

APPENDIX M

Biological Assessment

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BIOLOGICAL ASSESSMENT

LOS COYOTES BAND OF CAHUILLA AND CUPEÑO INDIANS

FEE-TO-TRUST AND CASINO-HOTEL PROJECT



JUNE 2010

EIS Lead Agency:

U.S. Department of Interior, Bureau of Indian Affairs
Pacific Region, 2800 Cottage Way, Room W-2820
Sacramento, CA 95825-1846



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LOS COYOTES CASINO-HOTEL PROJECT
SAN BERNARDINO COUNTY, CALIFORNIA
TOWNSHIP 9N, RANGE 2W, SECTION 27
SAN BERNARDINO BASELINE AND MERIDIAN
"BARSTOW SE, CA" USGS 7.5-MINUTE TOPOGRAPHIC QUADRANGLE

1.0 INTRODUCTION

Analytical Environmental Services (AES) prepared this Biological Assessment (BA) for the Proposed Los Coyotes Casino-Hotel Project (Proposed Project). This BA has been prepared in support of an application to the Bureau of Indian Affairs (BIA) to place 23.1± acres in Barstow, CA, into federal Trust on the behalf of the Los Coyotes Band of Cahuilla and Cupeño Indians (Tribe) for the development of Class III gaming facility and hotel (Proposed Project), the request for a Two-Part Determination relevant to the Tribe's fee-to-trust application, and an application to the National Indian Gaming Commission (NIGC) to approve a gaming management contract. This BA has been prepared to facilitate consultation with the U.S. Fish and Wildlife Service (USFWS) and was prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act (16 U.S.C. 1536 [c]).

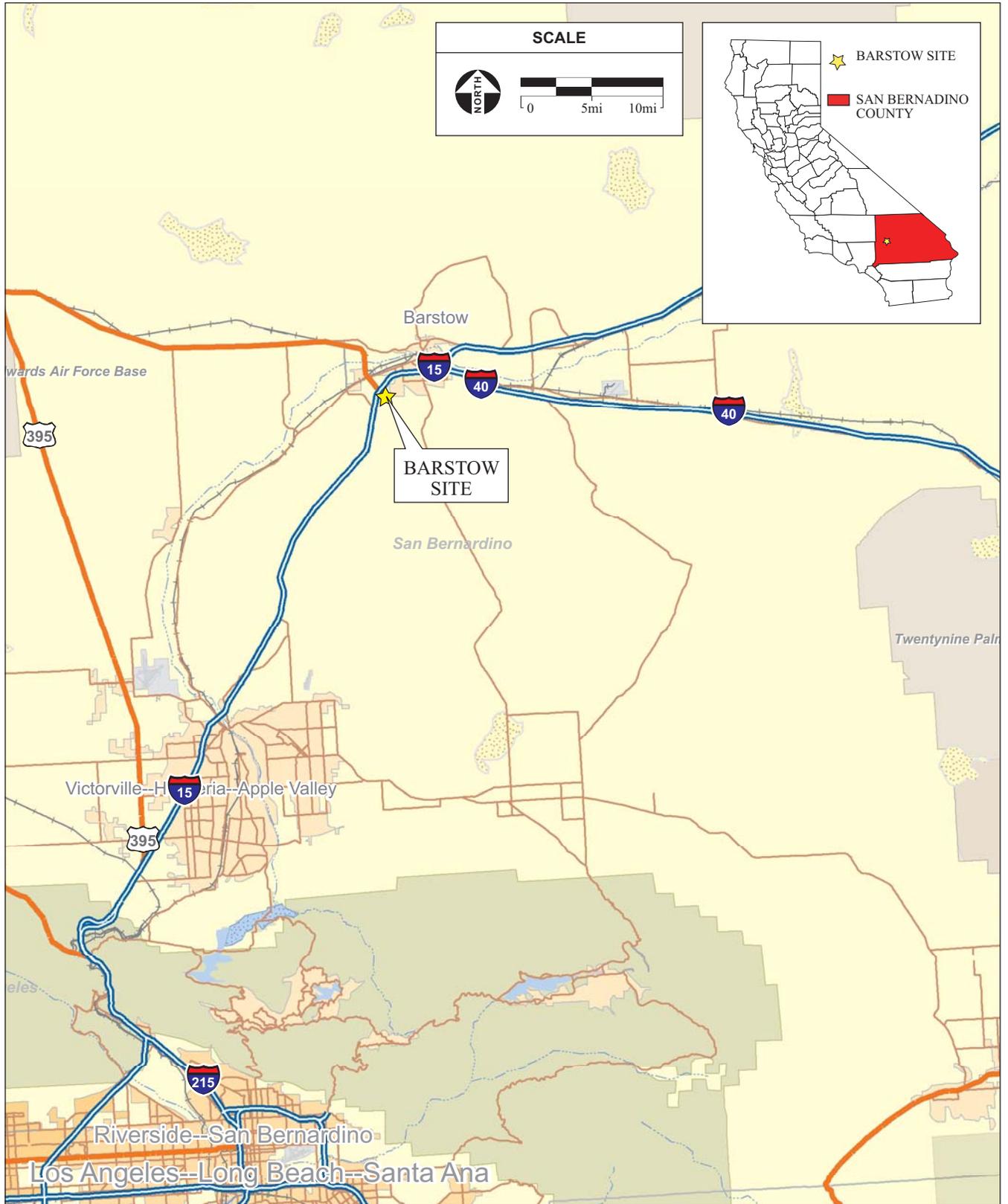
The purpose of this BA is to review the Proposed Project in sufficient detail to determine the extent to which the project may affect federally listed special-status species. For the purposes of this BA, federally listed species include those plant and animal species that are listed as endangered or threatened, formally proposed for listing, or candidates for listing under the Federal Endangered Species Act (FESA).

To fulfill its purpose, this BA:

- Characterizes the habitat types present within the project site;
- Evaluates the potential for the occurrence of federally listed endangered, threatened, proposed, or candidate species within the project site;
- Assesses the potential for the Proposed Project to adversely impact federally listed endangered, threatened, proposed, or candidate species; and
- Recommends mitigation measures designed to avoid or minimize project-related impacts.

1.1 PROJECT LOCATION

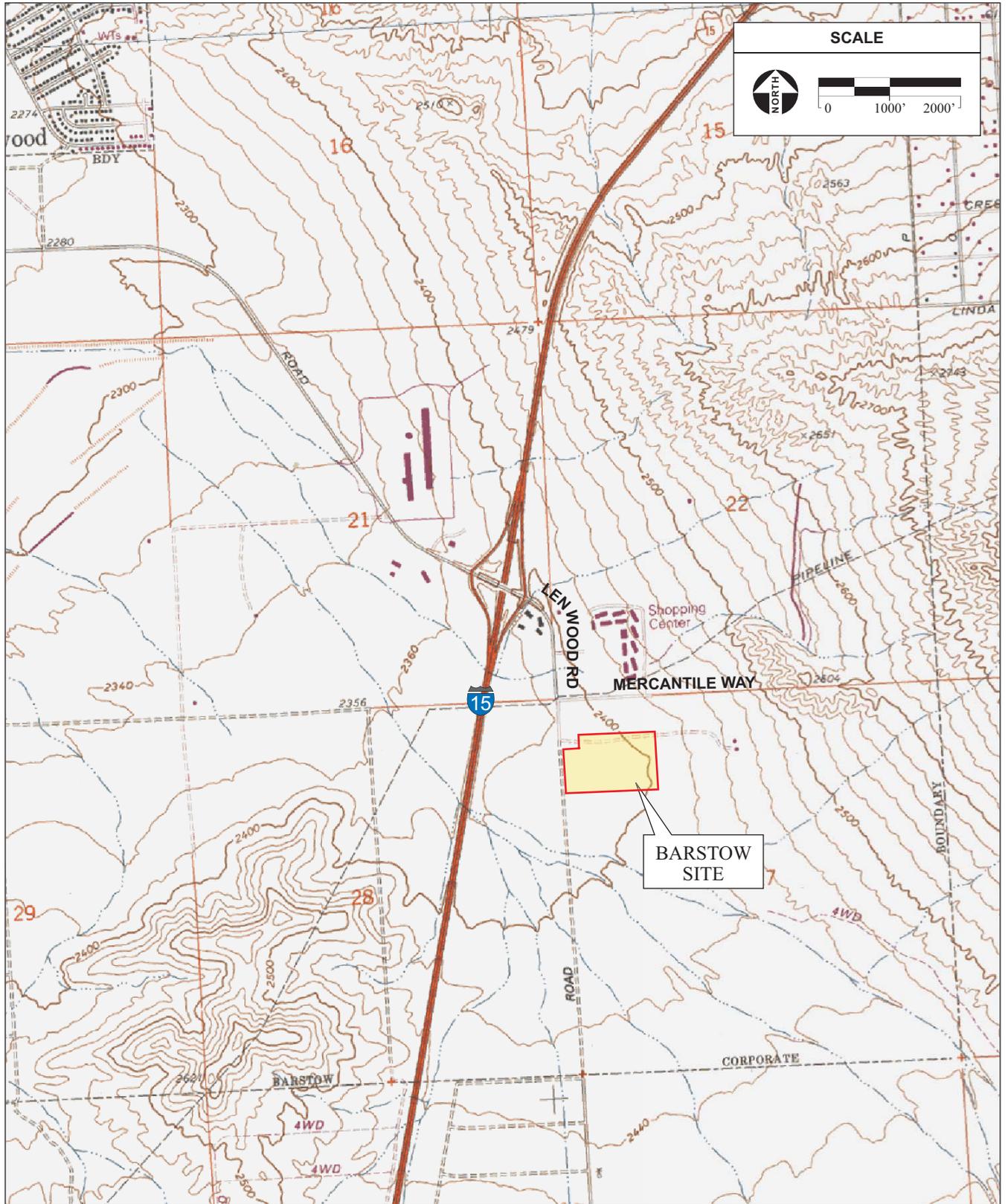
The project site is located within the incorporated boundaries of the City of Barstow, San Bernardino County, California, just east of Interstate 15. State Highways 58 and 247 and Interstate 40 are located nearby (**Figures 1 and 2**). The approximately 23.1-acre project site is bordered by Lenwood Road and commercial/light industrial development on the west. Stoddard Valley Off-Highway Vehicle (OHV) area, which is under the jurisdiction of the Bureau of Land Management, borders the site on the east.



SOURCE: ESRI Data, 2006; AES, 2009

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Figure 1
Regional Location Map



SOURCE: "Barstow, CA" USGS 7.5 Minute Topographic Quadrangle, Section 27, T9N, R2W, San Bernadino Baseline & Meridian; AES, 2009

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Figure 2
Site and Vicinity

Privately owned vacant land borders the site on the south. Developed land, including a graded pad, Mercantile Way, and an outlet mall, border the site on the north (**Figure 3**). **Table 1** lists the assessor's parcel numbers for the project site. The project site is located in the northeast and northwest quarters of Section 27, Township 9N, Range 2W, of the "Barstow SE, California" U.S. Geological Survey (USGS) 7.5 minute topographic quadrangle, within the San Bernardino Baseline and Meridian.

TABLE 1
BARSTOW PARCELS

Tribe for which land would be taken into trust	Assessor's Parcel Number (APN)	Size (Acres)
Los Coyotes	0428-171-66, 0428-171-67, 0428-171-68	23

SOURCE: AES, 2010

1.2 PROJECT DESCRIPTION

The Proposed Project consists of the following development components: (1) placement of three parcels totaling 23.1± acres into federal trust status on behalf of the Tribe; (2) issuance of a Two-Part Determination relevant to the fee-to-trust application; (3) approval of management contract; and (4) development of a casino and hotel with related amenities on the project site (**Figure 4**). The entirety of the 23.1± acres will be impacted by this development.

MUNICIPAL SERVICES AGREEMENTS

The Tribe has entered into a Municipal Service Agreement (MSA) with the City of Barstow. In the MSA the Tribe has agreed to compensate the City annually for potential and perceived impacts related to the development of the hotel and casino complex on the project site. In turn, the City has agreed to support the efforts of the Tribe to take the project site into trust and develop a hotel and casino complex on the site.

WASTEWATER TREATMENT AND DISPOSAL

As agreed upon in Section 7 of the MSA the Tribe shall pay sewer connection fees and a monthly sewer service charge to the City, obtain required easements for sewer infrastructure (if needed), construct to City sewer infrastructure standards, and pay all costs of constructing sewer infrastructure necessary to connect the casino and hotel to existing sewer services. The existing 10-inch diameter sewer line would be extended from the intersection of Lenwood and Mercantile to the project site as part of the project. Projected average daily flow for the Proposed Project is 118,200 gallons per day (gpd).

