

**Lynx Cat Mountain Mine: Focused Surveys for Agassiz's Desert Tortoise,
Habitat Assessments for Burrowing Owl and Mohave Ground Squirrel, and
General Biological Resource Assessment for a 57-acre± Site and Public Access Road
near the Community of Hinkley, San Bernardino County, California**

U.S. Geological Survey 7.5' Hinkley quadrangle:
Private parcel: Township 10 North, Range 4 West, southeast ¼ Section 1, SBB&M
BLM parcel: Township 10 North, Range 3 West, southwest ¼ Section 6

Job#: 14-014

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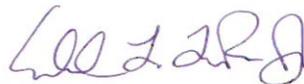
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I hereby certify that the statements furnished herein, including attached exhibits, present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best 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 nondisclosure or consultant confidentiality agreement with the project applicant or applicant's representative and that I have no financial interest in the project.



Circle Mountain Biological Consultants, Inc.
Author and Field Investigator: Sharon Dougherty

December 2014

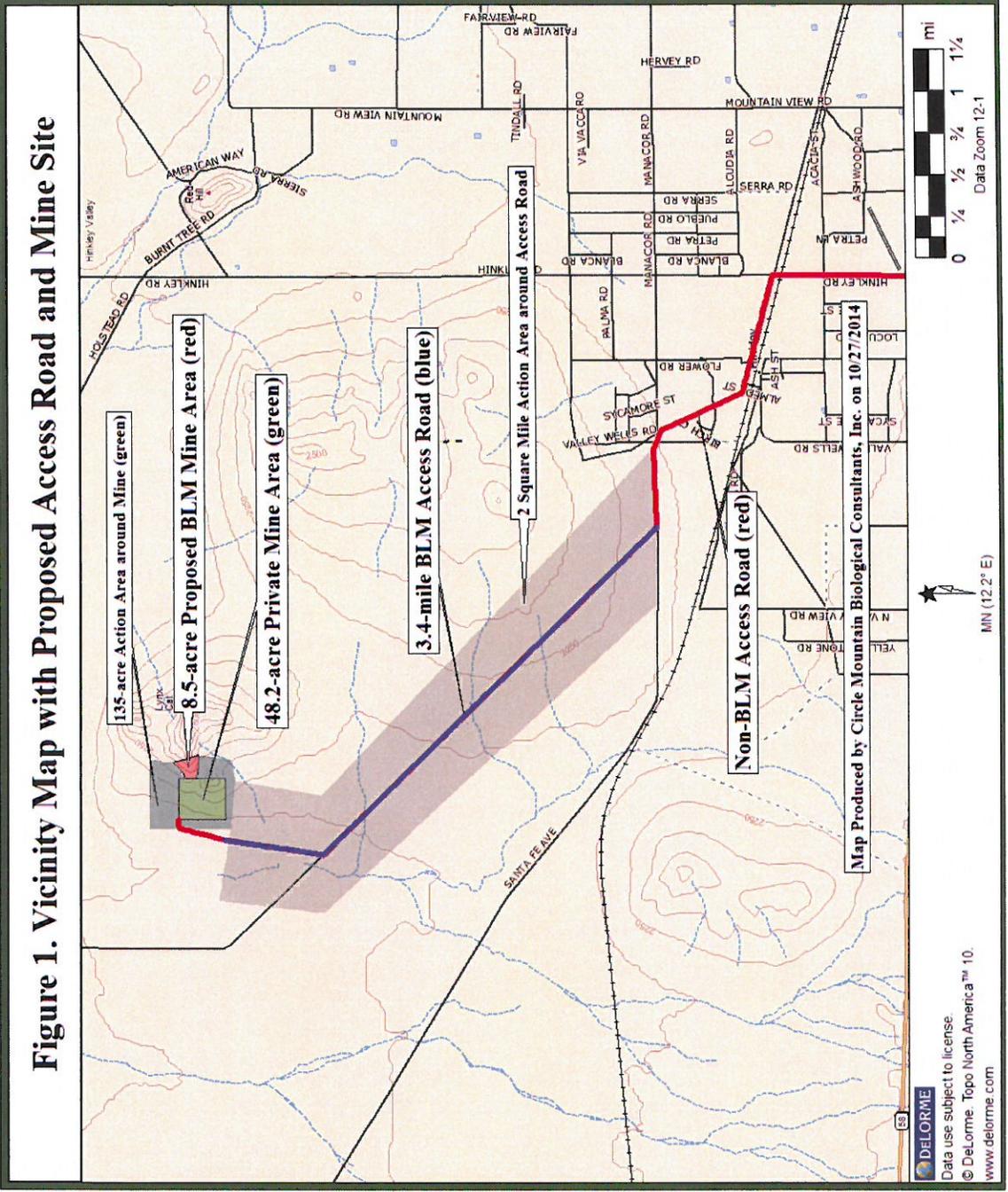
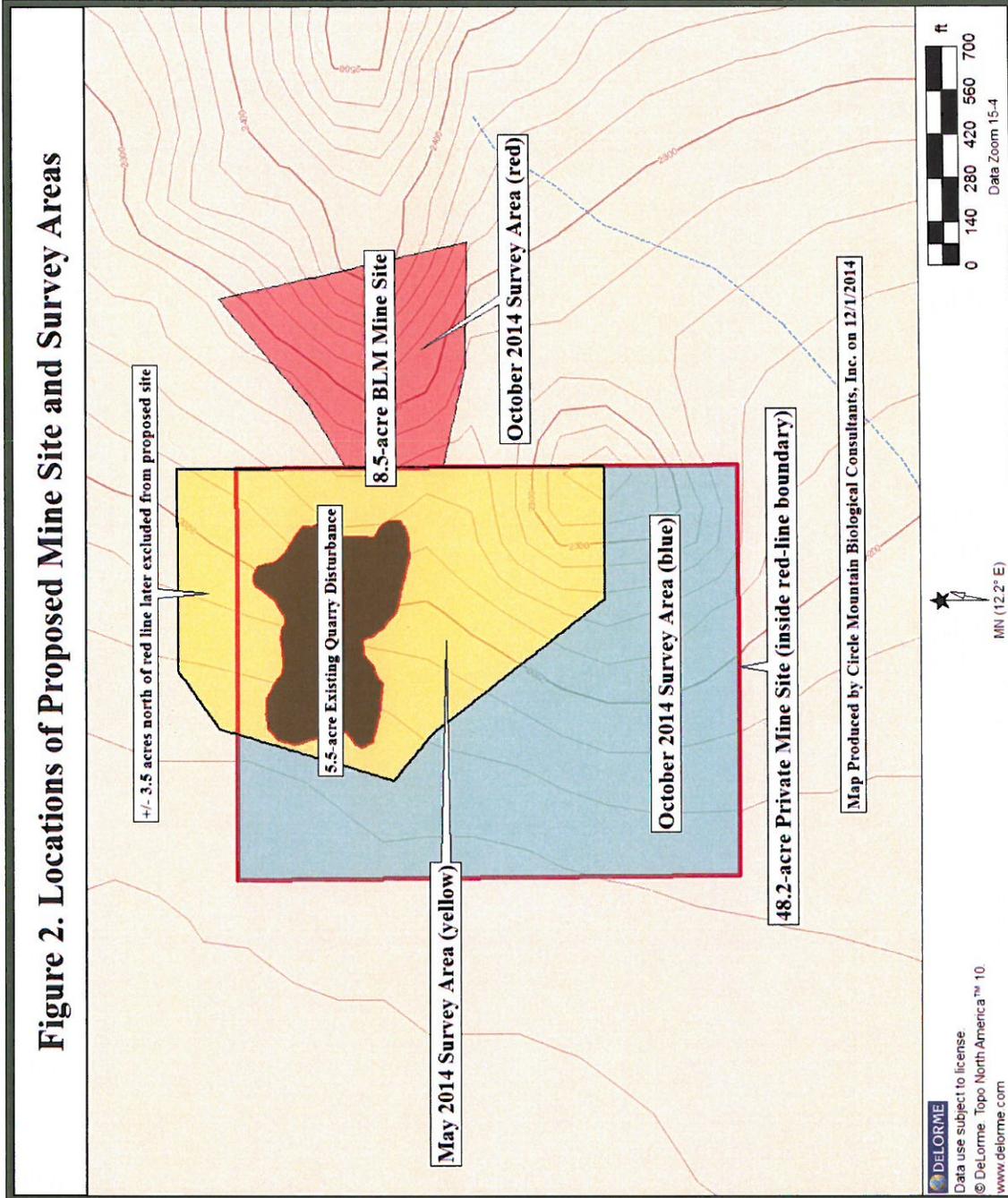


