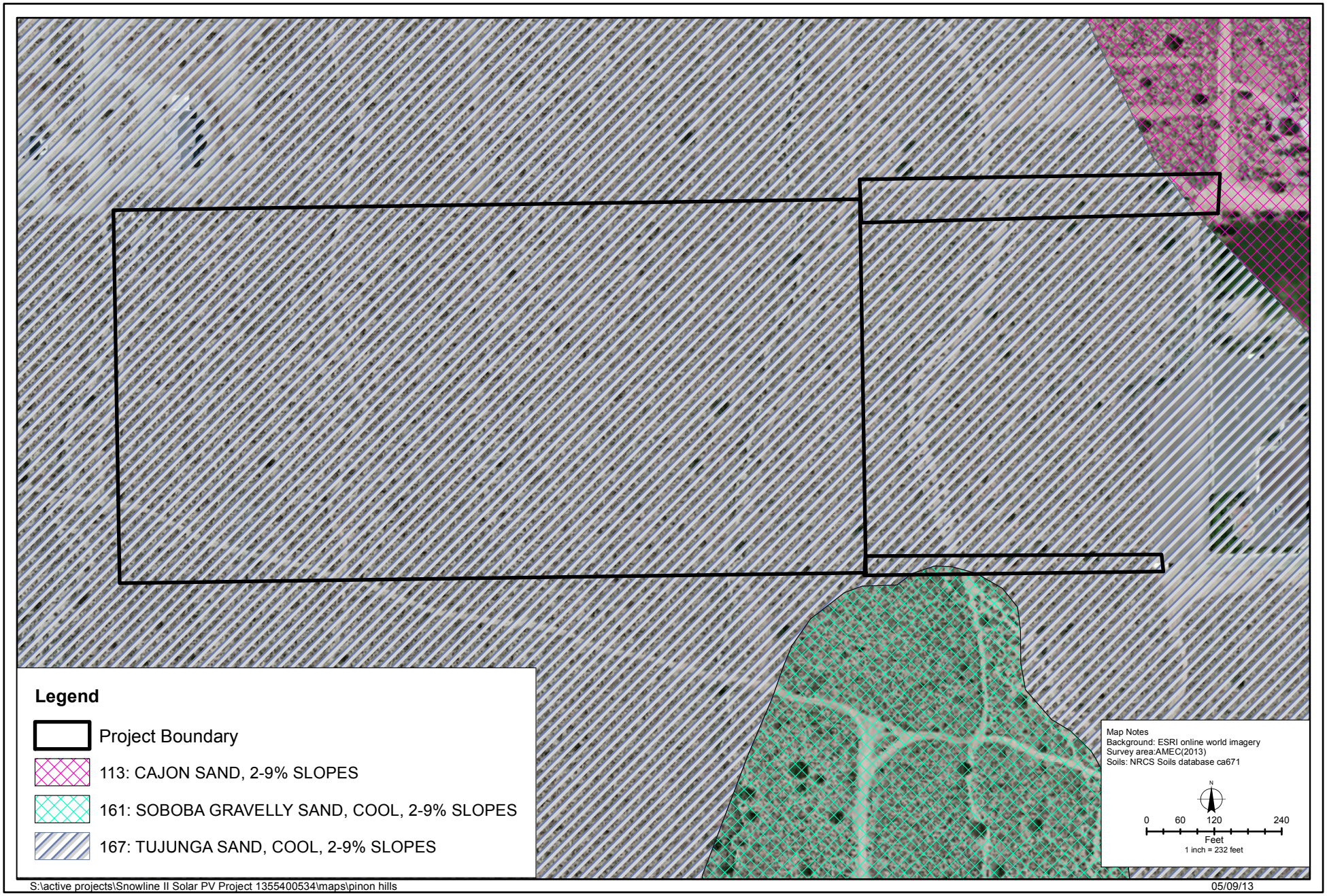
Vicinity & Location
General Biological Assessment

FIGURE
1



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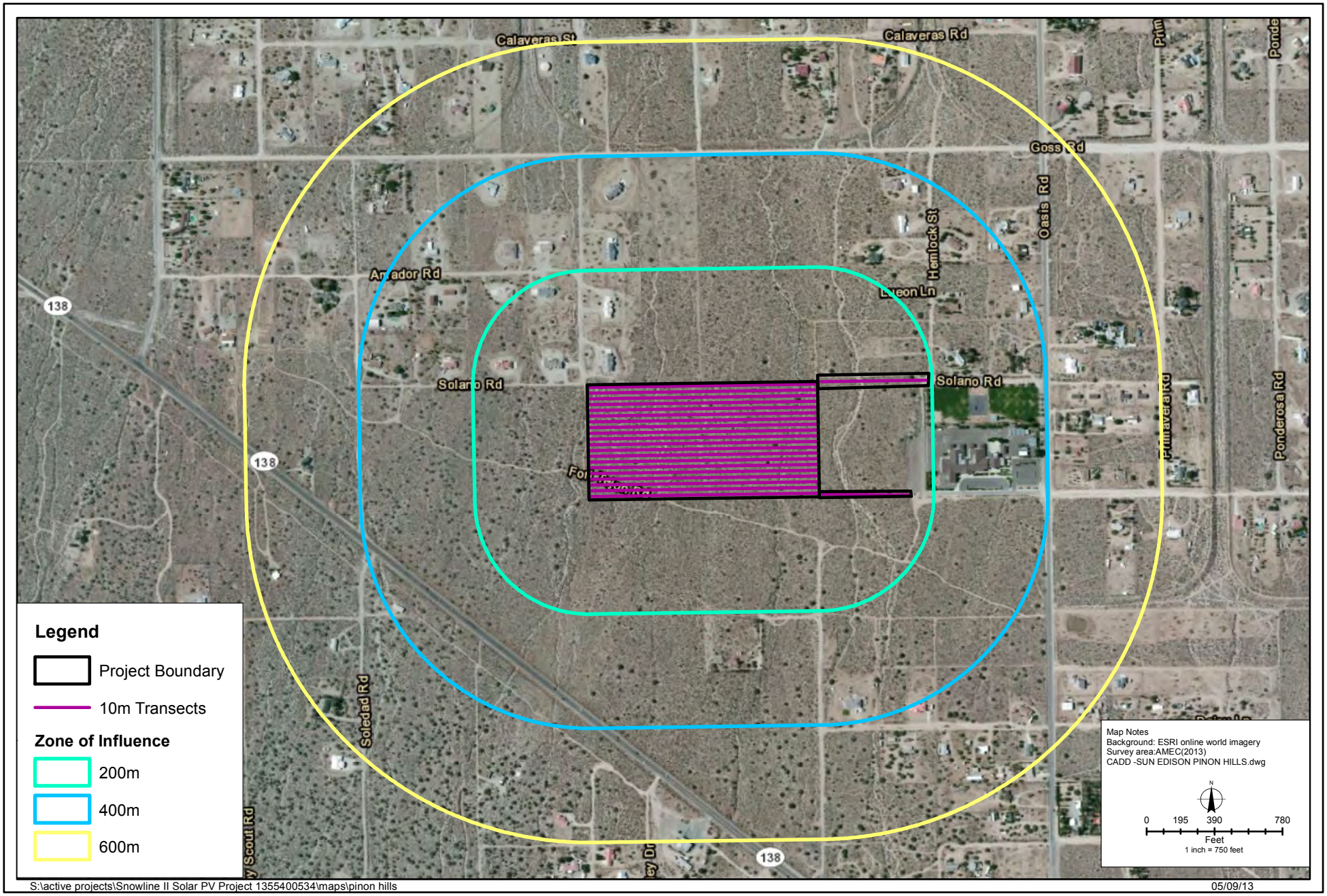
Soils Map
General Biological Assessment