WATER SUPPLY

As stipulated in Section 8 of the MSA, the Tribe has agreed to obtain their potable supply from Golden State Water Company. Water would be supplied for the project by Golden State Water Company via an existing 16-inch diameter line that runs along the west side of Lenwood Road. Currently the water line terminates at Mercantile Way, just north of the project site. The line would have to be extended from the

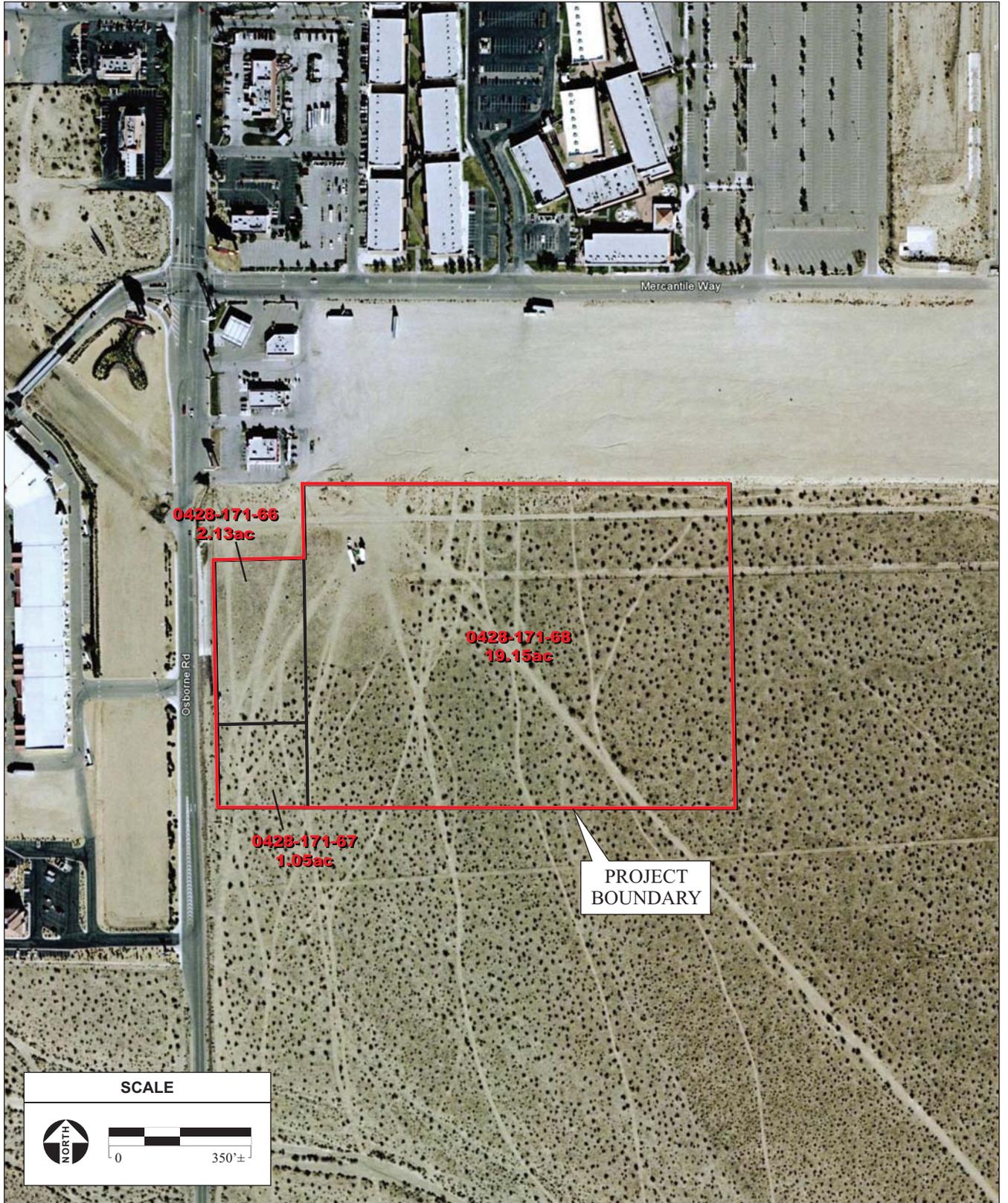
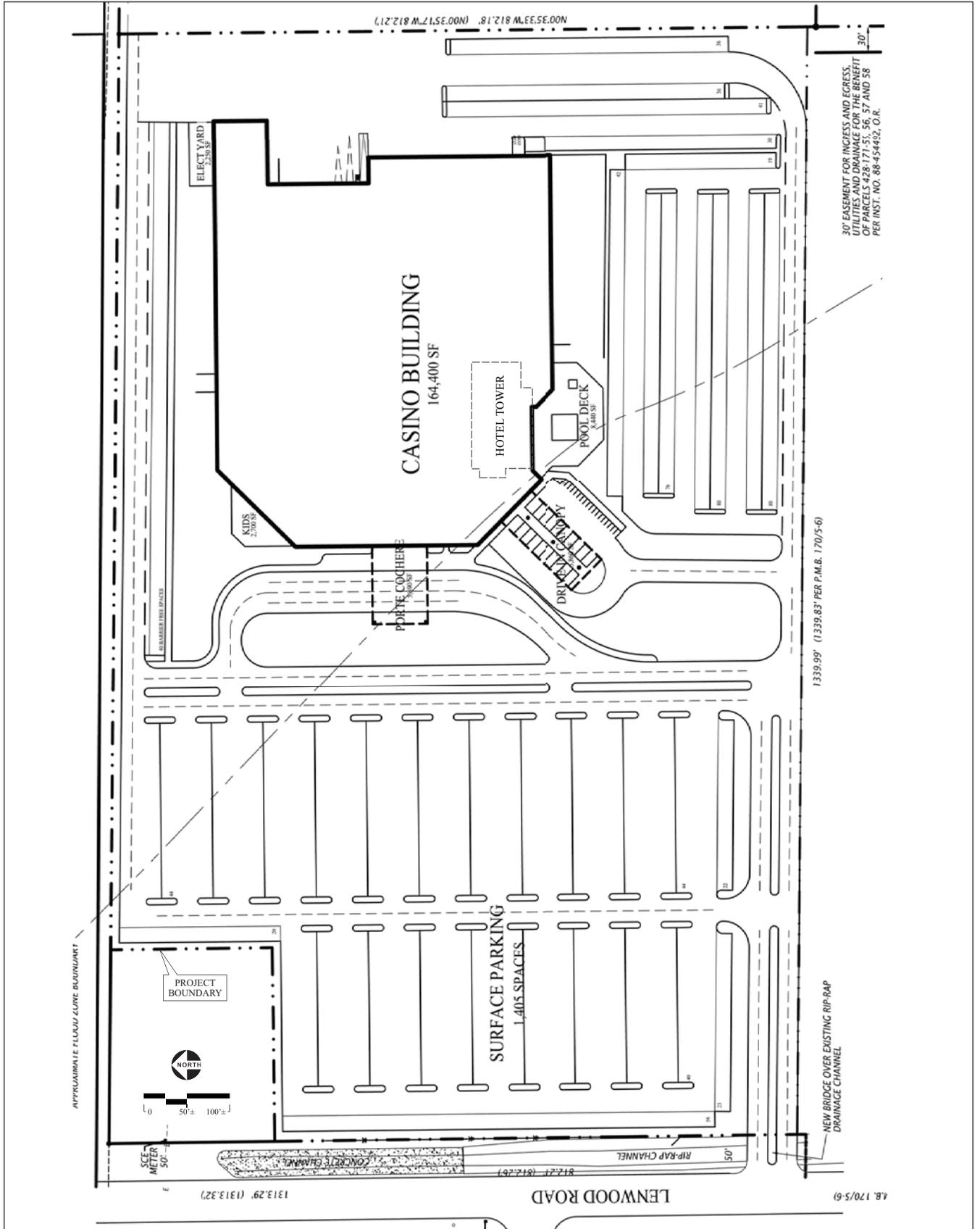


Figure 3
Aerial Site Map



SOURCE: Bergman Walls & Associates, 2/24/2010; AES, 2010

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Figure 4
Proposed Project Site Plan

current termination point and connected to the hotel and casino complex. The projected water demand for the Proposed Project is 132,810 gpd. For fire flow, a fire pump and jockey pump would be located on site to help maintain static pressure as recommended by the Barstow Fire Protection District.

GRADING AND DRAINAGE

Construction would involve grading and excavation for building pads and parking lots. The project site is relatively flat as such cuts and fills would be balanced such that there would be no significant import or export of fill from the site. Features such as catch basins, culverts, outfall structures, and detention basins would be incorporated into the project design.

BEST MANAGEMENT PRACTICES

Construction and operation of the Proposed Project would incorporate a variety of industry-standard Best Management Practices (BMPs). In many cases, such as Storm Water Pollution and Prevention Plans (SWPPPs) prepared for National Pollutant Discharge Elimination System (NPDES) permits, certain BMPs are requisite conditions of permit approval.

INTERRELATED AND INTERDEPENDENT ACTIVITIES

Impacts associated with the Proposed Project would be mitigated through improvements to the surrounding roadway network, including additional turn lanes and a traffic signal adjacent to the access point to the Barstow site. Public utilities would need to be upgraded and extended to the project site, with the longest distance being the extension of the 10-inch diameter wastewater and water lines that currently terminate at the intersection of Lenwood Road and Mercantile Way. This extension would require the construction of approximately 800 feet of trench adjacent to Lenwood Road. Upgrades to the utility systems entail the expansion of the line system capacity and corresponding lift station capacities. Additionally, the Tribe has agreed in Section 4 of the MSA to dedicate land for fire and police station use. Public service structures would eventually be constructed by the City.

1.3 PURPOSE AND NEED

The purpose of the Proposed Action is to help provide for the economic development of the Tribe and stability and self-sufficiency of the Tribal government, resulting in economic, social, and other benefits for the Tribe. Implementation of the Proposed Action would assist the Tribe in meeting the following objectives:

- Improve the socioeconomic status of the Tribe by providing a reliable, significant revenue source that would be used to: strengthen the Tribal government; fund a variety of social, housing, governmental, administrative, educational, health and welfare services to improve the quality of life of Tribal members; and provide capital for other economic development and investment opportunities.
- Provide employment opportunities for the Tribal and non-tribal community.
- Make donations to charitable organizations and governmental operations, including local educational institutions.
- Fund local governmental agencies, programs, and services.

- Establish economic self-sufficiency and achieve Tribal self-determination.

The Proposed Action would provide the Tribes with a long-term, viable, and sustainable revenue base. Each of the objectives listed above is consistent with the limited allowable uses for gaming revenues, as required by IGRA. The hotel and casino complex would also provide employment opportunities for tribal members, as well as local non-tribal residents. Operation of the casino, hotel, and related facilities would require the purchase of goods and services, increasing opportunities for local businesses and stimulating the local economy.

2.0 SPECIES CONSIDERED IN THIS DOCUMENT

2.1 FEDERALLY LISTED SPECIES

For the purposes of this assessment, federally listed species include those plant and animal species that are listed as endangered or threatened under the FESA, formally proposed for listing, or candidates for listing. A list of regionally occurring federally listed plant and animal species was compiled based on the California Department of Fish and Game's California Natural Diversity Database (CNDDB) map of reported occurrences of special-status species within five miles of the project site (**Figure 5**); a CNDDB list of reported occurrences within the Barstow SE, Hinkley, Barstow, Nebo, Daggett, West Ord Mountain, Stoddard Well, Turtle Valley, and Hodge 7.5-minute USGS quadrangles (**Appendix 1**); and a list of federally listed endangered, threatened, proposed and candidate species that may occur in San Bernardino County, obtained from the Ventura USFWS office (**Appendix 2**). The potential for each of the regionally occurring federally listed species to occur on the project site was then evaluated based on the results of the field surveys, review of applicable literature, and review of previous reported occurrences. Federally listed species that were analyzed for this report are presented in **Appendix 3**. A discussion of the distribution and habitat types for each species, as well as an evaluation of the potential for each species to occur on the project site is included in **Appendix 3**. Species that have no potential to occur on the project site are not discussed further in this report.

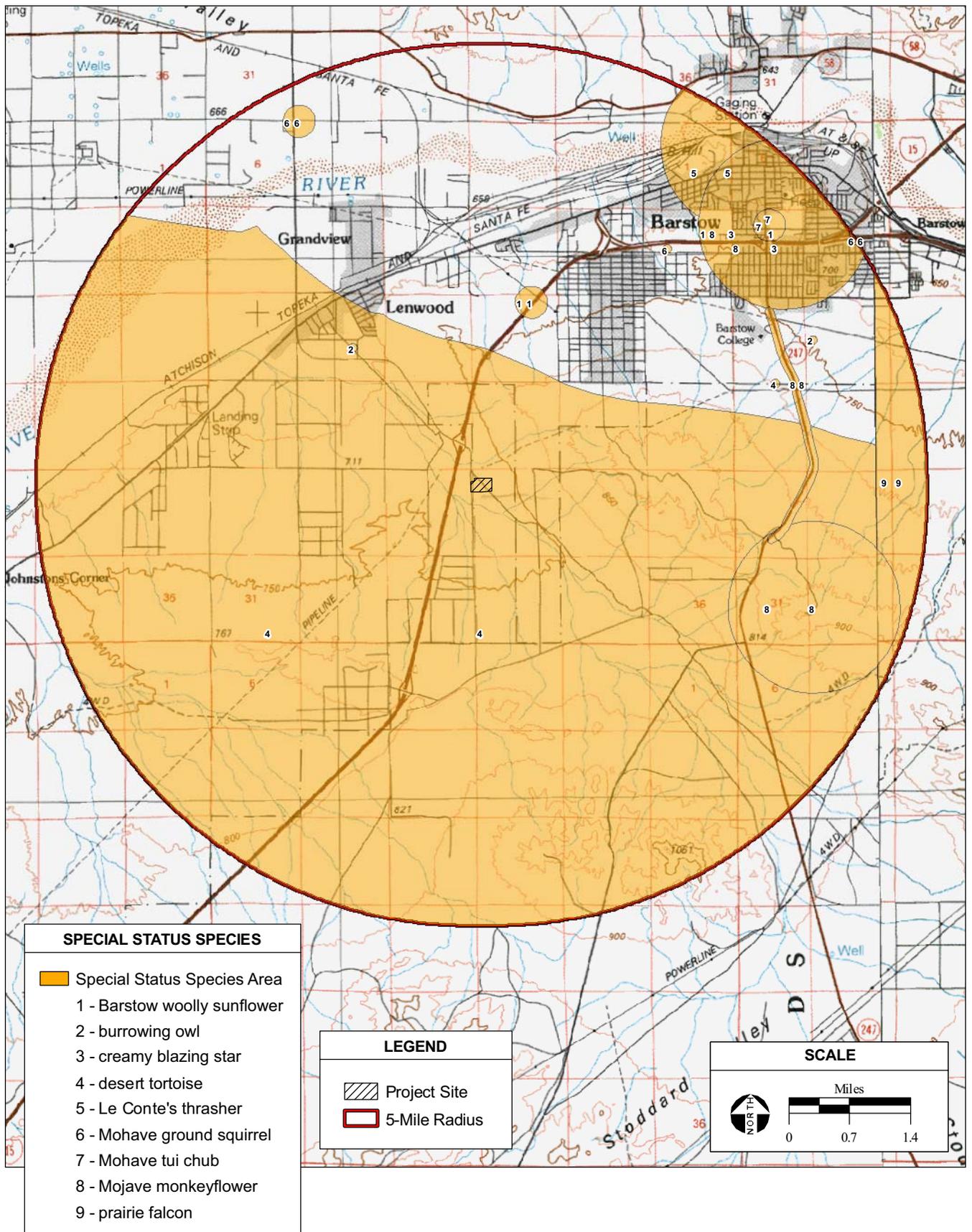
Species that are not discussed further in this report include: cushionberry buckwheat (*Eriogonum ovalifolium* var. *vineum*), cushionberry milk-vetch (*Astragalus albens*), Cushenbury oxytheca (*Oxytheca parishii* var. *goodmaniana*), Lane Mountain milk-vetch (*Astragalus jaegerianus*), Parish's daisy (*Erigeron parishii*), arroyo toad (*Bufo microscaphus californicus*), bonytail chub (*Gila elegans*), Mohave tui chub (*Gila bicolor mohavensis*), razorback sucker (*Xyrauchen texanus*), least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), yellow-billed cuckoo (*Coccyzus americanus*), and Yuma clapper rail (*Rallus longirostris ymanensis*).