Figure 2. Locations of Proposed Mine Site and Survey Areas



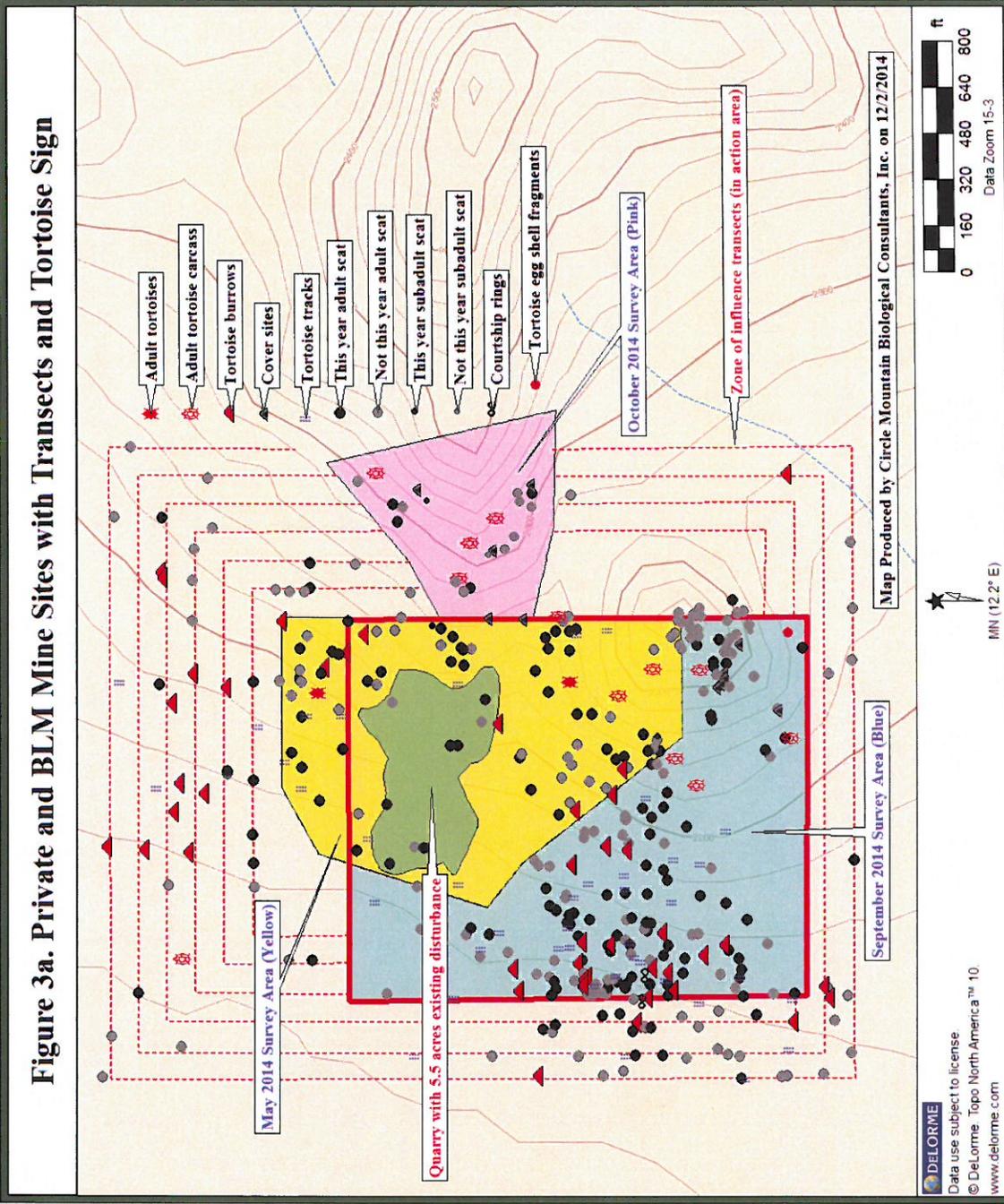
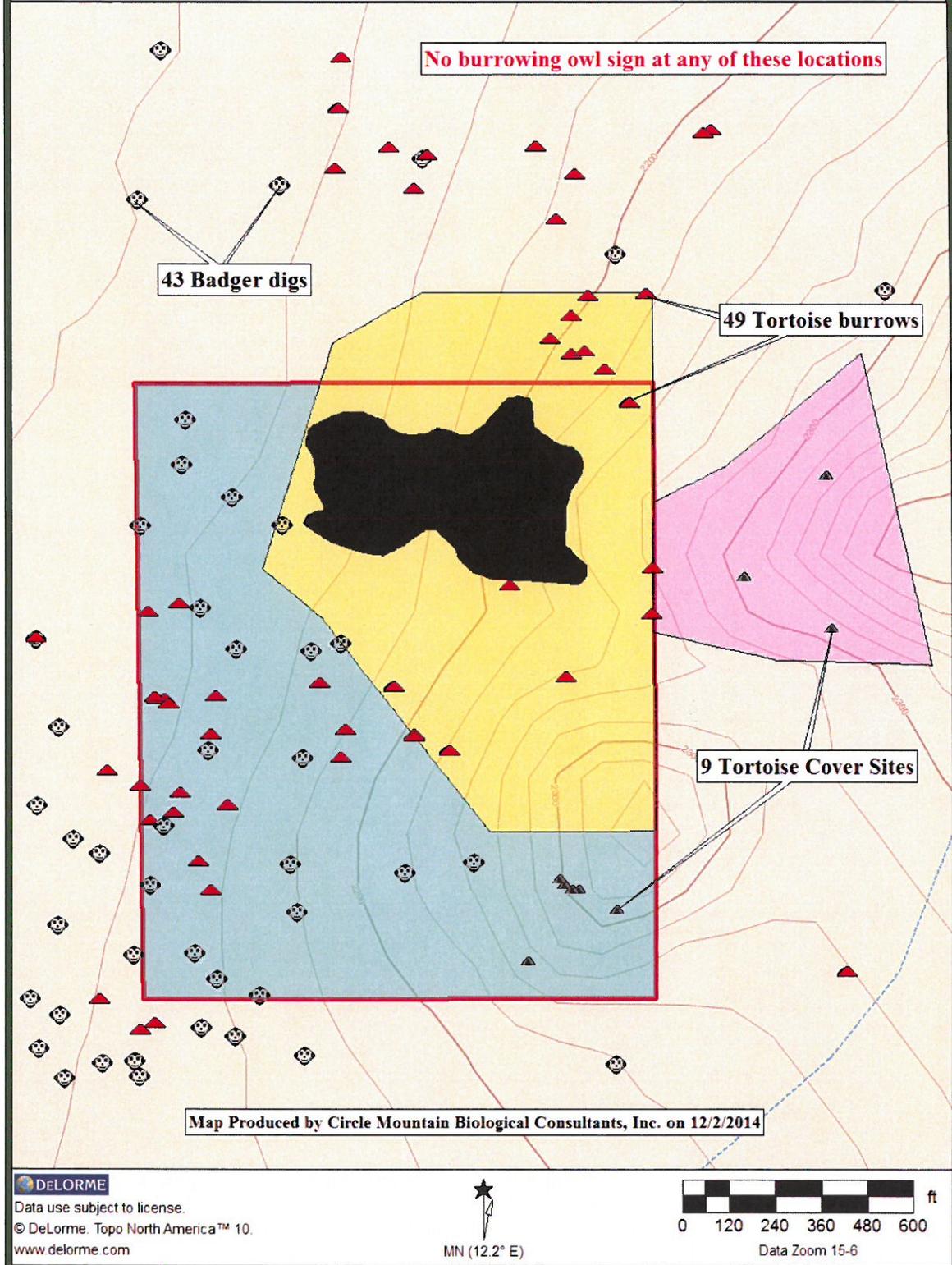
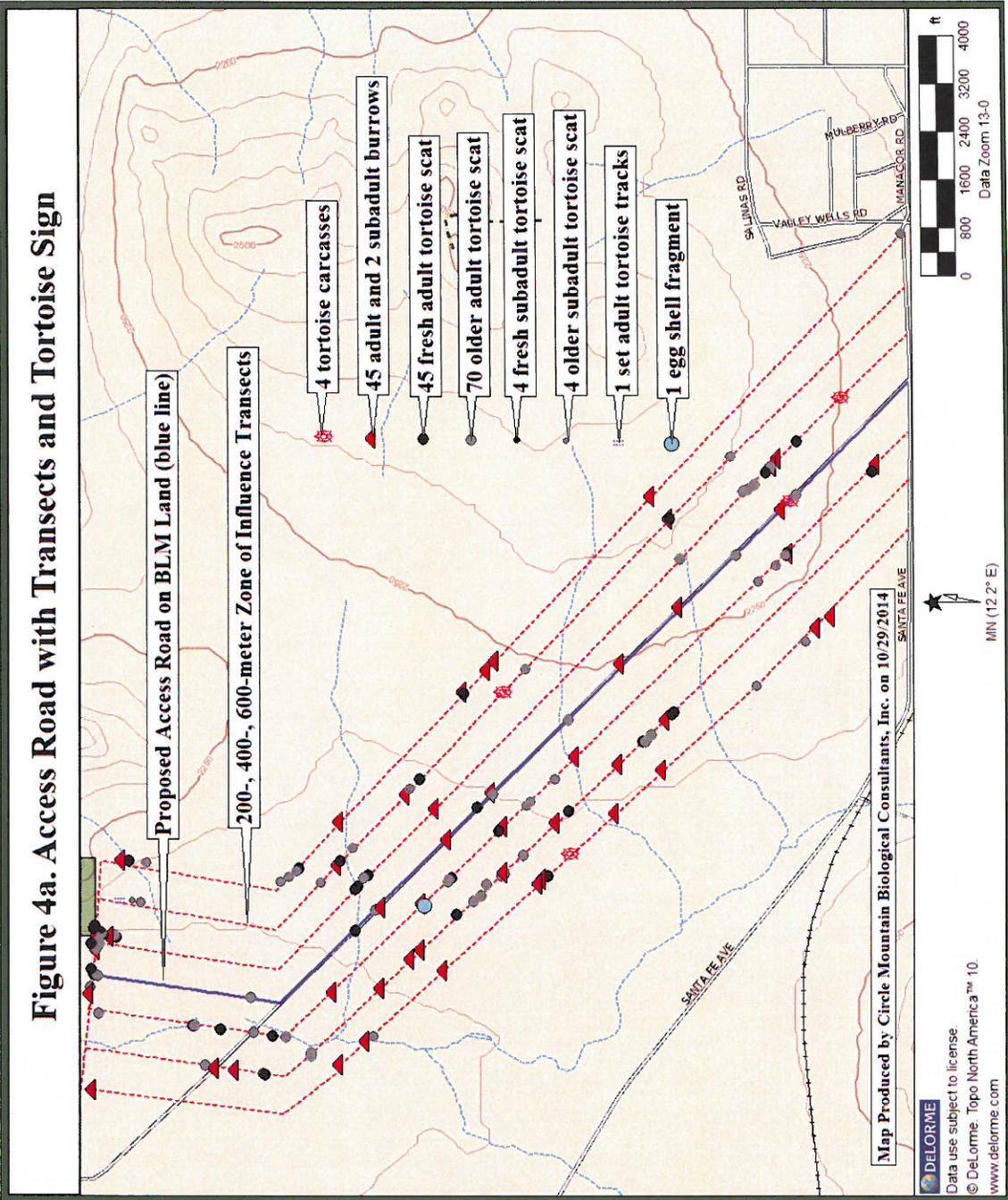