FIGURE

2



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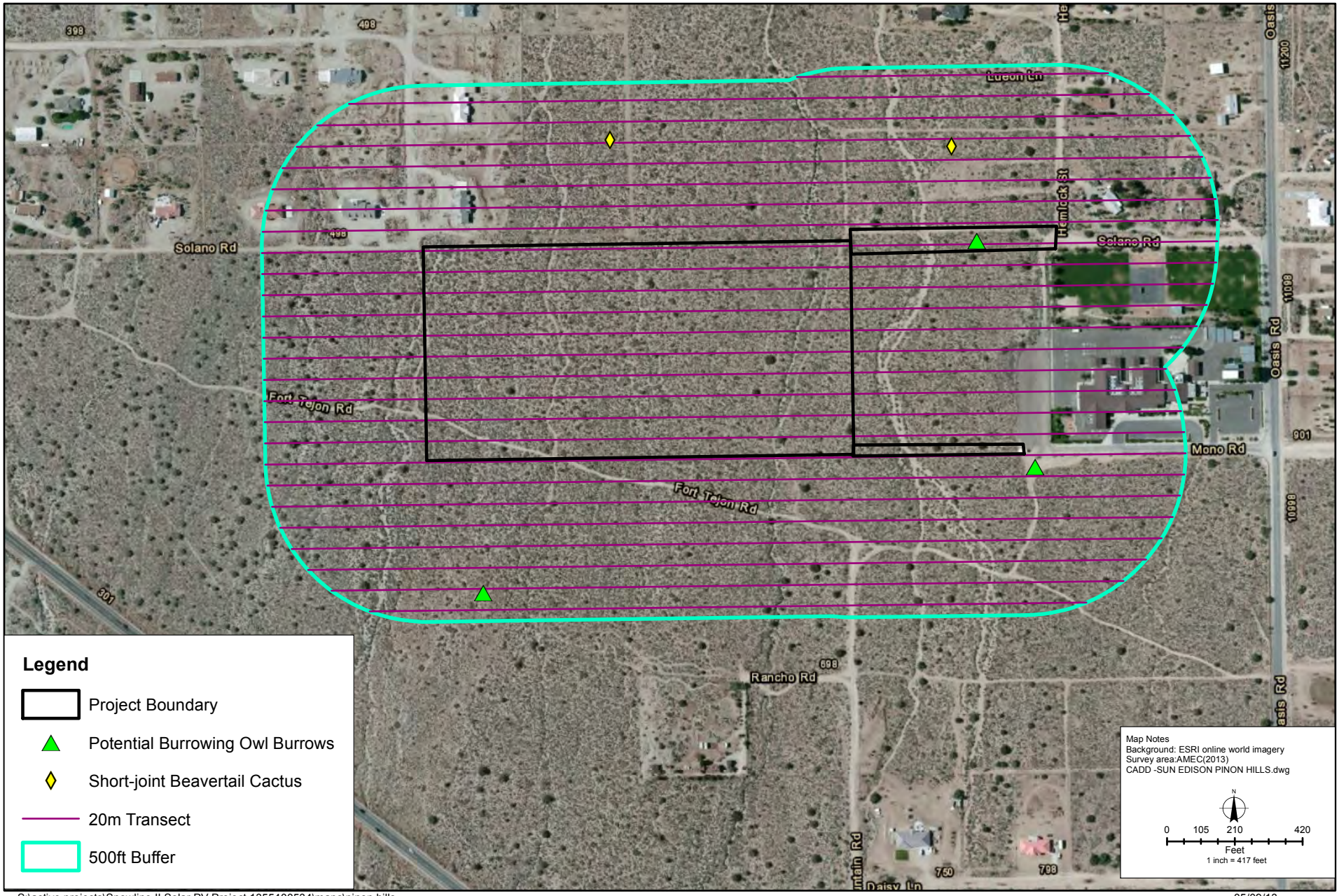
Desert Tortoise Survey Area
General Biological Assessment