FEDERALLY LISTED SPECIES ADDRESSED IN THIS BA

Only one federally listed species is addressed in this BA:

desert tortoise (*Gopherus agassizii*).

Status: Federally Threatened



SOURCE: California Natural Diversity Database, 2009; "Victorville, CA" USGS 100K Topographic Quadrangle, San Bernardino Baseline & Meridian; AES, 2009

Figure 5
Special Status Species Within 5-Miles of the Barstow Site

2.2 SUMMARY OF CONSULTATION TO DATE

Prior to conducting field assessments, and again on December 6, 2006, AES obtained from USFWS an updated list of “federal listed, proposed, and candidate species that may occur in San Bernardino County.” Following review of this list, AES contacted USFWS for clarification regarding the desert tortoise. The USFWS advised, during an informal phone consultation, that while the project site is not ideal habitat for the desert tortoise, precautions should be taken to protect desert tortoises during construction and they conveyed concerns as to where any desert tortoises found on the site would be relocated (Bransfield, 2007). The BLM offered to accept a small number of tortoises in the vicinity of the project site if any were found on site. The BLM also suggested that measures be taken to prevent tortoises from entering the project site to ensure that the project would not adversely affect the tortoise (Sullivan, 2007). Information and suggestions obtained from the USFWS and the BLM have been incorporated in to the desert tortoise discussion and recommended mitigation measures within this BA.

2.3 CRITICAL HABITAT

The project site is not located in USFWS designated critical habitat for the desert tortoise. Critical habitat for the desert tortoise occurs north of the Interstate 15 and Highway 40 intersection, north of the project site.

3.0 STUDY METHODS

For the purposes of this BA, the Action Area is considered to be the entire 23.1± acre Barstow site. The action area includes the location of any construction activity anticipated to occur within the projects site.

3.1 PRELIMINARY DATA GATHERING AND RESEARCH

Prior to conducting the field assessment the following information sources were reviewed:

- USGS “Barstow SE, California” 7.5 minute topographic quadrangle.
- Color aerial photography of the property and vicinity.
- Pertinent literature including: *Inventory of Rare and Endangered Vascular Plants of California* (California Native Plant Society 2001); *The Jepson Manual, Higher Plants of California* (Hickman 1993); and various Federal Registers containing proposed and final rules for listing species as endangered or threatened or endangered, or listing critical habitat.
- CNDDDB reported occurrences of special-status species within a five-mile radius of the project site; and reported occurrences within the “Barstow SE” USGS quad and the eight surrounding quads (CNDDDB, 2005).
- USFWS list of special status-species within San Bernardino County.

3.2 FIELD SURVEYS

AES biologists conducted a field survey on May 3, 2006. The field survey was conducted by walking transects 40-60 feet apart in order to view and evaluate all areas of the 23.1±-acre property. All visible fauna and flora were noted and identified to the lowest possible taxon (**Appendix 4**). Habitat types occurring in the 23.1±-acre project site were characterized and evaluated for their potential to support regionally occurring special-status plant and animal species. The property was assessed for the presence of jurisdictional waters of the U.S., isolated wetlands, and other biologically sensitive features.

3.3 ANALYSES AND SYNTHESIS

Locations of habitat boundaries within the project site were recorded in the field on color aerial photographs and then digitized to produce the final habitat maps. Vegetation communities (assemblages of plant species growing in an area of similar biological and environmental factors) were classified using the Holland System (Holland, 1986). A discussion of the methods for analysis of special-status species is in **Section 2.1**.

4.0 RESULTS

4.1 ENVIRONMENTAL SETTING

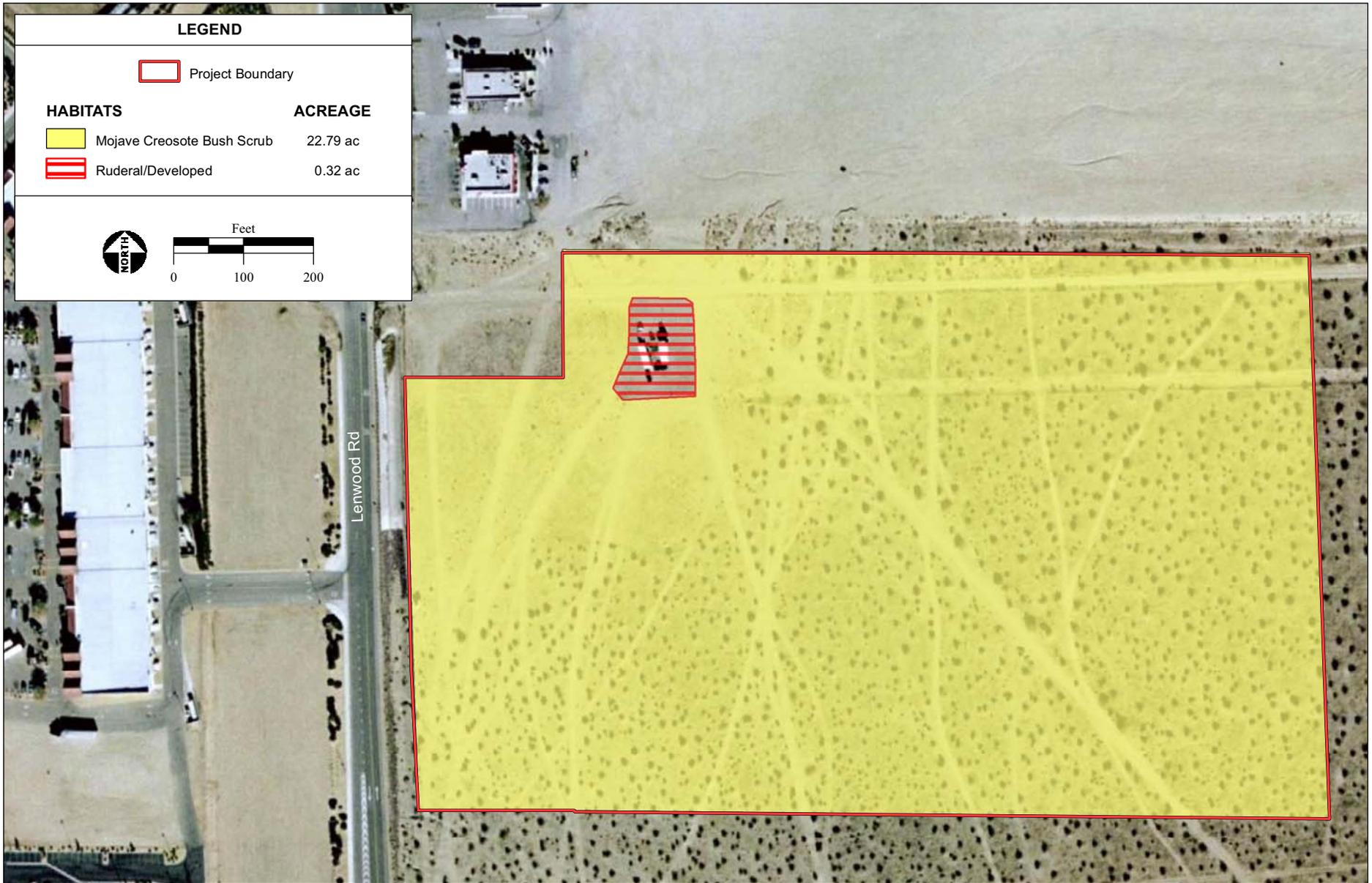
The 23.1± acre property is located within the western Mojave Desert, approximately 3.5 miles from the Mojave River. The western Mojave Desert is characterized by sparsely vegetated flatland with interspersed mountain ranges and dry lakes. Dominant plant communities are Mojave creosote bush scrub and saltbush scrub. Temperature is generally below freezing for only a few days in the winter, while summer temperatures regularly exceed 100 degrees Fahrenheit. Annual rainfall for the entire Mojave Desert averages approximately 5.4 inches. In the western Mojave Desert, rainfall occurs primarily during the winter (USGS, 2004). The project site exhibits characteristics typical of the western Mojave Desert. It is a low-gradient, sparsely vegetated area within a transitional Mojave creosote bush scrub-saltbush scrub vegetation community.

VEGETATION COMMUNITIES

Vegetation communities occurring within the project site include Mojave creosote bush scrub and ruderal/developed. These habitat types are discussed below. A vegetation map of the project site is presented as **Figure 6**.

MOJAVE CREOSOTE BUSH SCRUB

Following the Holland system of describing natural communities of California, the dominant habitat on the Barstow site is Mojave creosote bush scrub (Holland, 1986). This assessment is based on dominant plant species and other site factors (e.g., soil drainage). Mojave creosote bush scrub habitat occupies approximately 22.44 acres within the site and is the dominant habitat type on the project site (**Figure 6**). **Figure 7 (Photos 1 and 2)** shows photographs of the Mojave creosote bush scrub habitat type. The dominant shrub at the project site is creosote bush, which occupies approximately 10 percent groundcover. The subdominant shrub, saltbush (*Atriplex polycarpa*), occupies approximately two percent groundcover. A scattering of white bur-sage also occurs at the site. The dominant herbaceous



SOURCE: GoogleEarth/DigitalGlobe 2006; AES, 2009

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Figure 6
Habitat Map

plant species, Mediterranean grass (*Schismus barbatus*), occupies approximately 50 percent groundcover. Creosote bush individuals on site average approximately five feet tall and saltbush individuals average approximately two feet tall. The total shrub cover is approximately 12 percent and the total herbaceous vegetation cover is approximately 60 percent.

RUDERAL/DEVELOPED

Approximately 0.32 acres of ruderal/developed habitat exists on the eastern side of the project site, where prior to the May 3 and 4, 2006, field survey, a house had been removed. Several small horticultural trees, including pine trees (*Pinus* sp.) and cottonwoods (*Populus* sp.), and a small amount of herbaceous vegetation remain on the site (**Figure 7, Photo 3**).

WILDLIFE

The Mojave creosote bush scrub habitat on the project site provides habitat for a variety of wildlife. Bird species observed during the site survey include mourning dove (*Zenaida macroura*), common raven (*Corvus corax*), horned lark (*Eremophila alpestris*), loggerhead shrike (*Lanius ludovicianus*), barn swallow (*Hirundo rustica*), Gambel's quail (*Callipepla gambelii*), and western tanager (*Piranga ludoviciana*). Mammal species observed include: coyote (*Canis latrans*), antelope ground squirrel (*Ammospermophilus leucurus*), and black-tailed jackrabbit (*Lepus californicus*). The one reptile species observed was western whiptail (*Cnemidophorus tigris*). **Appendix 4** contains a complete list of wildlife observed.

4.2 WATERS OF THE U.S.

A delineation of waters of the U.S. was conducted by AES biologists during the May 3, 2006, field survey. Several small (1-2 feet wide) washes were identified that flow from points east of the project site. These small washes end, percolating into the ground, within the eastern third of the site. These small washes are not hydrologically connected to any jurisdictional waters of the U.S. and, therefore, are not likely to be jurisdictional features. The site contains no wetlands or other waters of the U.S.

4.3 FEDERALLY LISTED SPECIES

DESERT TORTOISE (*GOPHERUS AGASSIZII*)

Federal Status – Threatened

The desert tortoise is a medium-sized, terrestrial reptile. It is a long-lived animal (maximum age in the wild is likely about 50 to 70 years) that begins reproducing at approximately 12 to 15 years of age. Desert tortoise activity patterns are primarily determined by ambient temperature and precipitation. They lay most of their eggs in the spring and, to a lesser extent, in the fall. Most precipitation in the West Mojave Desert occurs during the winter; therefore, most vegetation grows in the spring, and dries up by late May or June. Tortoises in the West Mojave are primarily active between May and June, with a secondary activity period from September through October. Tortoises may be seen, to a lesser extent, outside of these periods. Within the West Mojave Desert, the highest tortoise population densities are found in Mojave creosote bush scrub, with lower densities occurring in Joshua tree woodland and saltbush scrub (BLM, 2006).



PHOTO 1: Mojave creosote bush scrub on the Barstow site. View from east to west.



PHOTO 2: Mojave creosote bush scrub on the Barstow site. View from north to southeast.



PHOTO 3: View of Ruderal/Developed habitat. A house had been built and later torn down in this area.

Recovery Plan/Critical Habitat Designation: CNDDDBs mapping of the project site places the site within the boundaries of one of California's primary desert tortoise populations (an area of approximately 1,700 square miles). However, the project site is not located within designated critical habitat for the desert tortoise (59 FR 5820-5866). The closest critical habitat for the desert tortoise is north of the Interstate 15 and Highway 40 intersection, north of the project site.