Figure 3b. Mine Sites with Potential Burrowing Owl Burrows





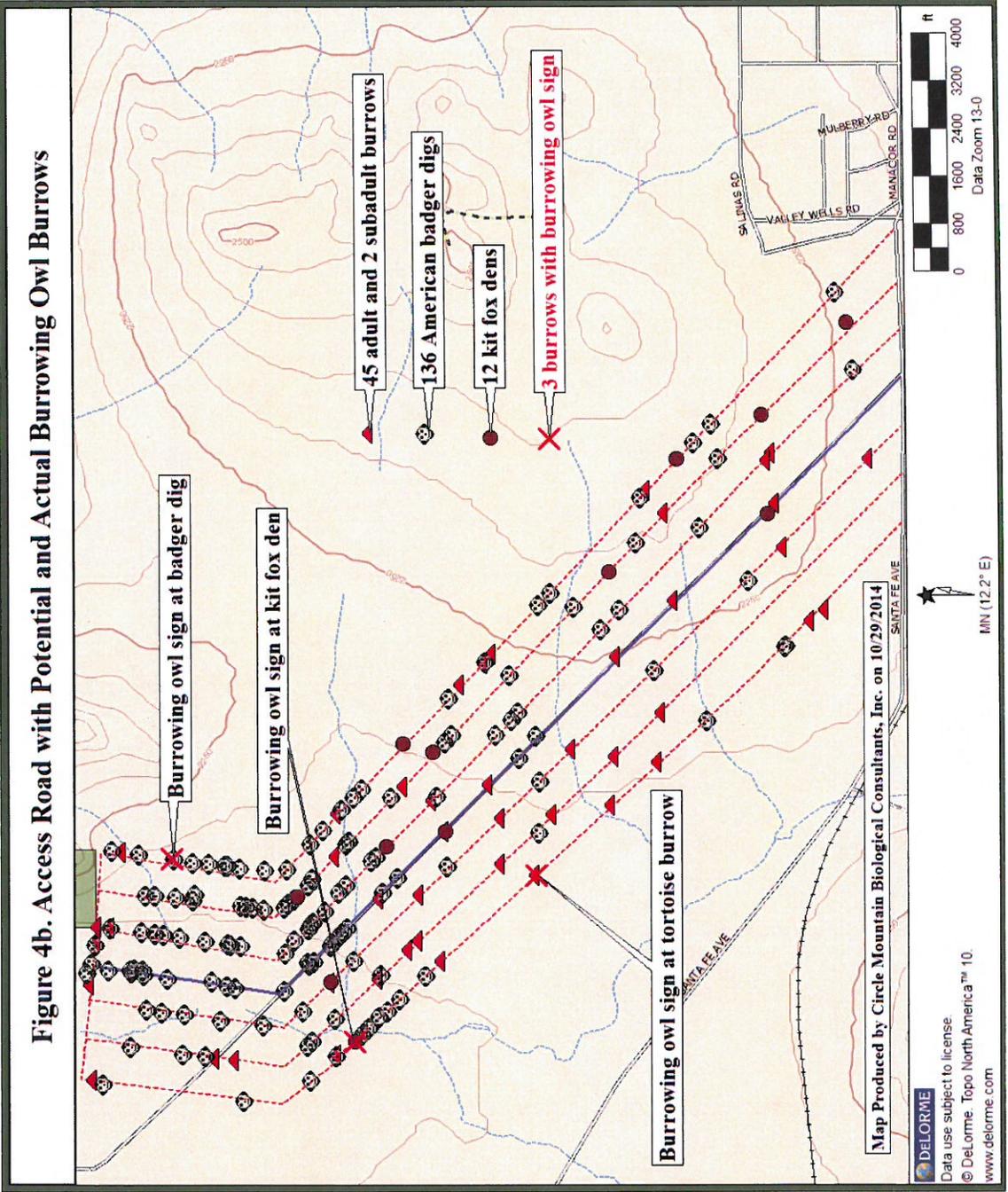


Figure 5. Mine Site and Access Road with Other