FIGURE

3



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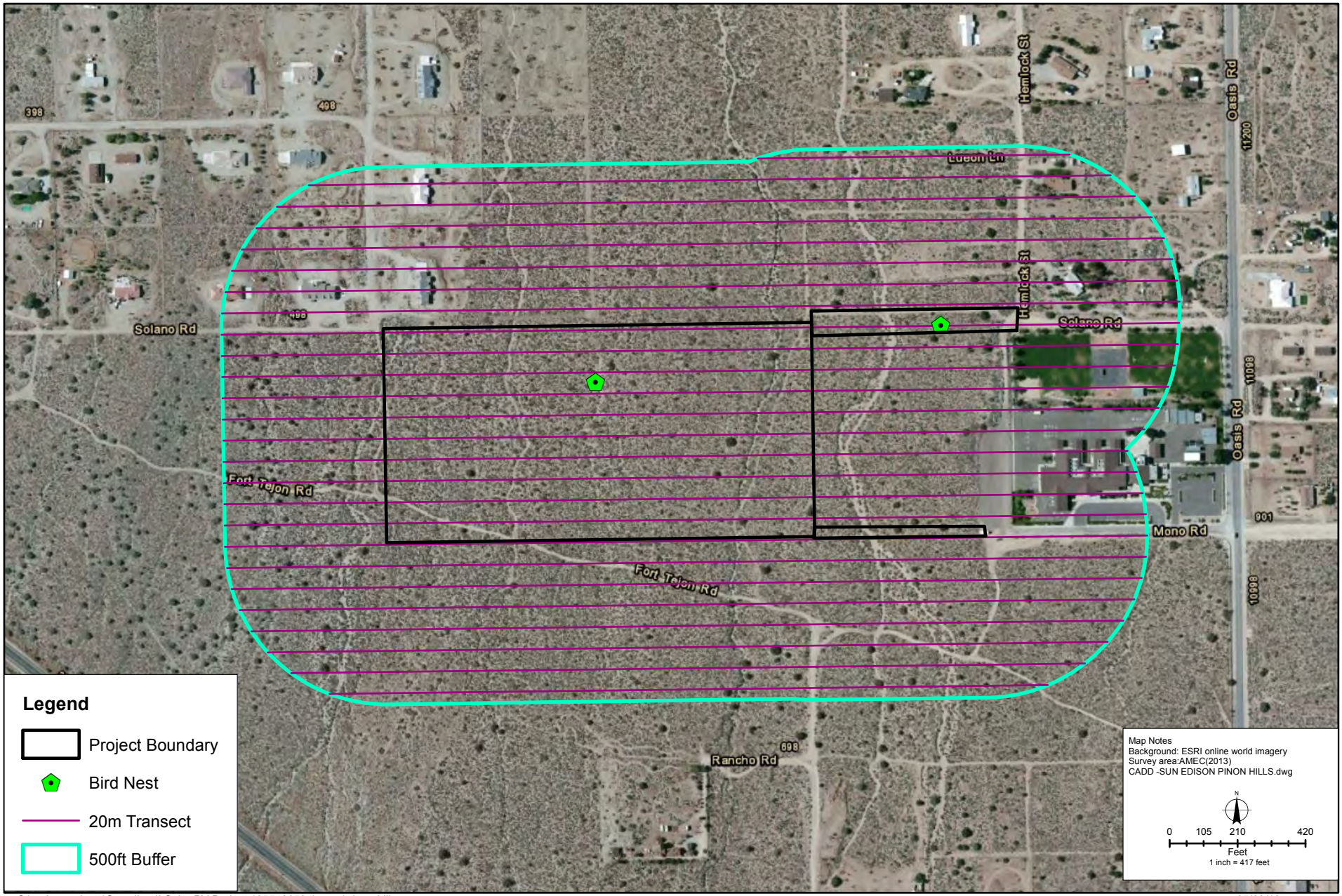
Burrowing Owl Survey Areas & Results
General Biological Assessment

FIGURE
4



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Bird Nest Location
General Biological Assessment

FIGURE

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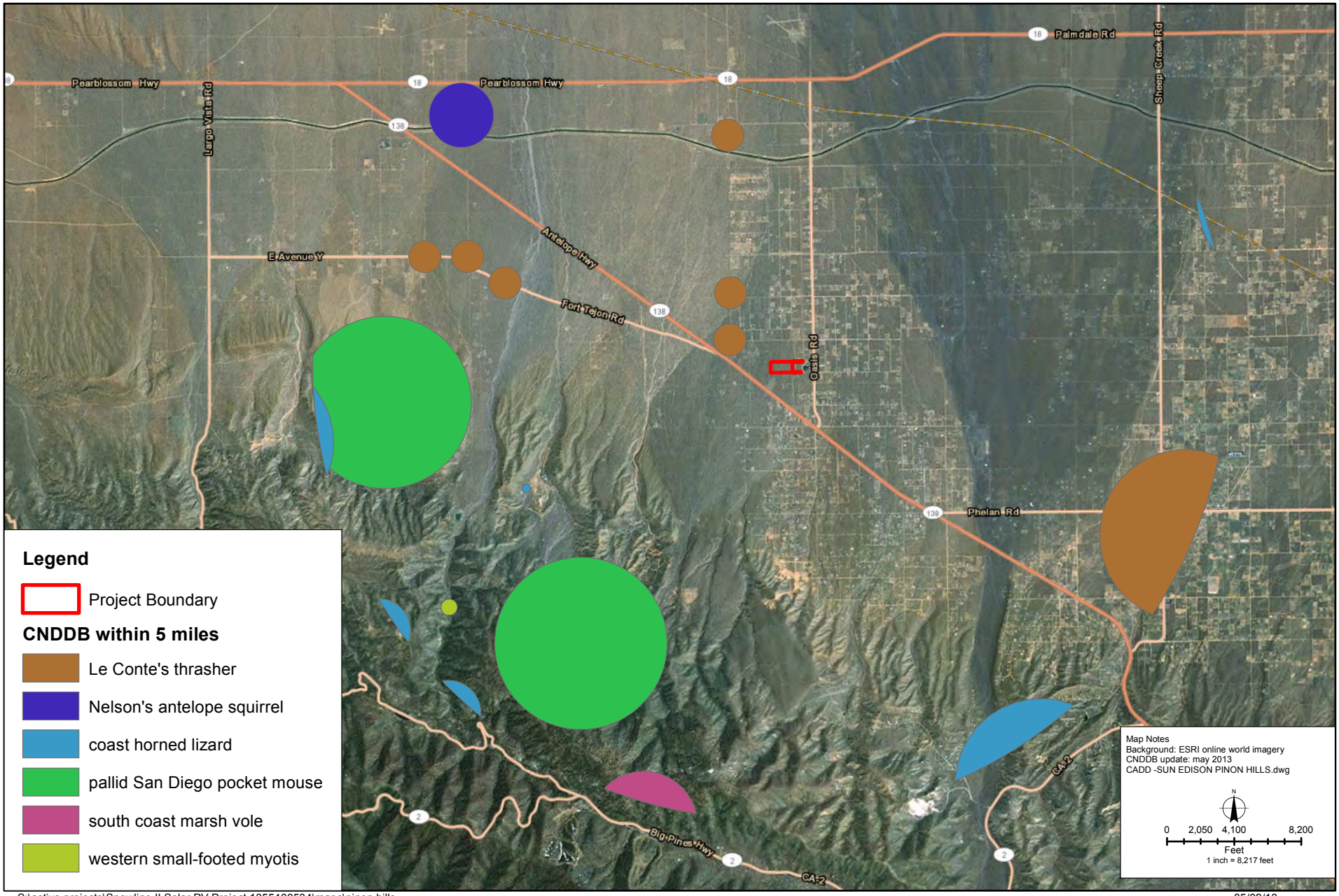