USFWS published a recovery plan for desert tortoise in June 1994 (USFWS, 1994). The project site is within the Western Mojave Recovery Unit for the desert tortoise, but is not within a desert tortoise wildlife management area (DWMA). The nearest DWMA's are the Ord-Rodman DWMA to the east and the Superior-Cronese Lakes DWMA to the north. The USFWS plans to release a revised recovery plan in September 2007.

Distribution: The desert tortoise occurs throughout the Mojave and Sonoran deserts in California, Nevada, Utah, Arizona, and south into Mexico. Two populations of desert tortoise exist: the Mojave population and the Sonoran population. The Mojave population occurs north and west of the Colorado River. Four DWMA's of the tortoise exist within this recovery unit: Ord-Rodman, Superior-Cronese, Fremont-Dramer, and Joshua Tree DWMA's. Tortoises are generally concentrated within the areas of these DWMA's, however they do occur at lower densities outside of these DWMA's. The Action Area does not occur within these DWMA's.

Potential to Occur in the Action Area: The Action Area is dominated by Mojave creosote bush scrub with evidence of a transition to saltbush scrub. Mojave creosote bush scrub is suitable habitat for the desert tortoise. However, the transitional nature of the habitat reflects the less-than-optimal quality of the habitat for desert tortoises. The project site is located adjacent to a paved road, an outlet mall, undeveloped land used as an off highway vehicle (OHV) site, and privately owned vacant land fronting on the paved road. Though unlikely, the desert tortoise may occur in the Action Area.

Potential Impacts: If the desert tortoise occurs in the Action Area, construction activities in and around the Mojave creosote bush scrub habitat have the potential to adversely affect this species. Mortality or injury to this species could result from construction vehicle movement or other activity within the project vicinity. In addition, this species may use construction vehicles and equipment as nighttime shelter, which may result in mortality or injury to the species the following day when the equipment is moved. Informal consultation with USFWS has been initiated in order to obtain a Biological Opinion concerning the desert tortoise.

Construction of the Proposed Project will result in an increase in human activity in the vicinity of the Action Area. Such an increase in human activity can result in an increase in trash and food waste, which can be an attractant to the common raven (*Corvus corax*). An increase in raven population could have an adverse affect on the desert tortoise, as ravens prey on juvenile desert tortoises.

Recommended Mitigation Measures: The following mitigation measures should be implemented to minimize project-related impacts to the desert tortoise:

1. The Tribes shall designate a “field contact representative” (FCR) who will be responsible for overseeing compliance with conservation measures and any other required terms and conditions resulting from consultation with USFWS. The Tribes shall provide to the USFWS for review and approval the name(s) and qualifications of the biologist(s) proposed for authorization.
2. Prior to construction on the project site, USFWS-approved desert tortoise exclusion fence (USFWS 2005; **Appendix 5**) shall be installed around the perimeter of the entire 48±-acre site. An USFWS-approved desert tortoise monitor or USFWS-authorized biologist shall be present during installation of tortoise fence. The exclusion fence shall be maintained around the entire site until completion of construction.
3. After installation of fencing but also prior to construction, a USFWS-authorized biologist shall conduct a clearance survey of the project site in accordance with USFWS protocol (USFWS 1992; **Appendix 6**) to locate any desert tortoises or occupied burrows in areas that could potentially be disturbed by construction. All excavation of desert tortoise burrows shall be done by hand tools, either by or under the direction of the authorized biologist. Any potential burrow sites that are confirmed to be unoccupied and are within the construction footprint shall be collapsed or otherwise blocked to prevent occupancy where the tortoise would be at risk. All activities directly involving desert tortoise, including handling of desert tortoises and their eggs and excavation of burrows, shall be conducted by the USFWS-authorized biologist in accordance with the recommended protocol (USFWS 1992; **Appendix 6**). Any desert tortoise inhabiting the project site shall be relocated to the BLM property immediately adjacent to the project site. The BLM has agreed to receive a small number of tortoises for relocation purposes.
4. The authorized biologist shall maintain a record of each observation of a desert tortoise, including a) date and time of observation; b) whether the animal was previously marked, or required marking; c) the number of the marked animal; d) whether the animal was handled and whether it voided its bladder; e) general health of the animal; f) size and sex of the animal; and g) the location of the animal and, if applicable, the location to which it was moved, recorded in Universal Transverse Mercator coordinates.
5. All relocated desert tortoises that are unmarked shall be marked by the USFWS-authorized biologist for future identification. The USFWS-authorized biologist will mark the desert tortoises in accordance with the recommended handling and marking protocol (USFWS 1992; **Appendix 6**).
6. If a desert tortoise needs to be relocated within three hours of nightfall, or when ambient temperatures are extremely low (i.e., below 40° Fahrenheit) or extremely high (i.e., above 90° Fahrenheit), it shall be held overnight by the USFWS-authorized biologist in accordance with the recommended protocol (USFWS 1992; **Appendix 6**), and then released the following morning (when the ambient temperature is between 40° and 90° Fahrenheit). Consistent with an informal consultation with the BLM, any tortoises to be relocated shall be moved to adjacent BLM land in or near tortoise home range (Sullivan, 2007).
7. The FCR or designated biological monitor shall be present a minimum of once a week and as often as necessary to maintain the desert tortoise barrier and to provide all construction personnel with an environmental worker-education briefing. Handouts summarizing this information will be provided to all personnel. The worker-education briefing shall include but not be limited to the following:

- Personnel shall be briefed on the status of the desert tortoise and protection measures designed to reduce potential effects on this species.
 - Personnel shall be advised that handling, harming, or harassing a desert tortoise without specific authorization is a violation of the ESA of 1973. Personnel will also be advised of the penalties of up to \$25,000 and six months in prison for unauthorized handling of a listed species.
8. Any desert tortoises encountered shall be reported immediately to the construction supervisor and authorized/qualified biologist.
 9. The Tribe shall contact the USFWS immediately if it becomes aware that a desert tortoise has been killed or injured by project activities. At that time, the USFWS and the Tribe shall review the circumstances surrounding the incident to determine whether additional protective measures are required. Project activities may continue pending the outcome of the review, provided that the Tribe's proposed protective measures and any appropriate terms and conditions of a Biological Opinion issued by the USFWS have been and will continue to be fully implemented.
 10. Trash bins and cans shall be covered so that trash within the containers will not be accessible to ravens. Trash shall be picked up and removed daily from parking lots and other outdoor areas. Outdoor ponds and fountains shall be monitored on a weekly basis for a period of three months to determine whether onsite ponds and fountains attract ravens. If monitoring concludes that the ponds and/or fountains attract ravens, USFWS shall be consulted to develop a plan for controlling raven use of the site's ponds and fountains.

4.4 INTERRELATED AND INTERDEPENDENT EFFECTS

Interrelated and interdependent effects are direct or indirect effects that occur as a result of activities that are closely affiliated with a project. Activities affiliated with the Proposed Project (discussed in detail in **Section 1.2**) include the off-site construction of roadway and utility improvements.

Construction of roadway improvements would result in the loss of some existing vegetation and possible modification of drainage channels. Most of the habitat that exists in the areas of roadway improvements consists of highly disturbed roadsides and moderately disturbed desert scrub habitats. Due to the degraded condition of the roadside areas, habitat quality is generally low, and it is unlikely that expansion of the existing facilities would result in adverse effects to sensitive animal species. If waters of the U.S. are impacted by roadway improvements, the project would be subject to separate FESA review by the USACE in conjunction with issuance of a CWA Section 404 permit. However, due to the relatively disturbed areas adjacent to the roadways, no adverse impacts are anticipated.

Construction of utility improvements is not expected to result in the loss of habitat or impacts to special-status species because the utility lines either already exist or would be located under existing roadways. Due to the limited nature of the improvements along existing roadways and the degraded condition of existing habitat, adverse effects from the construction of roadway and utility improvements are expected to be minimal.

Impacts resulting from the construction of the public service structures would depend on the site chosen for the structures. Consultation with the U.S. Fish and Wildlife Service (USFWS) in compliance with Section 7 of the Endangered Species Act (ESA) would minimize indirect effects.

4.5 CUMULATIVE EFFECTS

For the purposes of this BA, cumulative effects are defined as the effects of future state, local, or private activities that are reasonably foreseeable in the Action Area (defined in **Section 3.0**). This BA only discusses future state, local, or private activities occurring outside the Action Area if they result in effects within the Action Area. Future federal actions that are unrelated to the Proposed Project are not considered in this BA because they will be subject to separate consultation pursuant to Section 7 of FESA.

Future state and local infrastructure projects that will be constructed as a result of development of the Proposed Project, are discussed under *Interrelated and Interdependent Effects*. No other future state or local projects are anticipated to occur in the Action Area or result in effects within the Action Area. Any future development in the area would be required to mitigate impacts to biological resources based on the California Environmental Quality Act (CEQA), Clean Water Act, and Endangered Species Act. Therefore, no cumulative effects are anticipated.

5.0 CONCLUSIONS AND DETERMINATION

DESERT TORTOISE (*GOPHERUS AGASSIZII*)

The Action Area is located within the Western Mojave Recovery Unit of the desert tortoise, but is not located in a DWMA. High human disturbance makes the site unlikely for desert tortoise occurrence. Suitable habitat for the tortoise does occur within the Action Area; however, this habitat is transitional and not ideal. Mitigation measures recommended in **Section 4.3** would minimize any potential impacts to the desert tortoise. With the incorporation the recommended mitigation measures, the Proposed Project may affect, but is **not likely to adversely affect** the desert tortoise.

6.0 REFERENCES/ PERSONAL COMMUNICATION

6.1 REFERENCES

Boarman, W.I. 2002. Desert Tortoise (*Gopherus agassizii*). In: Boarman, W.I. and K. Beaman, editors. The Sensitive Plant and Animal Species of the Western Mojave Desert. U.S. Geological Survey, Western Ecological Research Center, Sacramento, CA.

Bureau of Land Management (BLM). 2006. West Mojave Habitat Conservation Plan Species Accounts: Desert Tortoise. Available online at http://www.blm.gov/ca/cdd/wemo_report_am.html. Accessed April 26, 2006.

California Department of Fish and Game (CDFG). California Interagency Wildlife Task Group. 2005. California Wildlife Habitat Relationships version 8.1 personal computer program. Sacramento, California.

California Native Plant Society (CNPS). 2006. Inventory of Rare and Endangered Plants (online edition, v7-06b). California Native Plant Society. Sacramento, CA. Accessed June 12, 2006 at: <http://www.cnps.org/inventory>.

California Natural Diversity Database (CNDDDB), Biogeographic Data Branch, Department of Fish and Game. 2005. RareFind 3, Version 3.0.5.

Hickman, J. (Ed). 1993. *The Jepson Manual, Higher Plants of California*. University of California Press, Berkeley.

Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California. State of California, The Resources Agency, Nongame Heritage Program, Department of Fish and Game, Sacramento, CA. 156 pp.

U.S. Department of Agriculture. 1986. Soil Survey of San Bernardino County, California, Mojave River Area. February 1986.

U.S. Fish and Wildlife Service (USFWS). 1992. Field Survey Protocol for Any Federal Action That May Occur Within the Range of the Desert Tortoise. Accessed December 5, 2006 at: http://www.fws.gov/ventura/sppinfo/protocols/deserttortoise_fedsurveyprotocol.pdf.

USFWS. 1994. Draft Recovery Plan for the Desert Tortoise (*Gopherus agassizii*; Mojave Population). Dated June 1994.

USFWS. 2005. Desert Tortoise Exclusion Fence. Accessed December 5, 2006 at: http://www.fws.gov/ventura/sppinfo/protocols/deserttortoise_fedsurveyprotocol.pdf.

USFWS. 2006. Federal Endangered and Threatened Species that may be affected by projects in San Bernardino County. Accessed June 20, 2006 at: http://www.fws.gov/ventura/es/spplists/species_sbd.cfm.

U.S. Geological Survey (USGS). 2004. Precipitation History of the Mojave Desert Region, 1893 – 2004. USGS fact sheet 117-03. Accessed May 26, 2006 at: <http://pubs.usgs.gov/fs/fs117-03/>.

6.2 PERSONAL COMMUNICATION

Bransfield, Ray and Eshelbach, Kate. Desert District Office, USFWS. 2007. Personal communication with Sean Marquis, LaTisha Burnaugh, and Peter Bontadelli via telephone. January 3, 2007.

Sullivan, Charles. Natural Resource Specialist, Bartow Field Office, BLM. 2007. Personal communication with Sean Marquis via telephone. January 8, 2007.