Special Status Species

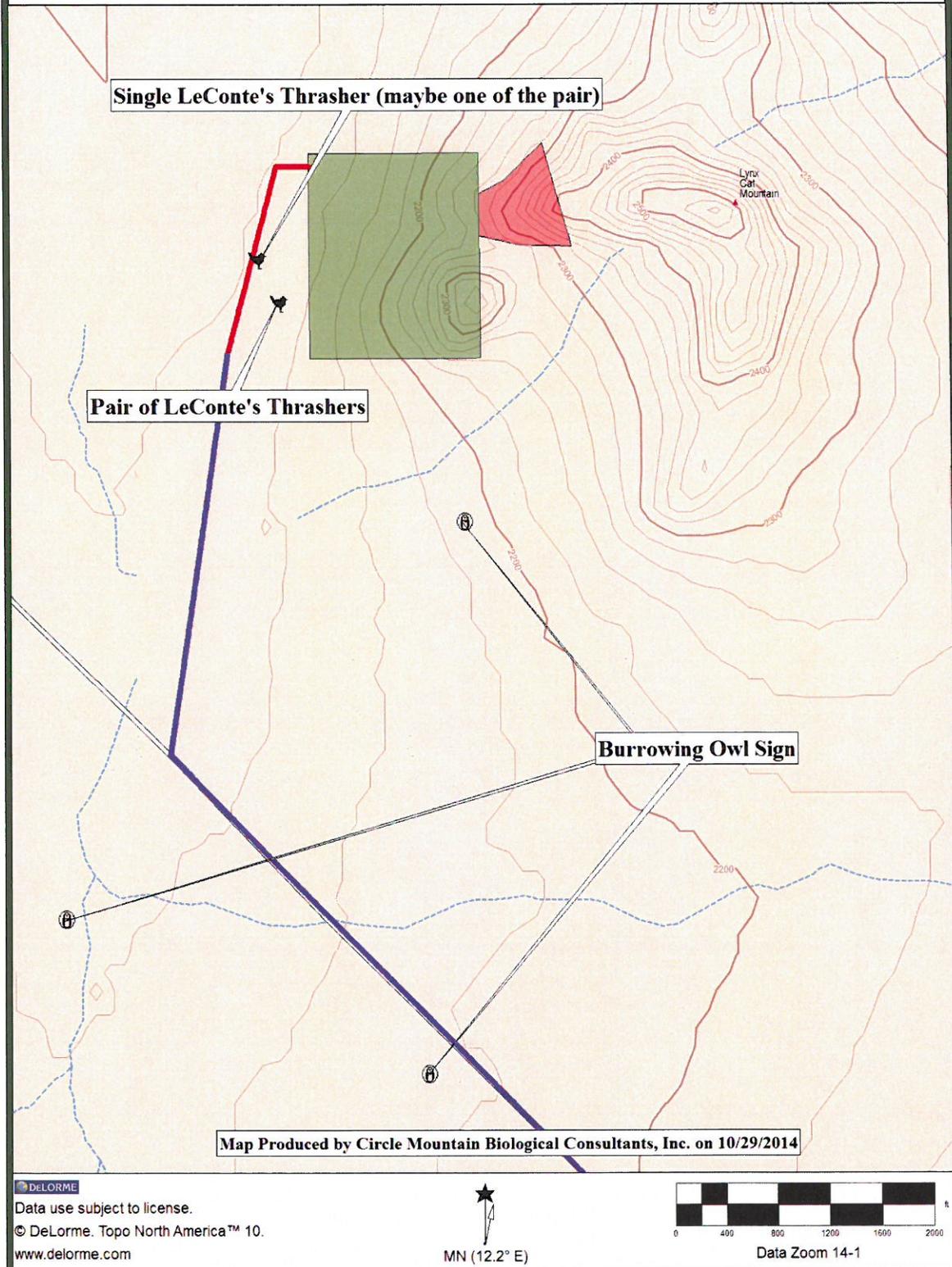


Figure 6. Lynx Cat Mountain Mine: Aerial Photo of Site

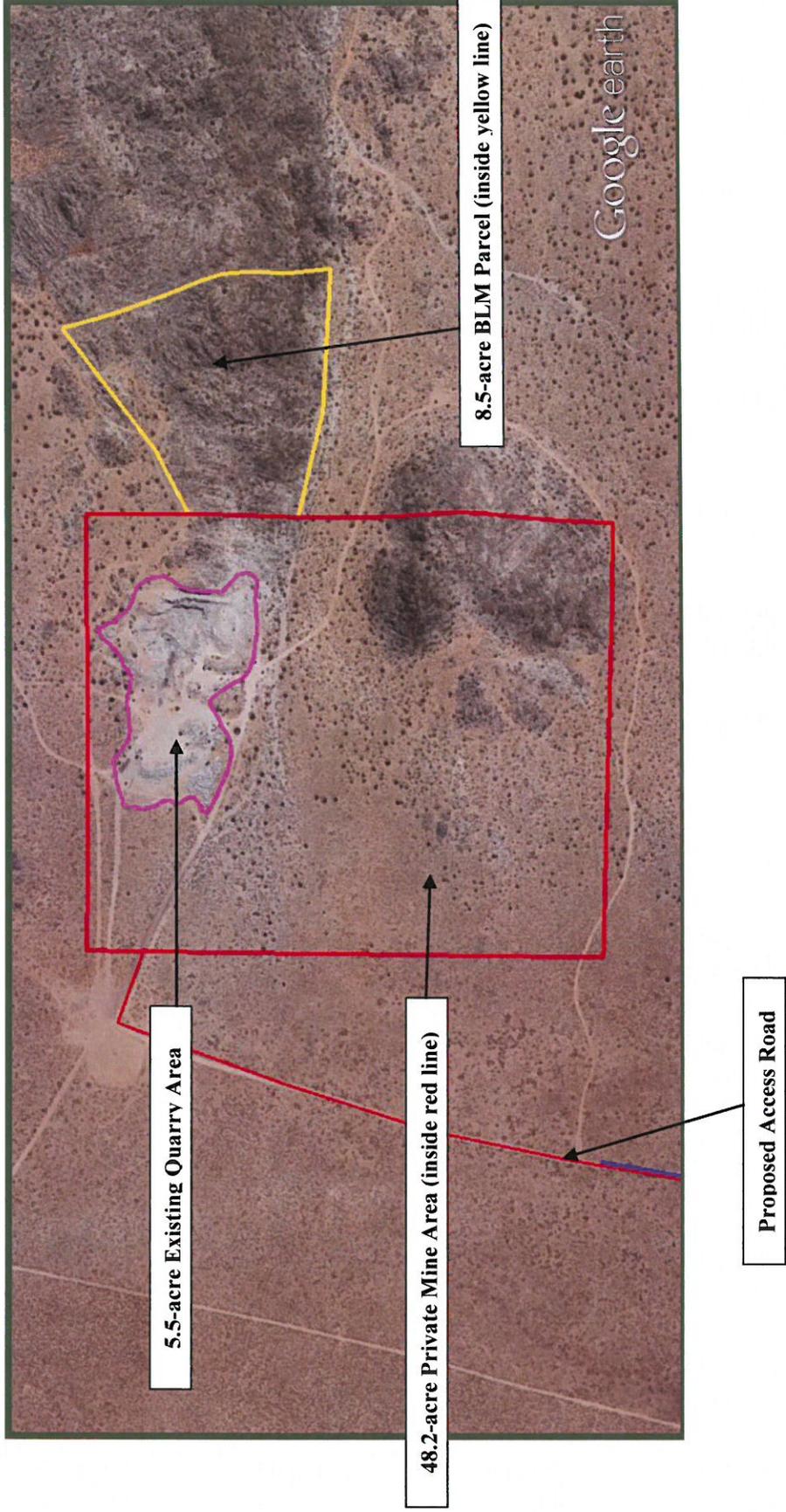