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CNDDB Animals
General Biological Assessment

FIGURE
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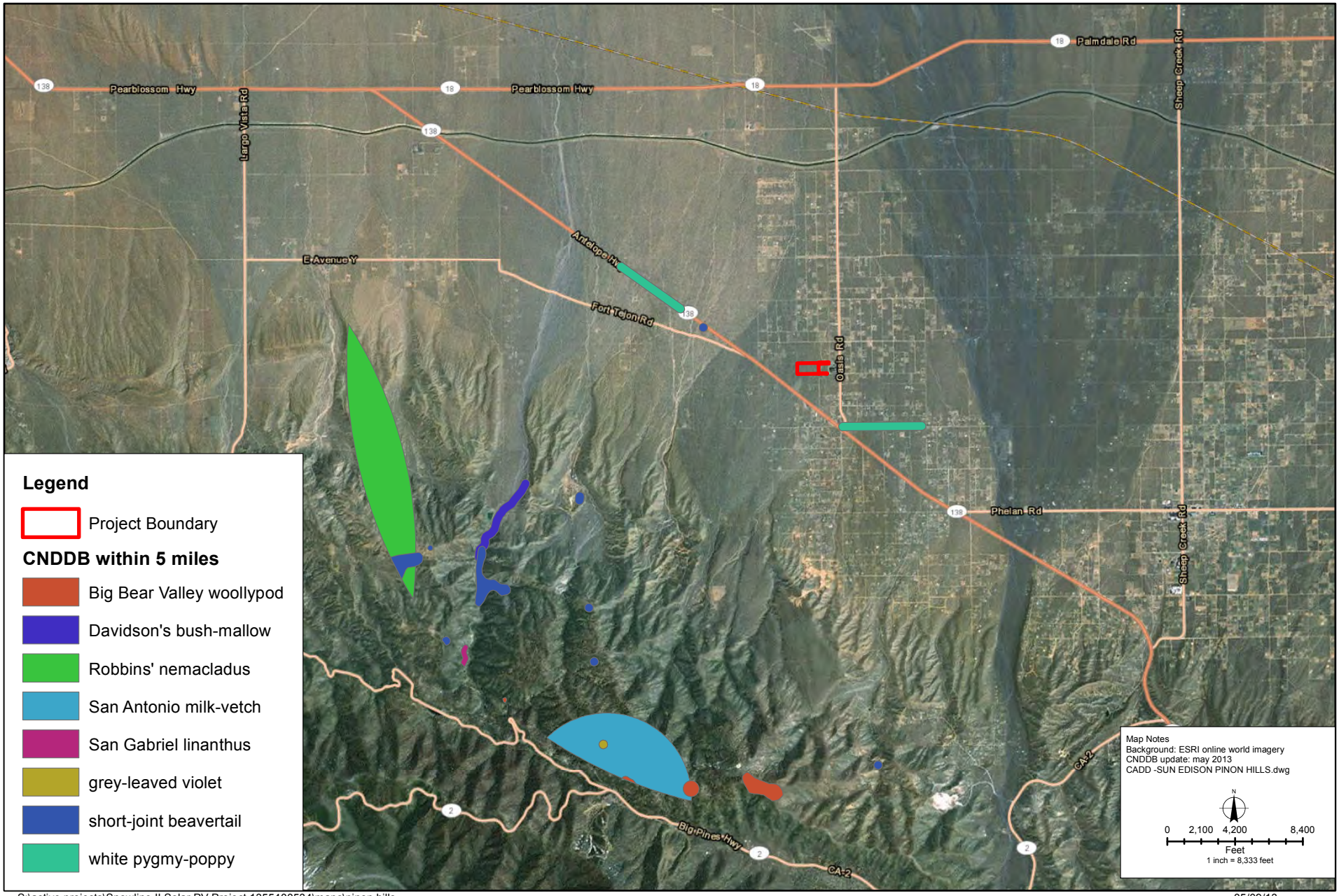

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CNDDB Plants
General Biological Assessment

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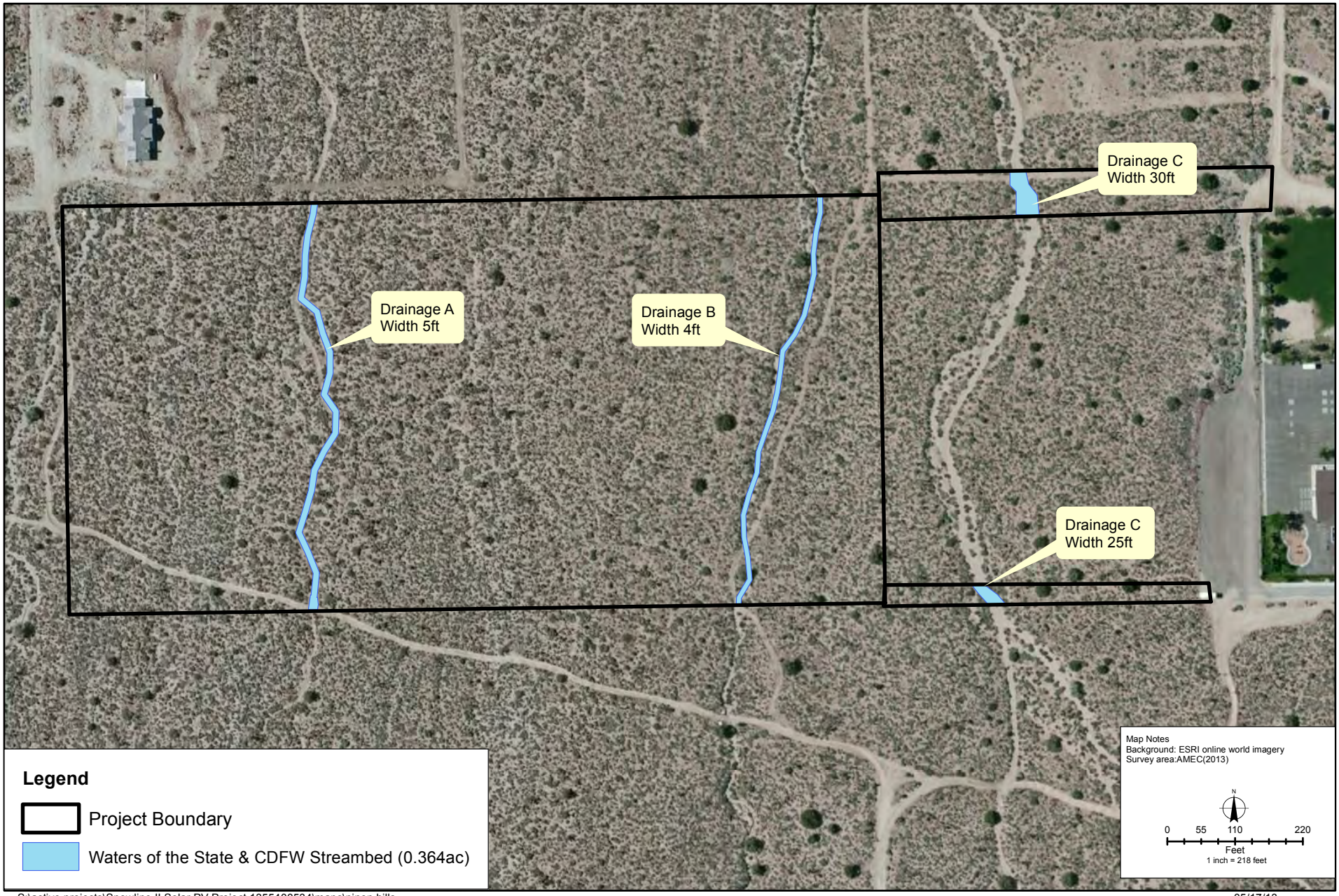