APPENDIX 1

***CALIFORNIA NATURAL DIVERSITY DATABASE LIST OF REPORTED
OCCURRENCES OF SPECIAL-STATUS SPECIES WITHIN THE BARSTOW
SE, HINKLEY, BARSTOW, NEBO, DAGGETT, WEST ORD MOUNTAIN,
STODDARD WELL, TURTLE VALLEY, AND HODGE 7.5-MINUTE USGS
QUADRANGLES***

California Department of Fish and Game

Natural Diversity Database

Selected Elements by Scientific Name - Portrait

Barstow, Water Valley, Mud Hills, Lane Mountain, Nebo, Daggett, Barstow SE, Hodge, and Hinkley quadrangles June 16, 2010

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 <i>Abronia villosa</i> var. <i>aurita</i> chaparral sand-verbena	PDNYC010P1			G5T3T4	S2.1	1B.1
2 <i>Astragalus jaegerianus</i> Lane Mountain milk-vetch	PDFAB0F4F0	Endangered		G1	S1.1	1B.1
3 <i>Athene cunicularia</i> burrowing owl	ABNSB10010			G4	S2	SC
4 <i>Castela emoryi</i> Emory's crucifixion-thorn	PDSIM03030			G3	S2.2	2.3
5 <i>Charina trivirgata</i> rosy boa	ARADA01020			G4G5	S3S4	
6 <i>Coccyzus americanus occidentalis</i> western yellow-billed cuckoo	ABNRB02022	Candidate	Endangered	G5T3Q	S1	
7 <i>Corynorhinus townsendii</i> Townsend's big-eared bat	AMACC08010			G4	S2S3	SC
8 <i>Cryptantha clokeyi</i> Clokey's cryptantha	PDBOR0A3M0			G1	S1.1	1B.1
9 <i>Cymopterus deserticola</i> desert cymopterus	PDAP10U090			G3	S3.2	1B.2
10 <i>Eriophyllum mohavense</i> Barstow woolly sunflower	PDAST3N070			G2	S2.2	1B.2
11 <i>Falco mexicanus</i> prairie falcon	ABNKD06090			G5	S3	
12 <i>Gila bicolor mohavensis</i> Mohave tui chub	AFCJB1303H	Endangered	Endangered	G4T1	S1	
13 <i>Gopherus agassizii</i> desert tortoise	ARAAF01010	Threatened	Threatened	G4	S2	
14 <i>Mentzelia tridentata</i> creamy blazing star	PDLOA031U0			G2	S2.3	1B.3
15 <i>Mimulus mohavensis</i> Mojave monkeyflower	PDSCR1B1V0			G2	S2.2	1B.2
16 <i>Phacelia parishii</i> Parish's phacelia	PDHYD0C3G0			G2G3	S1.1	1B.1
17 <i>Taxidea taxus</i> American badger	AMAJF04010			G5	S4	SC
18 <i>Toxostoma lecontei</i> Le Conte's thrasher	ABPBK06100			G3	S3	SC
19 <i>Xerospermophilus mohavensis</i> Mohave ground squirrel	AMAFB05150		Threatened	G2G3	S2S3	

APPENDIX 2

***USFWS LIST OF FEDERALLY LISTED, PROPOSED, AND CANDIDATE
SPECIES WHICH MAY OCCUR IN SAN BERNARDINO COUNTY***



Ventura Fish and Wildlife Office

Pacific Southwest Region

- Ventura Homepage
- About This Office +
- People and Nature +
- Partnerships +
- Endangered Species +
- News and Publications +
- Species Information
- Tools for Kids and Teachers
- Tools for Landowners

Federally Listed Threatened & Endangered Species Which May Occur In San Bernardino County, CA

Amphibian

Arroyo Toad	Bufo californicus	E
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Bird

Least Bell's Vireo	Vireo bellii pusillus	E
Southwestern Willow Flycatcher	Empidonax trallii extimus	E
Yellow-Billed Cuckoo	Coccyzus americanus	C
Yuma Clapper Rail	Rallus longirostris yumanensis	E

Fish

Bonytail Chub	Gila elegans	E
Mohave Tui Chub	Gila bicolor mohavensis	E
Razorback Sucker	Xyrauchen texanus	E

Plant

Cushenbury Buckwheat	Eriogonum ovalifolium var. vineum	E
Cushenberry Milk-vetch	Astragalus albens	E
Cushenbury Oxytheca	Oxytheca parishii var. goodmaniana	E
Lane Mountain Milk-Vetch	Astragalus jaegerianus	E
Parish's Daisy	Erigeron parishii	T

Reptile

Desert Tortoise	Gopherus agassizii	T
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E - Endangered

T - Threatened

CH - Critical habitat

PE - Taxa proposed for listing as endangered

PT - Taxa proposed for listing as threatened

PCH - Critical habitat which has been proposed

DISCLAIMER NOTICE - The information provided on this page should not be considered an OFFICIAL species list. If you have a proposed project and are in need of an official species list, please mail a detailed request to:

Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, CA 93003

ventura, CA, 93003.

Last updated: May 6, 2010

[Ventura Fish & Wildlife Office](#) | [Contact Us](#)
[Pacific Southwest Regional Office](#)

APPENDIX 3

***REGIONALLY OCCURRING FEDERALLY LISTED, PROPOSED, OR
CANDIDATE SPECIES***

**APPENDIX 3
BARSTOW SITE
REGIONALLY OCCURRING SPECIAL-STATUS SPECIES**

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/ CNPS- OTHER STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON- SITE
Plants					
<i>Abronia villosa</i> var. <i>aurita</i> chaparral sand-verbena	--/--1B	Known to occur in Imperial, Los Angeles, Orange*, Riverside, San Bernardino, San Diego, and Ventura counties. Also occurs in Arizona and Baja California , Mexico.	Occurs in chaparral, coastal scrub, and desert dunes/sandy habitats. Elevations: 80-1,600 meters.	January - September	No. Suitable habitat for this species does not occur within the project site.
<i>Astragalus albens</i> Cushenbury milk-vetch	FE/--1B	Known to occur in San Bernardino County.	Known to occur in Joshua tree "woodland," Mojavean desert scrub, and pinyon and juniper woodland/usually carbonate, rarely granitic. Elevations: 1,095-2,000 meters.	March - June	No. The project site is outside the known range of elevation for this species.
<i>Astragalus jaegerianus</i> Lane Mountain milk-vetch	FE/--1B	Known to occur in San Bernardino County.	Occurs in Joshua tree "woodland" and Mojavean desert scrub/granitic, sandy, or gravelly. Elevations: 900-1,200 meters.	April - June	No. The project site is outside the known range of elevation for this species.
<i>Astragalus preussii</i> var. <i>laxiflorus</i> Lancaster milk-vetch	--/--1B	Known to occur in San Bernardino, Kern, Los Angeles, and San Bernardino counties. Also occurs in Arizona and Nevada.	Known to occur in chenopod scrub. Elevations: 700 meters.	March - May	No. Suitable habitat for this species does not occur within the project site and it is outside the known range of elevation for this species.
<i>Calochortus striatus</i> alkali mariposa lily	--/--1B	Known to occur in Kern, Los Angeles, San Bernardino, and Tulare counties. Also occurs in Nevada.	Known to occur in chaparral, chenopod scrub, Mojavean desert scrub, meadows and seeps/alkaline, mesic. Elevations: 70-1,595 meters.	April - June	No. This species has not been documented within a five-mile radius of the project site.
<i>Castela emoryi</i> Emory's crucifixion-thorn	--/--2	Known to occur in Imperial, Inyo, Riverside, and San Bernardino counties. Also occurs in Arizona and Sonora, Mexico.	Known to occur in Mojavean desert scrub, playas, and Sonoran desert scrub/gravelly. Elevations: 90-670 meters.	(April) June - July	No. The project site is outside the known range of elevation for this species.
<i>Cryptantha clokeyi</i> Clokey's cryptantha	--/--1B	Known to occur in Los Angeles and San Bernardino counties.	Known to occur in Mojavean desert scrub. Elevations: 800-1,280 meters.	April	No. The project site is outside the known range of elevation for this species.
<i>Cymopterus deserticola</i> desert cymopterus	--/--1B	Known to occur in Los Angeles and San Bernardino counties.	Known to occur in Joshua tree "woodland" and Mojavean desert scrub/sandy. Elevations: 630 to 1,500 meters.	March - May	No. This species has not been documented within a five-mile radius of the project site.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/ CNPS- OTHER STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON- SITE
<i>Erigeron parishii</i> Parish's daisy	FT/--/1B	Known to occur in Riverside and San Bernardino counties.	Known to occur in Mojavean desert scrub and pinyon and juniper woodland/usually carbonate, sometimes granitic. Elevations: 800-2,000 meters.	May - August	No. The project site is outside the known range of elevation for this species.
<i>Eriogonum ovalifolium</i> var. <i>vineum</i> Cushenbury buckwheat	FE/--/1B	Known to occur in San Bernardino County.	Known to occur in Joshua tree "woodland," Mojavean desert scrub, and pinyon and juniper woodland/carbonate. Elevations: 1,400-2,440 meters.	May - August	No. The project site is outside the known range of elevation for this species.
<i>Eriophyllum mohavense</i> Barstow woolly sunflower	--/--/1B	Known to occur in Fresno, Kern, Los Angeles, and San Bernardino counties.	Known to occur in chenopod scrub, Mojavean desert scrub, and playas. Elevations: 500 to 960 meters.	April - May	Yes. The Mojave creosote bush scrub is suitable habitat within the project site for this species.
<i>Mentzelia tridentata</i> creamy blazing star	--/--/1B	Known to occur in Imperial, Inyo, Kern, Riverside, San Bernardino, and San Diego counties.	Known to occur in Mojavean desert scrub/rocky, gravelly, sandy. Elevations: 700-1,160 meters.	March - May	Yes. The Mojave creosote bush scrub is suitable habitat within the project site for this species.
<i>Mimulus mohavensis</i> Mojave monkeyflower	--/--/1B	Known to occur in San Bernardino County.	Known to occur in Joshua tree "woodland" and Mojavean desert scrub/sandy or gravelly, often in washes. Elevations: 600-1,200 meters.	April - June	Yes. The Mojave creosote bush scrub is suitable habitat within the project site for this species.
<i>Oxytheca parishii</i> var. <i>goodmaniana</i> New name: <i>Acanthoscyphus</i> <i>parishii</i> var. <i>goodmaniana</i> Cushenbury oxytheca	FE/--/1B	Known to occur in San Bernardino County.	Known to occur in pinyon and juniper woodland (carbonate, talus)/sandy, carbonate. Elevations: 1,219-2,377 meters.	May - October	No. The project site is outside the known range of elevation for this species.
<i>Phacelia parishii</i> Parish's phacelia	--/--/1B	Known to occur in San Bernardino County. Also occurs in Arizona and Nevada.	Known to occur in Mojavean desert scrub and playas/clay or alkaline. Elevations: 540-1,200 meters.	April - May (June - July)	No. This species has not been documented within a five-mile radius of the project site.
Animals					
Fishes					
<i>Gila elegans</i> Bonytail chub	FE/CE/--	Lake Mohave and Lake Havasu, Mohave County- Arizona. Green, Yampa, and Colorado Rivers within Utah and Colorado.	Mainstream slower water habitats including eddies, pools, side channels, and coves. Elevations: 0-1,219 meters.	Consult Agency	No. Suitable habitat for this species does not occur within the project site.
<i>Gila bicolor mohavensis</i> Mojave tui chub	FE/CE/FP	Widely distributed throughout the hydrographic Great Basin Region, including the northern portion of the Mojave Desert, in much of the area formerly occupied by Lake Lahontan and other pluvial lakes.	Associated with deep pools and slough-like areas of the Mojave River. Require aquatic ditchgrass (<i>Ruppia maritima</i>) for spawning and shelter.	May - June	No. Suitable habitat for this species does not occur within the project site.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/ CNPS- OTHER STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON- SITE
<i>Xyrauchen texanus</i> razorback sucker	FE/CE/FP	Isolated populations occur within Lakes Mohave and Mead in Arizona and Lake Havasu in Nevada, and within the Lower Colorado River. Small remnant populations occur in the Green, Yampa, and mainstream Colorado Rivers in Utah and Colorado, and in the San Juan River near the New Mexico-Utah border. It has been documented in Greenlee, Mohave, Pinal, Yavapai, Yuma, La Paz, Maricopa, Gila, Coconino, and Graham Counties- Arizona.	Large rivers and streams, impoundments, low velocity main channels, and backwaters. Spawns in downstream river mouths of tributaries and has been documented in adjacent wetlands.	Consult Agency	No. Suitable habitat for this species does not occur within the project site.
Amphibians					
<i>Bufo microscaphus californicus</i> arroyo toad	FE/--/--	Endemic to California and northern Baja California. Ranges west of the desert in coastal areas from the upper Salinas River system in San Luis Obispo county to northwestern Baja California. It has been recorded at the Mojave River, Little Rock Creek, Whitewater River, San Felipe Creek, Vallecito Creek, and Pinto Canyon.	Inhabits washes, arroyos, sandy riverbanks, riparian areas with willows, sycamores, oaks, cottonwoods. Extremely specialized habitat needs, including exposed sandy streambanks with stable terraces for burrowing with scattered vegetation for shelter, and areas of quiet water or pools free of predatory fishes with sandy or gravel bottoms without silt for breeding. Sea level to 3,000 ft. (900 m.)	March - July	No. Suitable habitat for this species does not occur within the project site.
Reptiles					
<i>Gopherus agassizii</i> desert tortoise	FT/CT/--	In California, occurs throughout major portions of the Mojave and Sonoran deserts.	Within the West Mojave Desert, primarily occur in creosote bush scrub, with lower densities occurring in Joshua tree woodland and saltbush scrub. Generally occurs between 610-1,006 meters in elevation.	March - October	Yes. The Mojave creosote bush scrub is suitable habitat within the project site for this species.
Birds					
<i>Athene cunicularia</i> burrowing owl	--/CSC/--	Formerly common within the described habitats throughout the state except the northwest coastal forests and high mountains.	Yearlong resident of open, dry grassland and desert habitats, as well as in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats.	All Year	Yes. The Mojave creosote bush scrub is suitable habitat within the project site for this species.
<i>Coccyzus americanus occidentalis</i> western yellow-billed cuckoo	FC/CE/--	Summer migrant along the Colorado River, Sacramento and Owens valleys, Kern River, and other scattered locations throughout lowland California.	Frequents Valley foothill and desert riparian habitats. Inhabits riparian habitats with dense understory foliage along slow-moving drainages, backwaters, or seeps. Prefers dense willows for roosting, but will use adjacent orchard in the Sacramento Valley.	June - August	No. Suitable habitat for this species does not occur within the project site.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/ CNPS- OTHER STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON- SITE
<i>Empidonax traillii extimus</i> southwestern willow flycatcher	FE/CE/--	Occurs in southern California, southern Nevada, southern Utah, Arizona, New Mexico, western Texas, southwestern Colorado, and northwestern Mexico. In California this species occurs in Kern, Tulare, San Bernardino, Riverside, San Diego, Santa Barbara, Orange, Los Angeles, Imperial, and Inyo Counties. In Arizona this species is associated with the Aqua Fria, Gila, Little Colorado, Salt, San Pedro, Colorado, San Francisco, Hassayampa, Verde, Big Sandy, Santa Maria, Virgin, and Bill Williams Rivers, and Pinal, Tonto, and Cienega Creeks.	Requires dense riparian habitats along streams, rivers, lakesides, and other wetlands for nesting (especially willows, cottonwoods, and mesquite). Will forage throughout wet meadows, open river valleys, lush wetlands and thickets, and other montane riparian habitats.	April-September	No. Suitable habitat for this species does not occur within the project site.
<i>Rallus longirostris yumanensis</i> Yuma clapper rail	FE/CT/FP	Occurs along the Lower Colorado River from Lake Mead to Mexico. Also known to occur within the Salton Sea. California counties include San Bernardino, Riverside, and Imperial. Arizona counties include Maricopa, Pinal, and Gila.	Occurs in brackish or freshwater shallow marsh habitats and stream banks. Requires a wet substrate with dense stands of bulrush and/or cattail.	March-July	No. Suitable habitat for this species does not occur within the project site.
<i>Toxostoma lecontei</i> Le Conte's thrasher	--/CSC/--	In California, occurs in the southeastern desert regions of the southern San Joaquin Valley adjacent Cuyama Valley, and Carrizo Plain.	Requires rolling, well-drained slopes bisected with dry washes, conditions found most often on bajadas and alluvial fans. Mostly associated with chenopod scrub habitats, but may utilize other desert scrub communities.	January - June	Yes. The Mojave creosote bush scrub is suitable habitat within the project site for this species.
<i>Vireo bellii pusillus</i> least Bell's vireo	FE/CE/--	Occurs in San Diego, Riverside, San Bernardino, Santa Barbara, Inyo, Ventura, Los Angeles, Orange, and Monterey Counties of southern California and portions of northern Baja California-Mexico.	Occurs in cottonwood and willow riparian forests, oak woodlands, and within shrubby thickets and desert washes.	April-July	No. Suitable habitat for this species does not occur within the project site.
Mammals					
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	--/CSC/--	Occurs throughout California, in a diversity of habitats excluding subalpine and alpine communities.	Requires caves, mines, tunnels, buildings, or other man-made structures for roosting. Hibernation sites must be cool and cold, but above freezing.	Year Round	No. Suitable roosting habitat for this species does not occur within the project site. However, this species may forage on-site.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/ CNPS- OTHER STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON- SITE
<i>Spermophilus mohavensis</i> Mojave ground squirrel	--/CT/--	Restricted to the Mojave Desert in San Bernardino, Los Angeles, Kern, and Inyo Counties. Populations in southwestern San Bernardino County appear to be extirpated.	Optimal habitats are open desert scrub, alkali desert scrub, and Joshua tree. Also feeds in annual grasslands.	Year Round	Yes. The Mojave creosote bush scrub is suitable habitat within the project site for this species.
<i>Taxidea taxus</i> American badger	--/CSC/--	American badgers occur throughout the U.S.	Habitats include short-grass prairie, meadows, forest edges, shrub-steppe, and other low-lying areas.	Year Round	No. Suitable habitat for this species does not occur within the project site.