Figure 7. Known Mohave Ground Squirrel Locations

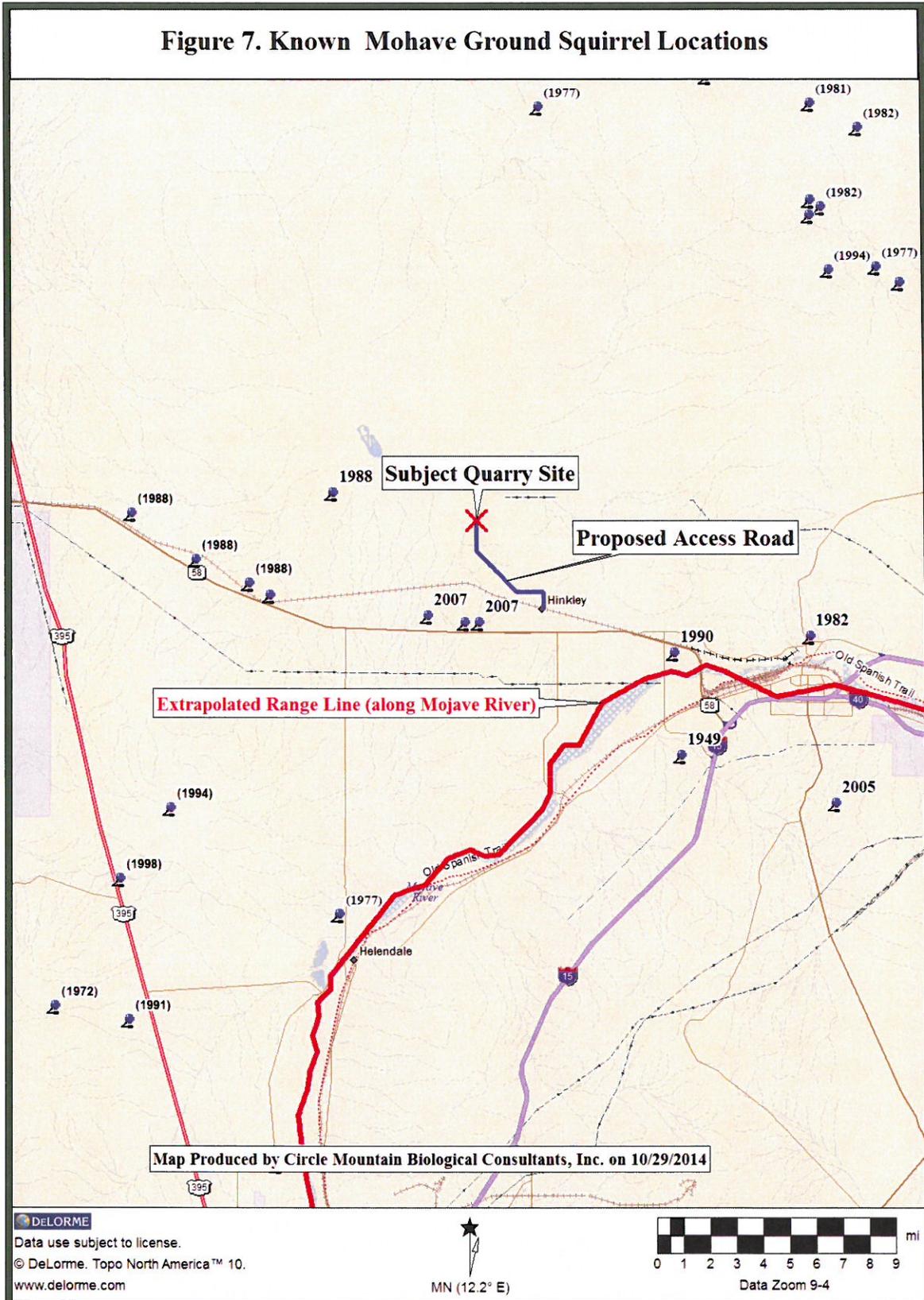
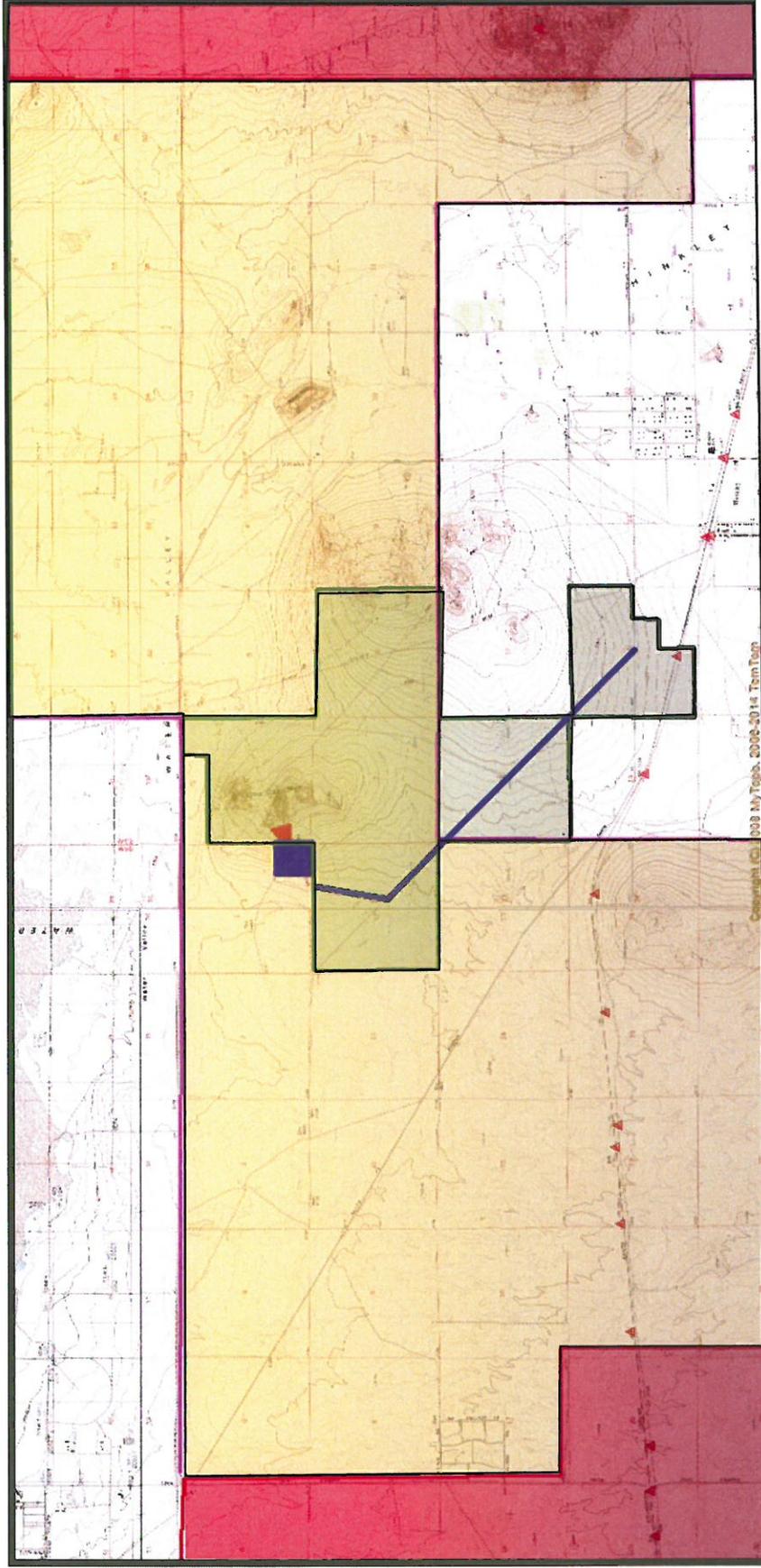