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Jurisdictional Delineation
Pinon Hills

FIGURE
7

Appendix B Site Photographs

Photograph 1. Representative view of Semi-desert Chaparral/Joshua Tree Woodland intergrade habitat on the Piñon Hills project site.

Photograph 2. Small drainage on the Piñon Hills project site.

Photograph 3. Dirt road on the project site.

Photograph 4. ORV tracks on the Piñon project site.

Photograph 5. Desert spiny lizard (*Sceloporus magister*) on project site.

Photograph 6. Ground view at Piñon Hills site showing lack of annuals (due to low rainfall).

Photograph 7. California ground squirrel burrow on northern "Gen-tie" line, potential for burrowing owl use.

Photograph 8. Bird nest in golden cholla on northern "Gen-tie" line.

Appendix C Species Lists

Plant Species Observed on the Project Site

CUPRESSALES	
Cupressaceae	**Cypress Family**
Juniperus californica	California juniper
EPHEDRALES	
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 cooperi var. *cooperi*	Cooper's goldenbush
Ericameria nauseosa	rubber rabbitbrush
Gutierrezia microcephala	sticky snakeweed
Layia glandulosa	white layia
Lessingia glandulifera var. *glandulifera*	vinegar weed
Tetradymia axillaris	longspine horsebrush
Tetradymia stenolepis	cottonthorn
Boraginaceae	**Borage Family**
Amsinckia tessellata	checker fiddleneck
Cryptantha circumscissa	cushion cryptantha
Phacelia fremontii	Fremont's phacelia
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**
Salvia dorrii	blue sage
Scutellaria mexicana	bladder-sage
Loasaceae	**Loasa Family**
Mentzelia albicaulis	whitestem blazingstar

Nyctaginaceae	**Four O'Clock Family**
Mirabilis laevis	desert wishbone-bush
Onagraceae	**Evening-Primrose Family**
Camissonia campestris	Mojave suncup
Plantaginaceae	**Plantain Family**
Plantago ovata	woolly plantain
Polemoniaceae	**Phlox Family**
Eriastrum sapphirinum ssp. *sapphirinum*	sapphire woollystar
Loeseliastrum schottii	Schott's calico
Polygonaceae	**Buckwheat Family**
Centrostegia thurberi	red triangles
Chorizanthe watsonii	Watson's spineflower
Eriogonum fasciculatum	California buckwheat
Solanaceae	**Nightshade Family**
Datura wrightii	jimson weed
Lycium andersonii	Anderson's desert-thorn
Lycium cooperi	peach thorn
Zygophyllaceae	**Caltrop Family**
Larrea tridentata	creosote bush

MONOCOTS

Liliaceae	**Lily Family**
*********Hesperoyucca whipplei*	chaparral yucca
*********Yucca brevifolia*	Joshua tree
Poaceae	**Grass Family**
**Bromus madritensis* ssp. *rubens*	red brome
**Bromus tectorum*	cheat grass
**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**
Sceloporus magister	desert spiny lizard
Uta stansburiana	Side-blotched Lizard
Teiidae	**Whiptails and Relatives**
Aspidoscelis tigris tigris	Great Basin Whiptail
Colubridae	**Harmless Egg-laying Snakes**
Coluber flagellum piceus	red racer
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
Cuculidae	**Cuckoos, Roadrunners, and Anis**
Geococcyx californianus	greater roadrunner
Trochilidae	**Hummingbirds**
Calypte costae	Costa's Hummingbird
Picidae	**Woodpeckers and Allies**
Picoides scalaris	Ladder-backed Woodpecker
Tyrannidae	**Tyrant Flycatchers**
Empidonax wrightii	gray flycatcher
Sayornis saya	Say's phoebe
Myiarchus cinerascens	ash-throated flycatcher
Tyrannus verticalis	western kingbird
Corvidae	**Crows, Jays**
Aphelocoma californica	western scrub-jay
Corvus corax	Common Raven
Hirundinidae	**Swallows**
Hirundo rustica	barn swallow
Remizidae	**Penduline Tits and Verdins**
Auriparus flaviceps	Verdin

Troglodytidae	**Wrens**
Thryomanes bewickii	Bewick's wren
Campylorhynchus brunneicapillus	Cactus Wren
Mimidae	**Mockingbirds and Thrashers**
Mimus polyglottos	Northern Mockingbird
Sturnidae	**Starlings**
Sturnus vulgaris	European Starling
Parulidae	**Wood-Warblers**
Oreothlypis celata	orange-crowned warbler
Emberizidae	**Emberizids**
Spizella breweri	Brewer's Sparrow
Amphispiza bilineata	Black-throated Sparrow
Zonotrichia leucophrys	White-crowned Sparrow
Icteridae	**Blackbirds**
Euphagus cyanocephalus	Brewer's blackbird
Fringillidae	**Fringilline and Cardueline Finches, Allies**
Haemorhous mexicanus	House Finch
Passeridae	**Old World Sparrows**
Passer domesticus	House Sparrow
MAMMALIA	**MAMMALS**
Leporidae	**Rabbits, Hares**
Lepus californicus	black-tailed jackrabbit
Sylvilagus audubonii	Desert cottontail
Sciuridae	**Squirrels and Chipmunks**
Spermophilus beecheyi	California Ground Squirrel (burrow)
Ammospermophilus leucurus	White-tailed Antelope Squirrel
Muridae	**Mice, Rats, and Voles**
Neotoma lepida	desert woodrat (middens)
Canidae	**Wolves, Foxes, Coyote**
Canis latrans	Coyote (scat, burrow)

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

BUOW
Transect #1 of 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: 10/04/13 (day, month, year) Survey biologist(s): N. Moorhatch (name, email, and phone number)

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

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

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 1 Transect length: 0.27mi.