STATUS CODES

FEDERAL: United States Fish and Wildlife Service

FE Federally Endangered
 FT Federally Threatened
 FC Candidate for Federal Listing

STATE: California Department of Fish and Game

CE California Listed Endangered
 CT California Listed Threatened
 CSC California Species of Special Concern
 FP California Fully Protected Species

CNPS: California Native Plant Society

List 1B Plants Rare, Threatened, or Endangered in California and Elsewhere
 List 2 Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

Months in parenthesis are uncommon. SOURCE: USFWS 2010; CDFG 2010; CNPS 2010.

APPENDIX 4

***LISTS OF ANIMALS AND VASCULAR PLANTS OBSERVED IN THE
ACTION AREA***

ANIMAL CHECKLIST

Barstow Site

MAMMALS

CANIDAE
Canis latrans
(coyote)

LEPORIDAE
Lepus californicus
(black-tailed jackrabbit)

SCIURIDAE
Ammospermophilus leucurus
(antelope ground squirrel)

REPTILES

TEIIDAE
Cnemidophorus tigris
(western whiptail)

BIRDS

ALAUDIDAE
Eremophila alpestris
(horned lark)

CORVIDAE
Corvus corax
(common raven)

COLUMBIDAE
Zenaidura macroura
(mourning dove)

HIRUNDINIDAE
Hirundo rustica
(barn swallow)

LARIIDAE
Lanius ludovicianus
(loggerhead shrike)

ODONTOPHORIDAE
Callipepla gambelii
(Gambel's quail)

THRAUPIDAE
Piranga ludoviciana
(western tanager)

VASCULAR PLANT CHECKLIST

Barstow Site

CONIFERS

PINACEAE

Pinus sp. (horticultural pine)

FLOWERING PLANTS – DICOTS

AMARANTHACEAE

Atriplex polycarpa (saltbush)

ASTERACEAE

Ambrosia dumosa (burro-weed, white bursage)

Hymenoclea salsola (burrobrush)

Malacothrix glabrata (desert dandelion)

BORAGINACEAE

Amsinckia tessellata (devil's lettuce)

Cryptantha circumscissa (cryptantha)

Pectocarya penicillata (pectocarya)

Tiquilia plicata (tiquilia)

CACTACEAE

Opuntia echinocarpa (golden cholla)

Opuntia ramosissima (pencil cactus)

FABACEAE

Senna armata (spiny senna, desert senna)

GERANIACEAE

Erodium cicutarium (filaree)

POLYGONACEAE

Chorizanthe brevicornu (brittle spineflower)

SALICACEAE

Populus sp. (horticultural cottonwood)

ZYGOPHYLLACEAE

Larrea tridentata (creosote bush)

FLOWERING PLANTS – MONOCOTS

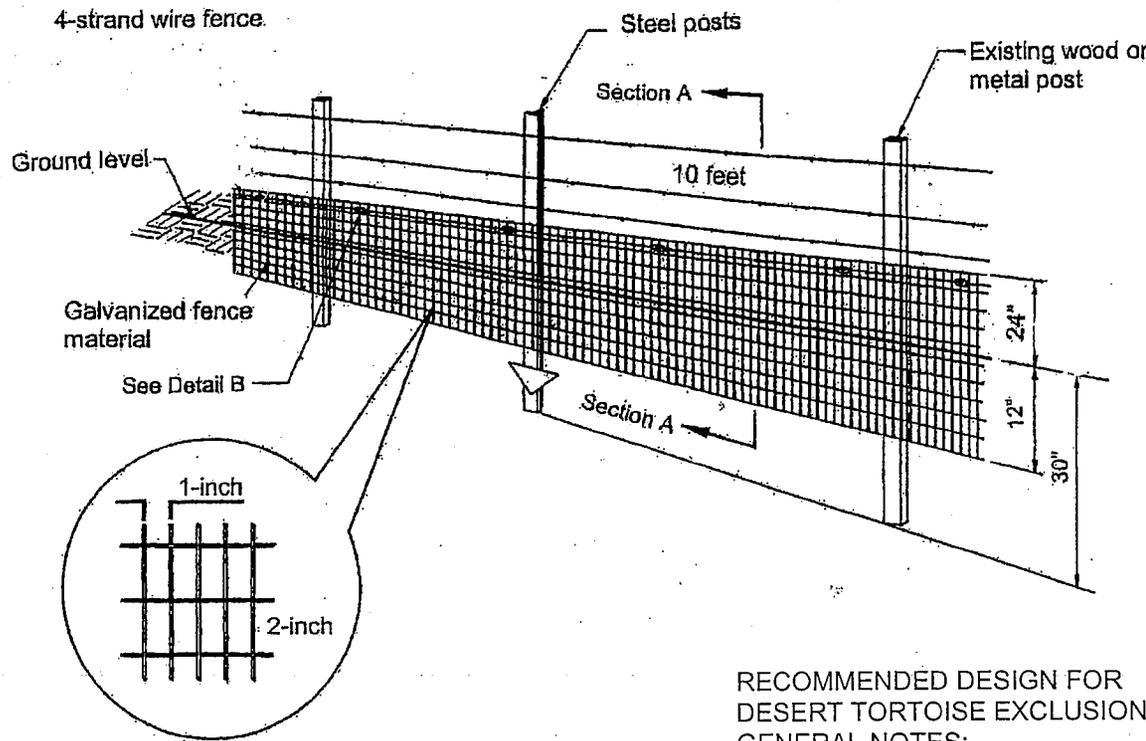
POACEAE

Schismus barbatus (Mediterranean grass)

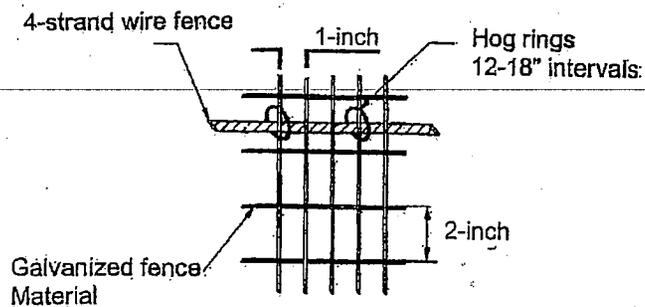
APPENDIX 5

DESERT TORTOISE EXCLUSION FENCE

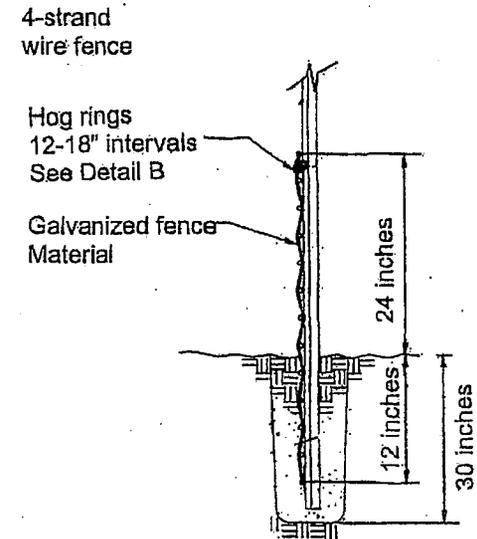
DESERT TORTOISE EXCLUSION FENCE (2005)



DETAIL A



DETAIL B



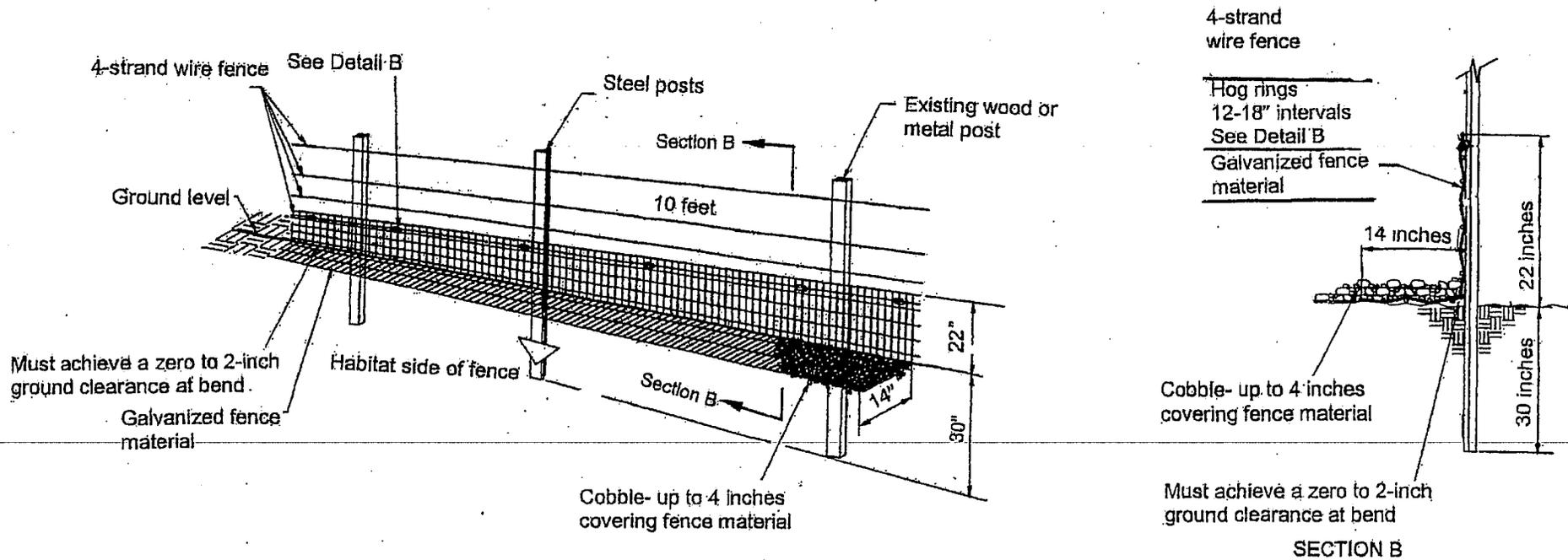
SECTION A

RECOMMENDED DESIGN FOR DESERT TORTOISE EXCLUSION FENCE GENERAL NOTES:

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

FOR BEDROCK OR CALICHE SUBSTRATE

1. Use this fence design (see below) only for that portion of the fence where fence material cannot be placed 6 inches below existing ground level due to presence of bedrock, large rocks or caliche substrate.
2. Ensure that the fence height above ground level is no less than 22 inches.
3. Ensure that there is a zero to 2-inch ground clearance at the bend.
4. Ensure that the bent portion of the fence is lying on the ground and pointed in the direction of desert tortoise habitat.
5. Cover the portion of the fence that is flush with the ground with cobble (rocks placed on top of the fence material to a vertical thickness up to 4 inches).
6. When substrate no longer is composed of bedrock or caliche, install fence using design shown above.