Figure 8. Locations of Superior-Cronese Critical Habitat, Desert Wildlife Management Area, and BLM Lands Relative to the Subject Mine Site and Proposed Access Road



In the Figure 8, areas within designated critical habitat, which excludes the mine site and access road, are shown in red; areas within the Superior-Cronese Desert Wildlife Management Area are shown in light yellow, inclusive of the private site, which is the blue square, and BLM site, which is the red polygon; and public lands managed by the BLM are shown in green.

Executive Summary

Circle Mountain Biological Consultants, Inc. performed focused surveys for Agassiz's desert tortoise, habitat assessments for burrowing owl and Mohave ground squirrel, and general biological resource assessments on a proposed 56.7-acre mine site and 3.4-mile± access road located in San Bernardino County, California. The mine sites include a 48.2-acre parcel inclusive of the existing Lynx Cat Mountain Mine (California Mine I.D. CA#91-36-0049) and an 8.5-acre parcel to the east that is on public lands managed by the Bureau of Land Management.

The private portion of the proposed mine, which is comprised of 48 acres±, is part of APN 0496-011-75, which is an 81.69-acre parcel, located on the west side of Lynx Cat Mountain, northwest of the community of Hinkley, San Bernardino County, California. CMBC estimates that the existing open pit and adjacent disturbances occupy approximately 5.5 acres. The legal description for the private property is Township 10 North, Range 4 West, a portion of the southeast ¼ of Section 1, S.B.B.&M. And, for the BLM parcel is Township 10 North, Range 3 West, a portion of the southwest ¼ of Section 6.

Based on DeLorme Topo North America® 10.0 software, elevations on the private property range from approximately 718 meters (2,356 feet) near the southeast corner down to 648 meters (2,125 feet) near the northwest corner. The west boundary of the BLM parcel is at 689 meters (2,260 feet) gradually ascending up to an elevation of 736 meters (2,415 feet). The 66 plant species identified during the surveys are listed in Appendix A. The plant communities found on the private parcel are a blend of white bursage series and allscale series on the flats to the west, and white bursage series and creosote bush series on slightly higher elevations to the east. These are the same communities along the access road, with creosote bush dominant to the southeast. The 9 reptile, 19 bird, and 9 mammal species identified during the surveys are listed in Appendix B.

Based on the presence of numerous sign and two adult animals, CMBC concludes that Agassiz's desert tortoise occurs on both the private and BLM sites, more so in level areas but also in rocky, mountainous areas, and alongside the entire length of the 3.4.-mile± access road. Based on information given in Section 3.2, we believe that there may be fewer than 10 tortoises onsite. However, in the interest of avoiding re-consultation under Section 7 between BLM and USFWS should this limit be exceeded, we estimate there may be between 13 and 22 tortoises on the 56.7 acres comprising the private and public parcels.

With regards to other species, there are numerous protective measures that will be implemented for desert tortoise and Mohave ground squirrel that will predictably minimize or avoid impacts to burrowing owl, including pre-disturbance surveys to move animals out of harm's way, burrow excavations, delineating boundaries and restricting impacts to those areas, onsite biological monitoring, etc. USFWS' biological opinion, CDFW's 2081 permit, and BLM's stipulations will identify these and other specified measures to reduce or avoid impacts to all species; including burrowing owl should they be found onsite at the time of ground disturbance.

No mitigation measures are known for American badger, which may be sufficiently mobile that they can disperse from the site as it is being mined. Should Barstow woolly sunflower be found, avoidance would be the only way to minimize impacts.

Given the information discussed herein, CMBC concludes that Mohave ground squirrel may be present on level portions of the private parcel and along the access road, and is likely absent from rocky portions of the private parcel and the 8.5-acre BLM parcel. Given a total area of 57 acres± and that about 20 acres are judged to be non-habitat, we estimate that mine site development would result in the loss of approximately 37 acres of Mohave ground squirrel habitat; another 7.5 acres would be lost from widening of the access road. Since CDFW will require a 2081 incidental take permit for take of desert tortoise, it is prudent that the incidental take permit also include Mohave ground squirrel as a covered species. Mitigation for this species will be combined with that given for desert tortoise, so that CDFW's incidental take permit, inclusive of specified minimization and mitigation measures, covers both species.

Impacts would include the loss of approximately 57 acres of foraging habitat for raptor species, assuming entire build-out of the mine. No raptor nests were observed during surveys, although cliffs and crags in the rocky areas nearby could be suitable for special status raptors, including golden eagle and prairie falcon. No mitigation is suggested for birds of prey. If loggerhead shrikes or LeConte's thrashers nest on the site, protections under the California Fish and Game Code and the Migratory Bird Treaty Act, described herein, would apply.

No impacts to blue line streams are anticipated, and the CDFW is not likely to require a 1600 Streambed Alteration Agreement. The County is requiring a Revegetation Plan, which in part, will identify the numbers and locations of protected plants to be in compliance with the California Native Plant Protection Act. Silver cholla and cottontop cactus are species found on-site that will likely be salvaged and replanted as part of this plan.