GPS Start-point: 440150 3812414 (easting, northing, elevation in meters) Start time: 0906 am/pm

GPS End-point: 440551 3812413 (easting, northing, elevation in meters) End time: 0917 am/pm

Start Temp: 63 °F End Temp: _____ °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				NONE		
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				
2			NONE	
3				
4				
5				
6				
7				
8				

2010 Field Season

CACW

CAQU

Page: _____ of _____

Transect number: _____

BLOW transect also

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: 10/4/13 (day, month, year) Survey biologist(s): N. Marchetti (name, email, and phone number)

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

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

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 5 Transect length: 0.28

GPS Start-point: 440554 3812372 (easting, northing, elevation in meters) Start time: 0920 am/pm

GPS End-point: 440148 3812372 (easting, northing, elevation in meters) End time: 0928 am/pm

Start Temp: 63 °C End Temp: 64 °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						
2						
3				NONE		
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				
2				
3			NONE	
4				
5				
6				
7				
8				

BTSP
WEKI

Page: _____ of _____

Transect number: _____

BLOW transect also

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: 10/4/13 (day, month, year) Survey biologist(s): N. Moorlach (name, email, and phone number)

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

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

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 9 Transect length: 0.28

GPS Start-point: 440150 3812331 1146m (easting, northing, elevation in meters) Start time: 0931 am/pm

GPS End-point: 440550 3812333 1146m (easting, northing, elevation in meters) End time: 0941 am/pm

Start Temp: 64 °C End Temp: 64 °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						
4						
5						
6						
7						
8						

NO SIGN

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				

CORA HOFI Ammospermophilus leuc.
LBWO
NOMO

Page: _____ of _____

Transect number: _____

Blow transect also

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: 10/4/13 (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: Pinon Hills (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 13 Transect length: 0.27 mi

GPS Start-point: 440554 3812291 1142m (easting, northing, elevation in meters) Start time: 0944 am/pm

GPS End-point: 440147 3812289 (easting, northing, elevation in meters) End time: 0953 am/pm

Start Temp: 64 °C End Temp: 64 °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				
3			NONE	
4				
5				
6				
7				
8				

Extra scans

WCSP

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: 10/4/13 (day, month, year) Survey biologist(s): N. Moor Lasek (name, email, and phone number)

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

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

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 16 Transect length: 0.28 mi.

GPS Start-point: 440148 3812260 (easting, northing, elevation in meters) Start time: 0959 am/pm

GPS End-point: 440554 3812254 (easting, northing, elevation in meters) End time: 1015 am/pm

Start Temp: 64 °C End Temp: _____ °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						
2						
3				NONE		
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				
2				NONE
3				
4				
5				
6				
7				
8				

Achnatherum speciosum
Winter fat
Ambrosia dumosa
Ephedra nevadensis
Salazaria mex.
Yucca brevifolia

Neotoma midden
BRSP

Juniperus cal.

Lycium cooperi
Ambrosia salsola
Tetradymia stenolepis

Larrea tri.
Eriog. fasc.
Yucca whipplei

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: 10/4/13 (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: Pinon Hills (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 18 Transect length: 0.30 mi.

GPS Start-point: 440552 3812232 (easting, northing, elevation in meters) Start time: 10:24 am/pm

GPS End-point: 440150 3812232 (easting, northing, elevation in meters) End time: 10:35 am/pm

Start Temp: 66 °C End Temp: 67 °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						
2			NONE			
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				
2				
3				
4				NONE
5				
6				
7				
8				

Atriplex canescens
Salvia dorrii
Cylinder Opuntia echino.
Lycium andersonii

Aspidoscelis tigris

Amsinckia tesselata
Mirabilis bigelovii

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: 10/4/13 (day, month, year) Survey biologist(s): N. Moochafi (name, email, and phone number)

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

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

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 14 Transect length: 0.27mi.

GPS Start-point: 440150 3812268 (easting, northing, elevation in meters) Start time: 10:40 am/pm

GPS End-point: 440554 3812272 1148m (easting, northing, elevation in meters) End time: 10:49 am/pm

Start Temp: 67 °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						
2						
3				NONE		
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				
2				
3				
4				NONE
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: 10/04/13 (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: Pinon Hills (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 10 Transect length: 0.29 mi.

GPS Start-point: 440552 3812313 1146m (easting, northing, elevation in meters) Start time: 10:52 am/pm

GPS End-point: 440145 3812313 (easting, northing, elevation in meters) End time: 11:02 am/pm

Start Temp: 67 °C End Temp: 67 °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				

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: 10/4/13 (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: Pinon Hills (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 6 Transect length: 0.28 mi.

GPS Start-point: 440146 3812362 1145m (easting, northing, elevation in meters) Start time: 11:06 am/pm

GPS End-point: 440553 3812362 1144m (easting, northing, elevation in meters) End time: 11:14 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						
2			NONE			
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				
2				
3				
4			NONE	
5				
6				
7				
8				

ROPE

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

Site description: Creosote / Juniper ecotone (project name and size; general location)

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

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

GPS Start-point: 0440553 / 3812404 (easting, northing, elevation in meters) Start time: 11:19 am/pm

GPS End-point: 0440148 / 3812403 (easting, northing, elevation in meters) End time: 11:29 am/pm

Start Temp: 70 °F End Temp: 70 °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				

Mentzelia albicaulis
Spiny hopsage
Encelia actoni
Erodium cicutarium
Descurainia pinnata

Page: 1 of 6

Transect number: 2

owl

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: Pinon Hills - Joshua tree/Juniper (project name and size; general location)

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

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 3 Transect length: 0.27

GPS Start-point: 11S 0440151/3812391 (easting, northing, elevation in meters) Start time: 9:06 am/pm