APPENDIX 6

***FIELD SURVEY PROTOCOL FOR ANY FEDERAL ACTION THAT MAY
OCCUR WITHIN THE RANGE OF THE DESERT TORTOISE***

January 1992

**FIELD SURVEY PROTOCOL FOR ANY FEDERAL ACTION THAT MAY
OCCUR**

WITHIN THE RANGE OF THE DESERT TORTOISE

**(Please view Desert Tortoise Monitor and Biologist Responsibilities and
Qualifications for additional Information)**

The Mojave population of the desert tortoise (*Gopherus agassizii*) was listed as a federally endangered species on August 4, 1989 by emergency rule and as a threatened species by final rule on April 2, 1990. Section 7(a) regulations of the Endangered Species Act (Federal Register Vol. 51, No. 106, pp. 19957-19963) require each federal agency to review its actions at the earliest possible time to determine whether any action may affect listed species (Mojave population of the desert tortoise) or critical habitat. If such a determination is made, formal consultation is required with the Fish and Wildlife Service. The Service may request a federal agency to enter into consultation if it identifies any action of that agency that may affect the desert tortoise and for which there has been no consultation. Through completion of the formal Section 7 process, that is issuance of a "no jeopardy" biological opinion, the federal agency receives authorization from the Fish and Wildlife Service to incidentally take a specified number of federally threatened desert tortoises and tortoise habitat through the implementation of a proposed project. Without this authorization from the Fish and Wildlife Service, the federal agency would be in violation of Section 9 of the Endangered Species Act if the proposed project were implemented and resulted in the "take" of a desert tortoise or its habitat.

Section 9 of the Endangered Species Act prohibits the "taking" of any federally listed threatened or endangered species without first obtaining necessary authority from the Fish and Wildlife Service. "Take" includes "harming, harassing, pursuing, hunting, shooting, wounding, killing, capturing, collecting, or attempting to engage in any such conduct" (Section 3(19), Endangered Species Act 1973, as amended). Harm includes "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavior patterns, including breeding, feeding, or shelter" (50 CFR 17.3(c)). "Take" also includes modification of habitat that would result in harm to the desert tortoise.

In response to a demand for information and/or guidance on compliance with Section 7 of the Endangered Species Act, the Fish and Wildlife Service has developed a protocol for surveys within the range of the federally threatened desert tortoise. The purpose of this protocol is to provide technical assistance to federal agencies to determine 1) if a proposed action "may adversely affect" the desert tortoise and thus initiate formal consultation with the Fish and Wildlife Service and 2) the incidental take of desert tortoises and tortoise habitat. Survey information would also enable the federal agency to modify the proposed project or develop an alternative project that would minimize or avoid incidental take of desert tortoises or their habitat. This latter point is relevant under Section 7(a)(1) of the Endangered Species Act which requires all federal agencies to

consult with the Fish and Wildlife Service and utilize their authorities to carry out programs for the conservation of endangered and threatened species.

We also recommend that you obtain a copy of "Procedures for Endangered Species Act Compliance for the Mojave Desert Tortoise" before you begin planning your project. This document is available from any of five Fish and Wildlife Service offices listed below and provides more information to sections 7, 9, and 10 of the Endangered Species Act.

This survey protocol is subject to revision as new information becomes available. Before initiating the survey protocol described below, we recommend checking with the Fish and Wildlife Service to verify that you are implementing up-to-date survey methods.

In Arizona:

Fish and Wildlife Service
Phoenix Field Office
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021 (602) 640-2720

In California, for Inyo, Kern, Los Angeles, and San Bernardino Counties:

Fish and Wildlife Service
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003 (805) 644-1766

In California, for Imperial and Riverside Counties:

Fish and Wildlife Service
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road
Carlsbad, California 92011 (760) 431-9440

In Nevada:

Fish and Wildlife Service Nevada State Office
1340 Financial Boulevard, Suite 234
Reno, Nevada 89502-5093 (775) 861-6300

In Utah:

Fish and Wildlife Service
Salt Lake City Field Office
145 East 1300 South, Suite 404
Salt Lake City, Utah 84115 (801) 524-5009

Survey protocol includes five parts: 1) survey need, 2) survey types, 3) survey quality, 4) survey time period, and 5) qualifications of the surveyor.

Survey Needs: The desert tortoise may occupy numerous habitat types within its range in the Mojave and Colorado deserts and below an elevation of 5000 feet. In these areas there is a likelihood of encountering desert tortoises or tortoise sign. If the federal agency does not know if the proposed project occurs within the range of the desert tortoise, please request a species list from the Fish and Wildlife Service office listed above that has jurisdiction over the project area. If the Fish and Wildlife Service species list includes the Mojave population of the desert tortoises, this means the desert tortoises may be present within or near the project area.

The following criteria have been developed by the Fish and Wildlife Service to assist federal agencies in their determination of "may affect" for the desert tortoise: 1) desert tortoise habitat on the project site, 2) desert tortoise habitat adjacent to the project site such that the project area may overlap the home range of a desert tortoise, or 3) project would introduce direct or indirect disturbance to desert tortoise habitat (e.g., roads). Desert tortoise habitat is defined as areas with presence of tortoises or tortoise sign within areas likely to be home range, dispersal corridors, or habitat identified in the recovery plan. If the project area and adjacent areas meet one of these three criteria or if any tortoise sign (e.g., live tortoises, shells, bones, scutes, limbs, scats, burrows, pallets, tracks, egg shell fragments, courtship rings, drinking sites, mineral licks, etc.) is known to occur in the project area or adjacent areas, then the proposed project "may affect" the desert tortoise and consultation with the Fish and Wildlife Service should be initiated.

Please note that all free-roaming desert tortoises located north and west of the Colorado River are protected under the Endangered Species Act. For example, the desert tortoise that on occasion occurs above 5000 feet or in pinyon-juniper woodland would be protected under the Endangered Species Act.

The next step is for the federal agency to determine the likelihood of an adverse effect to the desert tortoise from implementation of the proposed project. If the proposed action may adversely affect the desert tortoise, formal consultation is required unless, as a result of the preparation of a biological assessment or as a result of informal consultation with the Fish and Wildlife Service, the federal agency determines, with the written concurrence of the Fish and Wildlife Service, that the proposed action is not likely to adversely affect the desert tortoise or critical habitat.

As mentioned above, the presence of a desert tortoise within the project boundary is not necessary for the project to result in the take of the desert tortoise. For example, a desert tortoise may be present in the Zone of Influence and may use the project site for feeding, breeding, or shelter. The Zone of Influence is defined as the area where tortoises on adjacent lands may be directly or indirectly affected by project exploration, construction, maintenance, operation, monitoring, dismantlement, enhancement, and project abandonment. Destruction of tortoise habitat used for feeding, breeding, or shelter is considered take under the Endangered Species Act.

For formal consultation, that is, projects that may adversely affect the desert tortoise, the Fish and Wildlife Service recommends the following protocols:

For a surface disturbance project that would result in the clearing or crushing of vegetation (e.g., roads, buildings, excavation or fill sites, utility towers, water improvements, driving overland for land surveying and other activities, etc.) the federal agency should conduct a Presence-or-Absence Survey (100 percent survey) for desert tortoises and tortoise sign over the entire project area and the Zone of Influence adjacent to the project area. (See Survey Types below.) The survey information would be used to develop a reliable incidental take statement as required in the biological opinion. Depending on the type of project, a Clearance Survey (see below) in occupied tortoise habitat may be necessary. The Fish and Wildlife Service requests that survey results (i.e., copies of the completed transect forms) be submitted to the appropriate Service office within 30 days of completion or with the request for formal consultation. If not included in the biological assessment or biological evaluation this information may be requested in the biological opinion.

For a management project that would result in modification of very large areas of desert tortoise habitat (e.g., grazing), the federal agency should coordinate with the Fish and Wildlife Service to develop an alternative method for surveying for desert tortoises and their sign. This method should consider variations in habitat quality within the project area, the natural history of the desert tortoise, and be statistically acceptable. The survey information would be necessary to develop a reliable incidental take statement as required in the biological opinion. Depending on the type of project, a Clearance Survey (see below) in occupied tortoise habitat may be necessary. The Fish and Wildlife Service requests that survey results be submitted to the appropriate Service office within 30 days unless the federal agency initiates formal consultation. If not included in the biological assessment or biological evaluation this information may be requested in the biological opinion.

If (1) the federal agency has determined that the proposed project is not likely to adversely affect the desert tortoise because the project area is not considered tortoise habitat, and (2) a desert tortoise or tortoise sign (shells, bones, scutes, limbs, burrows, pallets, scats, egg shell fragments, tracks, courtship rings, drinking sites, mineral licks, etc.) are found in the project area during implementation of the proposed action, the proposed action should immediately stop and the federal agency determine whether formal consultation is necessary

to comply with the Endangered Species Act. The Fish and Wildlife Service recommends that the federal agency notify us in writing within three (3) days of the discovery. This short notification period will help ensure a prompt response by the Fish and Wildlife Service to facilitate compliance with the Endangered Species Act.

Fish and Wildlife Service Survey Protocol for Desert Tortoises and Bureau of Land Management Categories of Desert Tortoise Habitat: The Bureau of Land Management has developed category maps for desert tortoises to assist the Bureau in managing public lands for the tortoise within the Bureau's multiple use mandate. Bureau maps were not developed to provide information on how to avoid take of the desert tortoise or comply with the federal Endangered Species Act. The Bureau has assigned three categories to their maps on desert tortoise habitat. These categories reflect the quality of tortoise habitat, quantity of tortoises present, and the Bureau's ability to manage these areas for the desert tortoise while minimizing resource conflicts. For example, Category 1 is considered better for tortoises than category 2. However, category 3 areas may contain high quality tortoise habitat and high density of tortoises, but because of resource conflicts the Bureau has assigned the area to category 3.

If an area is not classified on the Bureau's maps as category 1, 2, 3, this does not mean that this area does not contain desert tortoises or is not considered desert tortoise habitat. The Bureau did not categorize lands that it does not manage such as military reservations or private lands. Also, the Bureau did not categorize lands in many areas that have densities of desert tortoises less than 20 per square mile. Thus, if a proposed project is not located in an area categorized as category 1, 2, or 3 by the Bureau, the project may still be located in desert tortoise habitat if it is in the desert and below 5000 feet.

Survey Types: Two types of surveys are recommended: 1) Presence-or-Absence and 2) Clearance. Neither survey utilizes the 1.5-mile triangular transect survey method developed by the Bureau of Land Management. This triangular transect method has not provided reliable information on the number of desert tortoises that would be incidentally taken as a result of implementation of the proposed project and thus is not adequate for meeting the requirements of the Endangered Species Act.

Presence-or-Absence: This survey type is recommended for all potential desert tortoise habitats. A Presence-or-Absence Survey equivalent to that described below would be requested for habitats thought to be outside suitable habitat for the desert tortoise if tortoise sign is found within these habitats located within the project area.

The purpose of this survey is to determine impacts of potential land disturbance activities or land management activities to the local tortoise population. This includes identifying the number and location of all tortoises and tortoise sign that occur within a given project area or selected area and if any tortoises occur in adjacent areas whose home range may overlap into the project area and thus be lost or harassed by the proposed action.

The project area is defined as any area that will be cleared or partially cleared, with vehicles on or adjacent to it, temporarily or permanently used for equipment or materials storage, loading or unloading, or sites where soils/vegetation is damaged, fragmented, or disturbed (e.g., driving overland).

The entire project area is surveyed using belt transects 10 yards or 30 feet wide (100 percent coverage). In some locations, belt transects less than 30 feet wide may be appropriate (see below). In addition, the Zone of Influence is surveyed. The Zone of Influence is defined as the area where tortoises on adjacent lands may be directly or indirectly affected by project exploration, construction, maintenance, operation, monitoring, dismantlement, enhancement, and project abandonment. As a minimum, the belt transects in the Zone of Influence are located at 100, 300, 600, 1200, and 2400-foot intervals from and parallel to the edge of the project boundaries. (See Figures 1 and 2.) All tortoise sign (live tortoises, shell, bones, scutes, limbs, scats, burrows, pellets, tracks, egg shell fragments, courtship rings, drinking sites, mineral licks, etc.) within the project area and sign located on transects within the Zone of Influence should be mapped.

The extent of the Zone of Influence is dependent on the type of habitat alteration/development and its proximity to other developments. The extent of the Zone of Influence increases as the probability of increased use by domestic predators, potential human use in the Zone, road creation and use, littering, waste disposal, etc. These uses result in increased take of desert tortoises through predation, collection as pets, vandalism, road kills, and attracting predators such as ravens, coyotes, and feral dogs to the area.

Figure 1. Example of a proposed transmission line including areas with full (100 percent) survey coverage for desert tortoises (construction area) and locations of transects within the Zone of Influence.