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near the Community of Hinkley, San Bernardino County, California**

1.0. Introduction

1.1. Purpose and Need for Study. Circle Mountain Biological Consultants, Inc. (CMBC) was contacted by Matcon Corporation, Inc. (Proponent) to perform focused surveys for Agassiz's desert tortoise (*Gopherus agassizii*), habitat assessments for burrowing owl (*Athene cunicularia*) and Mohave ground squirrel (*Xerospermophilus mohavensis*), and general biological resource assessments on a proposed 56.7-acre (herein "57 acres±") mine site and 3.4-mile± access road located in San Bernardino County, California (see Figures 1 and 2). The mine sites include a 48.2-acre (herein "48 acres±") parcel inclusive of the existing Lynx Cat Mountain Mine (California Mine I.D. CA#91-36-0049) and an 8.5-acre parcel to the east that is on public lands managed by the Bureau of Land Management (BLM). This assessment pertains to a 3.4-mile± access road, between the existing mine and Santa Fe Avenue, which includes "Water Valley Road" and an unnamed road accessing the site. Given the parcel location in an unincorporated portion of the county, this report is prepared according to County of San Bernardino's *Report Protocol for Biological Assessment Reports* (County of San Bernardino 2006).

As the California Environmental Quality Act (CEQA) Lead Agency, the County of San Bernardino, Public and Support Services Group, Land Use Services Department, Advance Planning Division (County) is required to complete an initial study to determine if site development will result in any adverse impacts to rare biological resources. Since the BLM has been asked to serve as the federal lead agency and issue pertinent authorizations to use the public access road and rights to mine the adjacent 8.5-acre parcel, a formal Biological Assessment has been prepared for this project (CMBC 2014a). These baseline data and assessments will be useful to federal and state regulatory agencies, including U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), when the BLM and proponent, respectively, ask them to assess impacts associated with proposed mining activities. Other environmental documents prepared for this project include a 2081 incidental take permit application (CMBC 2014b) and a Draft Environmental Assessment (BLM 2014).

Results of CMBC's focused tortoise survey, burrowing owl and Mohave ground squirrel habitat assessments, and general biological resource assessment are intended to provide sufficient baseline information to these agencies to determine impacts that are likely to occur and to identify mitigation measures to offset those impacts. Since tortoise sign was found on the proposed mine sites and along the access road, typical minimization and mitigation measures previously required for other sites in occupied tortoise habitat are given in Appendix E.

1.2. Project Description. The private portion of the proposed mine, which is comprised of 48 acres± is part of APN 0496-011-75, which is an 81.69-acre parcel, located on the west side of Lynx Cat Mountain, northwest of the community of Hinkley, San Bernardino County, California (see Figures 1 and 2). Using aerial photographs (Figure 6) and Topo USA software, CMBC estimates that the existing open pit and adjacent disturbance occupy approximately 5.5 acres. The legal description for the private property is Township 10 North, Range 4 West, a portion of the southeast ¼ of Section 1, S.B.B.&M. And, for the BLM parcel is Township 10 North, Range 3 West, a portion of the southwest ¼ of Section 6.

The site is located in a “checkerboard” area of public and private land ownership (Figure 8). Although the 48 acres± are privately owned, lands managed by the BLM are located immediately to the east and south. In addition to mining the 48-acre± private parcel, the Proponent has also requested from the BLM rights to mine the 8.5-acre± parcel located to the east (Figures 1, 2, 3a, 3b, 5, and 6) and to use the 3.4-mile± access road between the mine site and Santa Fe Avenue (Figures 1, 4a, and 4b).

The County (2006) also requires a narrative description of proposed development and a project map. The Mine Plan maps produced by Webber and Webber Mining Consultants, Inc., dated September 2014, are included in Appendix F. The Proponent will attach a detailed narrative description of the project to this report prepared by Webber and Webber Mining Consultants, Inc. (2014). In general, sand and gravel taken from this site and transported along the access road located to the south and southeast are intended to provide materials necessary for widening Highway 58, which is scheduled for next year, perhaps as soon as March 2015.

2.0. Methods

2.1. Literature Review. CMBC consulted the California Natural Diversity Data Base (CNDDDB; CDFW 2014a) for the Hinkley, Water Valley, and Twelve Gauge Lake quadrangles, as well as the eBird website (2014) and other materials included in our library to determine the nearest tortoise locations and other special status plant and animal species that have been reported from the vicinity of the subject property.

2.2. Field Survey.

2.2.1. *Survey and Habitat Assessment Protocols*. For **Agassiz’s desert tortoise**, CMBC generally followed the survey protocol first identified by the USFWS (1992) and recently revised (USFWS 2010) for their detection. USFWS (2010) protocol recommends that transects be surveyed at 30-foot (10-meter) intervals throughout all portions of a given parcel. If neither tortoises nor sign are encountered during *action area* surveys and the project, or any portion of project is $\leq 0.8 \text{ km}^2$ (200 acres) or linear, three additional 30-foot (9 meters) belt transects at 655-foot (200 meters), 1,310-foot (400 meters), and 1,970-foot (600 meters) intervals parallel to and/or encircling the project perimeter should be surveyed.

The *action area* is defined by regulation as all areas to be affected directly or indirectly and not merely the immediate area involved in the action (50 CFR §402.02). For the mine, the action area is considered to be the 48-acre± private site, 8.5-acre BLM site, and adjacent areas out to approximately 300 feet west and 500 feet to the north of the private site (see Figure 1). This area is estimated to encompass approximately 135 acres. The northern areas are owned by the Proponent and may serve as the recipient site for tortoises relocated from the active mine into that area, as per the translocation plan that will be developed for the CDFW incidental take permit. For the access road, the action area is equated to those adjacent areas encompassed by the zone of influence transects, which occur out to 600 meters (1,970 feet±) either side (see Figures 1, 4a, and 4b), for an area of approximately two square miles.

For **burrowing owl**, the CDFG (2012) survey protocol recommends transects be surveyed at 30-meter intervals throughout a given site, with five additional transects surveyed at 30-meter intervals out to 150 meters in adjacent areas in potential habitat (i.e., excluding areas substantially developed for commercial, residential, and/or industrial purposes). Importantly, this methodology is considered a formal *habitat assessment* for presence of burrowing owls, which can be conducted any time of the year. Since burrowing owl sign was found adjacent to the

proposed access road, it may be necessary to perform breeding burrowing owl surveys during the spring and summer as outlined in CDFG (2012), pending input from the CDFW biologist eventually assigned to this project. With its narrower transect intervals, the tortoise survey was sufficient to cover the mine sites for burrowing owl.

For **Mohave ground squirrel**, some jurisdictions have recently required that habitat assessments be performed by individuals certified by CDFW for trapping the species. Ed LaRue who performed the fieldwork and drafted this assessment possesses a Mohave ground squirrel Memorandum of Understanding with CDFW, dated 11 April 2012 as an attachment to scientific collecting permit (SC-001544), which expires on 30 April 2016. CDFW has traditionally considered three criteria for assessing potential impacts to Mohave ground squirrel (Adrienne Disbrow, personal communication to CMBC in 2004): (1) Is the site within the range of the species? (2) Is there native habitat with a relatively diverse shrub component? And, (3) is the site surrounded by development and therefore isolated from potentially occupied habitat? These factors were considered in the assessment.

2.2.2. *Field Survey Methods.* As described herein, there have been four distinct surveys performed, including (Section 2.2.2.a.) 4 May 2014 when level portions of the 25 acres on the northern and eastern portions of the private parcel were surveyed (Figures 2, 3a, and 3b); (Section 2.2.2.b.) 30 September 2014 when the level portions of the 25 acres comprising the western and southern portions of the private parcel were surveyed (Figures 2, 3a, and 3b); (Section 2.2.2.c.) 28 October 2014 when the access road and adjacent areas were surveyed (Figures 4a and 4b); and (Section 2.2.2.d.) 30 October 2014 when the rocky, eastern portions of the private parcel and the entire 8.5-acre BLM parcel were surveyed (Figures 2, 3a, and 3b). Specific information is given for these four surveys following the summaries in Table 1.