GPS End-point: 0440554/3812390 (easting, northing, elevation in meters) End time: 9:17 am/pm

Start Temp: 63 °F End Temp: 63 °C Start: wind ave 3.5 MPH

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				

Cactus wren
Mourning dove
Common raven

Page: 1 of 1

Transcribe 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 10 13 (day, month, year) Survey biologist(s): Ted Rado (name, email, and phone number)

Site description: Creosote/Juniper ecotone (project name and size; general location)

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

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 4 Transect length: 0.28

GPS Start-point: 0440149 / 3812384 (easting, northing, elevation in meters) Start time: 11:06 am/pm

GPS End-point: 0440554 / 3812384 (easting, northing, elevation in meters) End time: 11:14 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				
2		None		
3				
4				
5				
6				
7				
8				

orl

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 / Juniper ecotone (project name and size; general location)

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

Circle one: (100% coverage) or Sampling Area size to be surveyed: _____ Transect #: 7 Transect length: 0.28

GPS Start-point: 0440553/3871235 (easting, northing, elevation in meters) Start time: 9:20 am/pm

GPS End-point: 0440145/3871353 (easting, northing, elevation in meters) End time: 9:28 am/pm

Start Temp: 63 °F End Temp: 64 °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 10 13 (day, month, year) Survey biologist(s): Ted Rado (name, email, and phone number)

Site description: Cronk / Juniper ecotone (project name and size; general location)

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

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 8 Transect length: 0.29

GPS Start-point: 0440557 / 3817337 (easting, northing, elevation in meters) Start time: 10:52 am/pm

GPS End-point: 0440457 / 3817335 (easting, northing, elevation in meters) End time: 11:03 am/pm

Start Temp: 69 °C End Temp: _____ °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						
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				

Owl

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/Juniper ecotone (project name and size; general location)

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

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 1 Transect length: 0.28

GPS Start-point: 0440147/3812311 (easting, northing, elevation in meters) Start time: 9:31 am/pm

GPS End-point: 0440535/3812313 (easting, northing, elevation in meters) End time: 9:41 am/pm

Start Temp: 64 °F End Temp: 64 °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				

CA Quail

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: Geronimo / Juniper ecotone (project name and size; general location)

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

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 12 Transect length: 0.27

GPS Start-point: 0440151 / 3812296 (easting, northing, elevation in meters) Start time: 1014 am/pm

GPS End-point: 0440555 / 3812296 (easting, northing, elevation in meters) End time: 1049 am/pm

Start Temp: 67 °F End Temp: 68 °C 3872 ft Ele

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				

ovl

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 / Juniper ecotone (project name and size; general location)

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

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 15 Transect length: 0.27

GPS Start-point: 0440555/3812273 (easting, northing, elevation in meters) Start time: 9:44 am/pm

GPS End-point: 0440548/3812276 (easting, northing, elevation in meters) End time: 9:53 am/pm

Start Temp: 64 °F End Temp: 64 °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 10 13 (day, month, year) Survey biologist(s): Ted Rado (name, email, and phone number)

Site description: Cronk / Juniper ecotone (project name and size; general location)

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

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 17 Transect length: 0.28

GPS Start-point: 0440151 / 3812249 (easting, northing, elevation in meters) Start time: 9:59 am/pm

GPS End-point: 0440353 / 3812247 (easting, northing, elevation in meters) End time: 10:15 am/pm

Start Temp: 64 °F End Temp: 64 °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				

woodrat nest

Page: 1 of 1

Transect number: 17

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/Juniper ecotone (project name and size; general location)

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

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 19 Transect length: 0.30

GPS Start-point: 0440336 / 3812227 (easting, northing, elevation in meters) Start time: 1024 am/pm

GPS End-point: 0440148 3812223 (easting, northing, elevation in meters) End time: 1035 am/pm

Start Temp: 68 °F End Temp: 67 °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						
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				
2				
3				
4				
5				
6				
7				
8				

001

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: 7/10/13 (day, month, year) Survey biologist(s): Nathan Moorhatch + Ted Rado (name, email, and phone number)

Site description: Creosote/Juniper ecotone (project name and size; general location)

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

Circle one: (100% coverage) or Sampling Area size to be surveyed: ______ Transect #: 001 Transect length: 2.40 mi

GPS Start-point: ______ (easting, northing, elevation in meters) Start time: Buffer Survey 12:40 am/pm

GPS End-point: ______ (easting, northing, elevation in meters) End time: 2:07 am/pm

Start Temp: 70 °F End Temp: 72 °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						
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				Start above solar panel south
2				630 + 650
3				
4				
5				
6				
7				
8				

WP197 NE corner
WP199 SE corner
House sparrow
Bewick's wren
Persian [illegible]
WP202 Short-joint beavertail

Desert cottontail
WP 193 Short-joint beavertail (1)
Dead annual buckwheat
Cryptantha micrantha
Phacelia fremontii

Ash-throated flycatcher
Barn Swallow
Black-tailed jackrabbit
Verdin
Eurasian Collared dove

Page: 1 of 1

Transcribed number: ______

0601 Buffalo

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: 9/11/13 (day, month, year) Survey biologist(s): Phil Clevinger, Ted Rado, Nathan Moorhatch (name, email, and phone number)

Site description: Joshua tree/Juniper ecotone (project name and size; general location)

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

Circle one: 100% coverage or Sampling Area size to be surveyed: NA Transect #: Bo Buffer Transect length: _____

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: 8:17 am/pm

Start Temp: 60 °F End Temp: 60 °F cloud start 1.5-2.0 MPH Ave Wind 6.0

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				

0 20 WP 203 NW corner of parcel 148/420 rock dove Says phoebe Scrub jay

1 coyote burrow WP204
1 coyote burrow WP209 Photo

Page: 1 of 1

Transect number: Bo 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: 12/04/13 (day, month, year) Survey biologist(s): N. Moorgate (name, email, and phone number)

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

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

Circle one: 100% coverage of Sampling (ZOI) Area size to be surveyed: _____ Transect #: 200m Transect length: _____

GPS Start-point: 439950 3812412 1141m (easting, northing, elevation in meters) Start time: 11:30 (am)/pm

GPS End-point: 440249 3812619 1137m (easting, northing, elevation in meters) End time: 12:13 am/(pm)

Start Temp: 78 °C End Temp: 77 °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				

GRRO

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: 12/4/13 (day, month, year) Survey biologist(s): N Moorhatch (name, email, and phone number)

Site description: Moderate density residential w/ trash, remnant JT Woodland, disturbed (project name and size; general location)

County: San Bdo. Quad: _____ Location: SE corner of 600m 20I Pinyon Hill (UTM coordinates, lat-long, and/or TRS; map datum)

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

GPS Start-point: 440434 3811619 1183m (easting, northing, elevation in meters) Start time: 12:38 am/pm

GPS End-point: ~~440946 3812081 1158m~~ on GPS (easting, northing, elevation in meters) End time: 12:49 am/pm

6668693.5 1984423.52 feet

Start Temp: 78 °C End Temp: 78 °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				

Lepus cal.