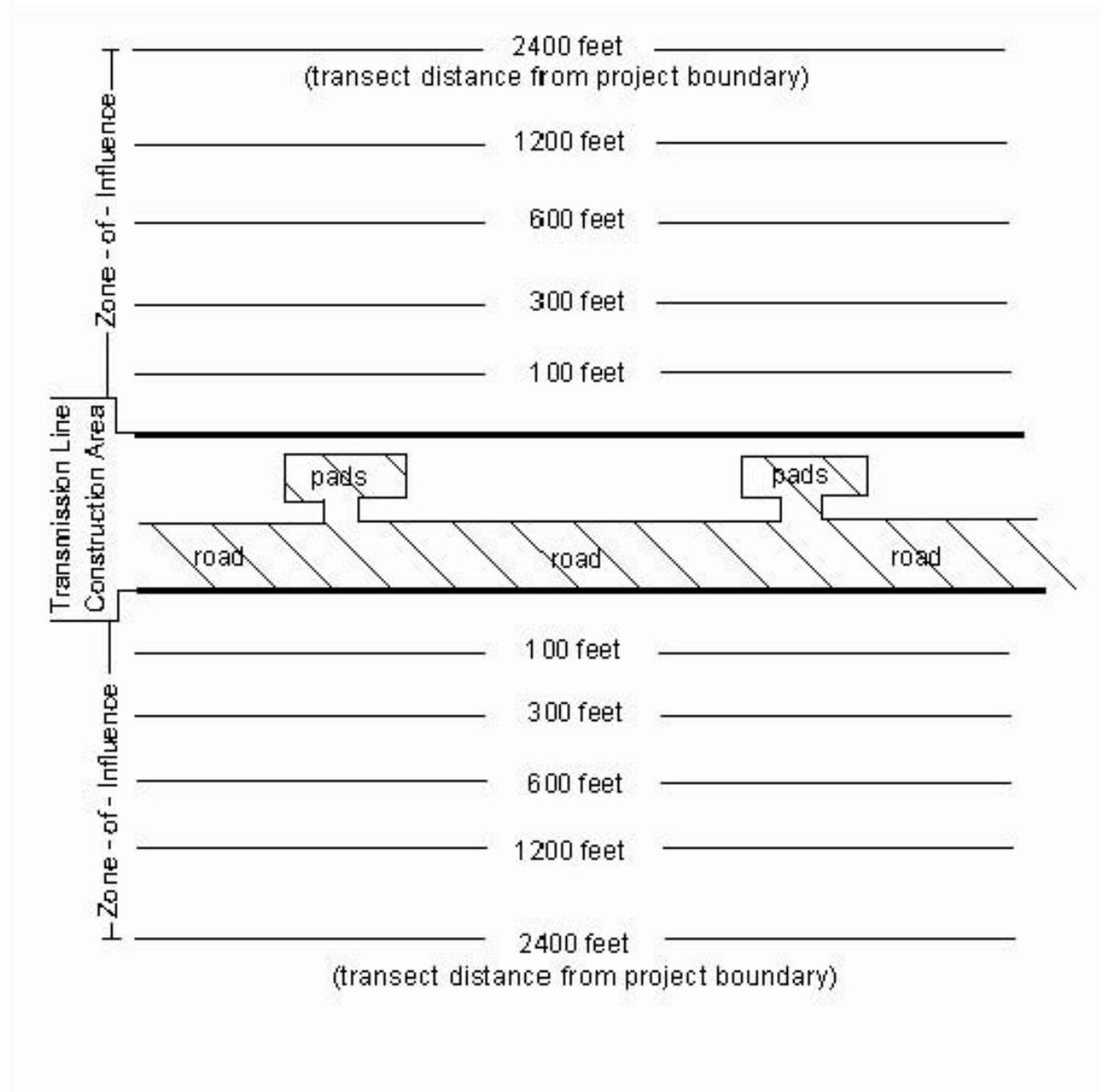
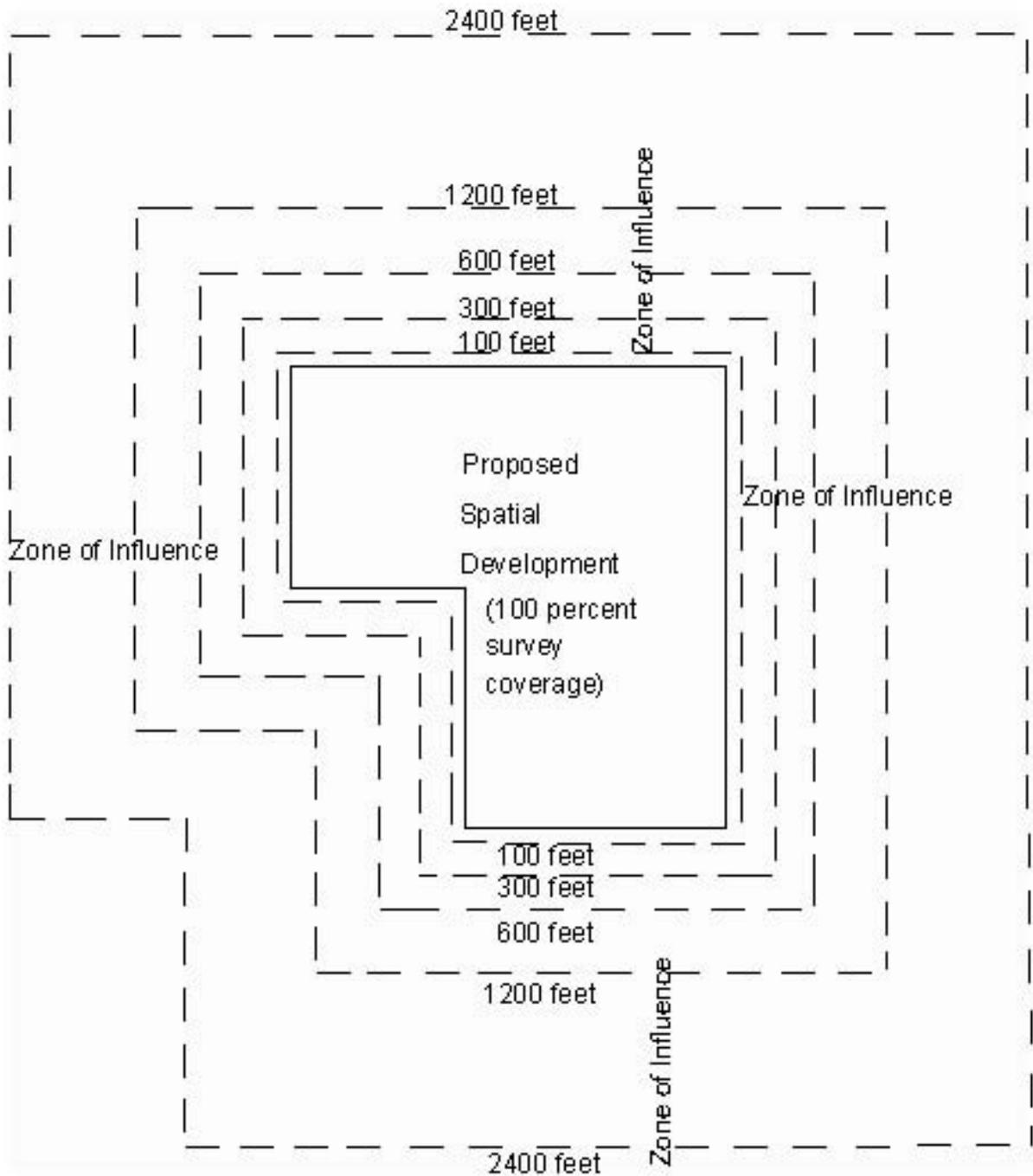


Figure 2. Example of a proposed spatial development (e.g., residential development, commercial development) with full (100 percent) survey coverage for desert tortoises and locations of transects within the Zone of Influence.



Additional transects may be recommended at 3600- and 4800- foot intervals from the perimeter of the project area for developments 1) located in or within one mile of categories 1 or 2 habitats as defined by the Bureau of Land Management or 2) associated with residential development, new or increased road use, landfills, or projects that would result in increases in human use or litter.

For example, if a project area is 640 acres or one square mile, 176 parallel transects each one mile long and 30 feet wide would be necessary to provide 100 percent coverage of the project area. Additional transects would be necessary to survey the adjacent areas or Zone of Influence.

If the project area contains locations with vegetation or topography that obscures or reduces that surveyor's ability to see tortoise sign at distances of up to 15 feet on the ground, the width of the survey should be reduced to 10 feet, that is, 5 feet on either side of the surveyor. Some examples of situations where a 10-foot wide transect should be conducted instead of a 30-foot wide transect would be: 1) foothills and slopes of mountains which contain rocks, boulders, and/or vegetation that obstruct the surveyor's view of the ground at distances greater than 5 feet, and 2) areas in which the vegetation density is greater than that of typical creosote or creosote/bursage flats or bajadas in the Mojave Desert such as desert wash scrub or woodlands and ecotones between habitat types. In these areas the surveyor's view of the ground and tortoise sign, if present, would be obstructed and a 30-foot wide transect would not be acceptable.

When mapping tortoise sign, the recommended map scale is 1 inch=100 feet for plans involving ground disturbance and 1 inch=1000 feet for preliminary planning (master planning or specific planning). These map scales are based on those frequently required by city or county planning departments. The map should include locations and specific types of all tortoise sign found on the project area and Zone of Influence including the number live tortoises, reference to the corresponding transect form with additional information on tortoise sign found, significant landmarks, legal description of the project area, survey dates, and the range of elevation within the project boundaries. Please note that a federal Fish and Wildlife License/Permit is required before a surveyor can capture, touch, or "harass" a live desert tortoise even for the purposes of taking measurements or determining its sex. A permit may also be required from the appropriate state wildlife resource agency (e.g., Arizona Game and Fish Department, California Department of Fish and Game, Nevada Department of Wildlife, Utah Division of Wildlife Resources). **The Fish and Wildlife Service emphasizes that the surveyor should only estimate the size of all live desert tortoises encountered.**

If the surveyor wishes to use a fiber-optic scope or video camera that is placed inside a tortoise burrow instead of or in addition to a hand-held mirror to investigate desert tortoise shelter sites, you should contact the Fish and Wildlife Service at one of the offices listed above. We will need information on the type of equipment you will be using and your qualifications to use it. Improper use of such equipment may disturb or injure tortoises, damage the shelter site, and may promote the spread of disease. These actions may be considered take under the Endangered Species Act. You should refer to the Desert Tortoise Handling Protocols for information on when and how to utilize these scopes to avoid the possible transmission of disease between tortoises.

The survey form for a federal project is the same as a non-federal project and is recommended for recording transect data. Please see our website for Field Survey Protocols for Non-Federal Actions for the Desert Tortoise for a copy of the survey form. This format has been modified from the Bureau of Land Management's Interim Techniques Handbook for Collecting and Analyzing Data on Desert Tortoise Populations and Habitats. One form is used for each transect where tortoise sign occurs. Pages 1, 2, and 3 of the form would be completed for each transect in the project site and the Zone of Influence where tortoise sign occurs. If additional space is needed, more forms may be used for each transect and stapled together.

If no tortoise sign is located during Presence-or-Absence Surveys, we recommend that the surveyor complete and submit summary form(s) (see Figure 4 of Field Survey Protocols for Non-Federal Actions for the Desert Tortoise) to the appropriate Fish and Wildlife Service office listed above.

Please do not collect any desert tortoise sign. Tortoise scats may be used by tortoises to mark or identify travel areas and shelter sites. Tortoise shells may be an important source of minerals for reptiles and mammals.

Clearance Survey: For projects located in areas with habitat used by desert tortoises, especially those projects with a linear band of disturbance (e.g. pipelines, roads, transmission lines), a Clearance Survey may be required as part of the Terms and Conditions of a biological opinion to reduce incidental take of the desert tortoise. The purpose of the survey would be to temporarily relocate or salvage tortoises from the area of construction and any other area deemed necessary to avoid or minimize the death of desert tortoises that may be caused by the project. A Clearance Survey would require full coverage of the project area, and would focus on locating all desert tortoises above and below ground within the project area. This survey would be conducted immediately prior to surface disturbance at each site within the project area. The survey period may be stipulated in the Terms and Conditions of the biological opinion to reduce the incidental take of desert tortoises.

Survey Quality: To determine the accuracy of the surveyor in locating desert tortoise sign during Presence-or-Absence Surveys for each project area, the Fish and Wildlife Service recommends that the surveyor conduct an intensive survey in a portion of the project area following completion of the 100 percent survey. The size of the intensive survey area is 5 percent of the size of the project area. The intensive survey area would also receive 100 percent coverage using transects 10 feet wide rather than 30 feet or 5 feet wide rather than 10 feet wide. The location of the intensive survey would be plotted on the map and a comparison made between the sign recorded in this area during the 100 percent survey effort and the intensive survey effort. The quality or accuracy of the survey for the project area will be determined by comparing these two data sets for this area.

If the surveyor does not meet the minimal qualifications stated below or if there is a major difference in number of sign recorded between the intensive survey effort and the 100 percent survey effort, the survey may not be deemed adequate by the Fish and Wildlife Service.

If the survey results do not include the Zone of Influence, the Fish and Wildlife Service may not concur with the survey results.

Qualifications of Surveyor: The Fish and Wildlife Service does not endorse any individual or company with respect to their abilities to conduct satisfactory surveys. We recommend the following criteria for selecting someone to conduct surveys to determine presence or absence of desert tortoises in a given area or recent use of the area by the desert tortoise.

As a general rule, a qualified desert tortoise surveyor is a biologist with a bachelors degree or graduate degree in biology, ecology, wildlife biology, herpetology, or related fields. He/she must have demonstrated prior field experience using accepted resource agency techniques to survey for desert tortoises. Field experience may mean a minimum of 60 days field experience searching for desert tortoises and tortoise sign.

The surveyor should have the following qualifications for the survey results to be accepted by the Fish and Wildlife Service: 1) ability to recognize and accurately identify all types of desert tortoise sign listed above, and 2) ability to carefully, legibly, and completely record all sign including size of shelter sites, shells, and estimated size of live tortoises.

Survey Time Period: Survey time for determination of "may affect" is not limited. Survey time for Presence-or-Absence Surveys is limited to the following approximate activity period of the desert tortoise, March 25 to May 31. This survey time may be extended by the Fish and Wildlife Service if tortoises on or near the project area have been observed above ground prior to March 25 or after May 31.

This survey window is based on the activity period for the desert tortoise throughout its range during a typical year and equates to the period of time when a tortoise is not brumating or aestivating. During dry years this activity period may be shorter and in wet years it may be longer. Desert tortoises may also become active during and after summer rains.

Surveys conducted outside this window will be subject to close scrutiny by the Fish and Wildlife Service. The Service may consider the results of these surveys as under-representing the number of tortoises on and use of the project site by desert tortoises.

Presence-or-Absence or Clearance surveys should only be conducted during daylight hours.

The Fish and Wildlife Service considers the results of a Presence-or-Absence Survey, including the Zone of Influence, to be valid for no more than one year. This time period of survey data reliability may be significantly reduced depending on project size, location, or proximity to other land disturbance.