Page: _____ of _____

Transect number: 600m 20I

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: 12/4/13 (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: Pinon Hills (UTM coordinates, lat-long, and/or TRS; map datum)

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

GPS Start-point: 439549N 3812321E 1156m (easting, northing, elevation in meters) Start time: 11:30 am/pm

GPS End-point: 439552 3812468 (easting, northing, elevation in meters) End time: 11:40 am/pm

Start Temp: 78 °C F End Temp: 80 °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				

WEKI
Cottontail
Ulla

from 138 to N. Neighborhood

2010 Field Season

Page: _____ of _____

Transect number: 600(1)

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: 12/4/13 (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: Piñon Hills (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or ~~Sampling~~ ZOI Area size to be surveyed: _____ Transect #: 600 (2) Transect length: _____ Oasis Rd → N

GPS Start-point: 4409401N 3812884E 1125m (easting, northing, elevation in meters) Start time: 12:03 am/pm

GPS End-point: 4407493N 3812979E 1120m (easting, northing, elevation in meters) End time: 12:13 am/pm

Start Temp: 80 °C End Temp: 80 °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				

Whiptail III

Uta-1

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: 12/4/13 (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: Piñon Hills Goss Rd (SOUTH) -> Monolith (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: 201 Transect #: 6 20(3) Transect length: _____

GPS Start-point: 441002E 3812812N 1125m (easting, northing, elevation in meters) Start time: 12:22 am/pm

GPS End-point: 441194 3812268 1151m (easting, northing, elevation in meters) End time: 12:42 am/pm

Start Temp: 80 °C End Temp: 82 °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				

Uta - 11
C-tail
J-Rabbit
ACOS

Page: _____ of _____

Transect number: 600(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: 12-4-2013 (day, month, year) Survey biologist(s): S. Chandler (name, email, and phone number)

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

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

Circle one: 100% coverage or ~~Sampling~~ 201 Area size to be surveyed: _____ Transect #: ~~400~~ 201 Transect length: _____

GPS Start-point: 439753 3812590 (easting, northing, elevation in meters) Start time: 11:22 am/pm

GPS End-point: 439748 3812606 (easting, northing, elevation in meters) End time: 1132 am/pm

Start Temp: 78 °F End Temp: 78 °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						
4						
5						
6						
7						
8						

No tortoises

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

2010 Field Season

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: 12-4-2013 (day, month, year) Survey biologist(s): S. Chandler (name, email, and phone number)

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

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

Circle one: 100% coverage or Sampling 20140 Area size to be surveyed: _____ Transect #: 400 Transect length: _____

GPS Start-point: 440946 3812098, 1152m (easting, northing, elevation in meters) Start time: 1240 am/pm

GPS End-point: 440175 3811822 1198m (easting, northing, elevation in meters) End time: 1:05 am/pm

Start Temp: 73 °F End Temp: 81 °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						

No Season

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				

2010 Field Season

None

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: 5/1/13 (day, month, year) Survey biologist(s): Ted Rado + Nathan Moorhatch (name, email, and phone number)

Site description: Joshua tree / Juniper ecotone (project name and size; general location)

County: San Bernardino Quad: ______ Location: Pinto Hills-Road North (Gootie) (UTM coordinates, lat-long, and/or TRS, map datum)

Circle one: (100% coverage) or Sampling Area size to be surveyed: ______ Transect #: 1+2 Transect length: 0.13 mi

GPS Start-point: 440732 / 3812411 (easting, northing, elevation in meters) Start time: 1:48 am/(pm)

GPS End-point: 440579 / 3812409 (easting, northing, elevation in meters) End time: 4:54 am/(pm)

Start Temp: 79 °F End Temp: 79F °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				

Calif. ground squirrel Burrow
desert woodrat nest

Whiptail
Platyo ovata

Page: 1 of 1

Transect number: 1+2

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: 5/1/13 (day, month, year) Survey biologist(s): Nathan Moorehead and Ted Rado (name, email, and phone number)

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

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

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: 3+4 Transect length: 0.12 mi

GPS Start-point: 440553 / 3812430 (easting, northing, elevation in meters) Start time: 2:00 am/pm

GPS End-point: 440746 / 3812430 (easting, northing, elevation in meters) End time: 2:10 am/pm

Start Temp: 79 °F End Temp: 80 °C 5-9 MPH (wind)

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				

Costa's Hummingbird
Loggerhead Shrike
Verdin
CA Quail
Creosote

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: 5/1/13 (day, month, year) Survey biologist(s): Nathan Moorhatch + Ted Rado (name, email, and phone number)

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

County: San Bernardino Quad: ______ Location: Pinon Hills – south Scenic Rd (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: (100% coverage) or Sampling Area size to be surveyed: ______ Transect #: A2 Transect length: 0.13

GPS Start-point: 440708 / 3812227 (easting, northing, elevation in meters) Start time: 2:22 am/(pm)

GPS End-point: 440554 / 3812226 (easting, northing, elevation in meters) End time: 2:29 am/(pm)

Start Temp: 80 °F End Temp: ______ °C Elev. 1142 m

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				

Brewer's blackbird
Ephedra nevadensis

Transect number: 1+2 (south end)

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: 5/1/13 (day, month, year) Survey biologist(s): Nathan Moorhatch + Ted Rado (name, email, and phone number)

Site description: Juniper / Joshua tree ecotone (project name and size; general location)

County: San Bernardino Quad: ____ Location: Pinon Hills - south Sheep Creek Rd (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: (100% coverage) or Sampling Area size to be surveyed: ____ Transect #: 3+4 Transect length: ____

GPS Start-point: 440553/3812216 (easting, northing, elevation in meters) Start time: 2:31 am/(pm)

GPS End-point: 440720/3812216 (easting, northing, elevation in meters) End time: 2:36 am/pm

Start Temp: 80 °F End Temp: 79 °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				

desert cottontail

Page: 1 of 1

Transect number: 3+4