Site Description and Surveyors		Survey Effort			Weather Conditions Start on Top/End on Bottom		
Site	*Biologists	Date 2014	Start – End Times X # Surveyors	Hours	Temps °F/°C	**Wind	% Cloud Cover
25 acres North & East	LaRue Dougherty	May 4	0830 to 1600 x 2	***15.0 hrs	71°/22° 94°/34°	2 ↑ 3 SW 4 ↑ 9 W	5% 95%
25 acres South & West	LaRue Radakovich	Sept 30	1530 to 1830 x 2	***6.0 hrs	91°/33° 85°/29°	2 ↑ 6 N 5 ↑ 14 W	0% 0%
Access Road	LaRue Seamount	Oct 28	0730 to 1730 x 2	20.0 hrs	49°/9° 83°/28°	Calm 1 ↑ 5 W	40% 40%
Rocky Areas & BLM Parcel	LaRue Seamount	Oct 30	0730 to 1530 x 2	16.0 hrs	49°/9° 84°/29°	Calm 1 ↑ 5 W	50% 40%
4 Surveys	4 Biologists	4 Days	N/A	57 hours	49°/9° 94°/34°	Calm ↑ 14	0% to 95%

*Biologists = Ed LaRue and Sharon Dougherty of CMBC; subcontractors Patricia Seamount and Mike Radakovich.

**Wind “2 ↑ 3 SW” = Average speed of 2 miles per hour, gusts up to 3 mph, out of the southwest.

***Note that it took 15 hours to survey the first 25-acre site compared to only 6 hours to survey the second 25-acre site; this is because six zone of influence transects were surveyed in adjacent areas during the first survey, which accounts for the extra time. Also, of the 25 acres surveyed in May 2014, only the southern 20 acres are to be mined.

2.2.2.a. North and East 25 Acres of Private Parcel. In his initial request, Mr. Joe Mathewson of Matcon Corporation, Inc. asked CMBC to survey the 25-acre parcel shown in yellow in Figures 2, 3a, and 3b. Later, Mr. Mathewson enlarged the proposed mine area to 48.2 acres, which excludes several acres shown north of the red boundary line depicted in the referenced figures. Even so, the tortoise sign found in these areas is within the action area (see Figure 1) and therefore included in this assessment.

On 4 May 2014, Ed LaRue and Sharon Dougherty of CMBC surveyed the level portions of the 25-acre site and adjacent areas as described herein. This entailed a survey of 46 transects, spaced at 10-meter (30-foot) intervals and oriented in an east-west direction throughout the 25-acre± site, with the exception of the highly disturbed quarry area and the steep, rocky hill at the southeast corner. As depicted in Figure 3a, buffer area transects were surveyed within the action area at 30-meter (100-foot) intervals to the north, south, east, and west, except where steep and rocky terrain made such surveys hazardous. Copies of the USFWS' (2010) pre-project survey data sheet for this and the three other survey areas described below are included in Appendix C.

As transects were surveyed, LaRue kept tallies of observable human disturbances encountered on 23 of the 46 transects. The results of this method provide *encounter rates* for observable human disturbances. For example, two roads observed on each of 23 transects would yield a tally of 46 roads (i.e., two roads each encountered 23 times). Habitat quality, adjacent land uses, and this disturbance information are discussed below in Section 3.2 relative to the occurrence of Agassiz's desert tortoise and other special status species on and adjacent to the subject property.

San Bernardino County (2006) also requires that any survey limitations be identified. The survey was carried out in early May, and many of the annual plants present on the site were already dried up. However, most were still identifiable despite their dried condition. This limitation did not significantly affect the results and conclusions given herein.

Weather conditions, which are reported in Table 1, at the beginning and ending of the four surveys included temperatures [measured approximately 2.5 inches (5 centimeters) above the ground], percent cloud cover, and wind speeds (average, maximum, and directions) as measured by a hand-held Kestrel® weather and wind speed meter.

2.2.2.b. South and West 25 Acres of Private Parcel. The 25-acre light blue polygon in Figure 2 was surveyed on 30 September 2014, when LaRue and subcontractor, Mike Radakovich, surveyed relatively level portions of this 25-acre area. This entailed a survey of 50 transects, spaced at 10-meter (30-foot) intervals and oriented in an east-west direction throughout level portions of the 25-acre± parcel. This and 23± of the 25 acres described above comprise the private portions of the proposed mine site.

Although there were no obvious survey limitations and temperatures were ideal for the detection of tortoises, no animals were observed. As such, although there was considerably more tortoise sign on this site than on the 25-acre site surveyed in May when two tortoises were observed, the density formula given in USFWS (2010) could not be used because no tortoises ≥ 160 mm were observed. Herein, we rely on data interpretation to estimate how many tortoises may occur on the 48-acre± and 8.5-acre sites. Surveyed areas are sufficiently sandy to be suitable for Barstow woolly sunflower and desert cymopterus, which would not have been detectable in September.

2.2.2.c. Proposed Access Road and Adjacent Areas. Following a meeting on 24 October 2014 between Mr. Mathewson and BLM Biologist, Lorenzo Encinas, LaRue spoke to Mr. Encinas and asked how he would like the proposed access road to be surveyed. Mr. Encinas indicated he would like a USFWS (2010) protocol-level survey to be performed. This entailed a survey of both sides of the access road along transects approximately 5 meters from the barren shoulders of the road, and six transects – three on each side of the road – spaced at 200-, 400-, and 600-meter intervals.

Using the methods described above for data collection and recordation on the proposed mine site, this survey was performed by LaRue and subcontractor, Patricia Seamount, on 28 October 2014. Unlike the three surveys performed on the proposed mine sites (both the private and BLM sites), disturbance data were not taken, as the Proponent has no intent to widen the access road. Such an effort would have included data too distant from the project area (i.e., between 200 and 600 meters away) to be indicative of the project area. No tortoises were observed during this survey of the action area; nor would the USFWS formula have been applicable to these data, as most of this survey was outside the project area footprint.

2.2.2.d. 8.5-acre BLM Parcel and Mountainous Portions of Private Parcel. Mr. Mathewson added the 8.5-acre BLM parcel of land to the project footprint after the level, private-land portions of the proposed mine site had been surveyed. Prior to the addition, CMBC biologists and subcontractors had not surveyed the rocky, mountainous portions of the private parcel because (1) so much tortoise sign had already been found on relatively level terrains and (2) the mountainous areas were judged to present a safety hazard to the surveyors. However, when the BLM parcel (*all* of which is comprised of rugged mountainous terrain) was added, LaRue judged it was prudent to survey all rocky areas, including those that had been skipped on the private parcel.

The surveys of mountainous terrain were performed by LaRue and Seamount on 30 October 2014. The biologists first surveyed the residual portions of the private parcel between 0730 and 1130, for a total of 8.0 hours. They then surveyed the BLM parcel between 1145 and 1515, for a total of 7.0 hours. A total of 20 transects was surveyed in an east-west orientation, although, like the private parcel, rugged terrain prevented the biologists from walking straight lines. LaRue tallied disturbances observed along 10 of the 20 transects surveyed. Although the surveys were performed at a time of year when spring annual plants would have limited detectability, there are no suitably sandy habitats for the two rare plants reported from the region, which are judged to be absent based on habitat type.

For all four surveys, the plant and animal species identified were recorded in field notes and are listed in Appendices A and B, respectively. Garmin® hand-held, global positioning system (GPS) units were used to survey straight transects and record Universal Transverse Mercator (UTM) coordinates (North American Datum – NAD 83) for site boundaries, rare species locations, and other pertinent information (Appendix C). A digital camera was used to take representative photographs (Appendix D), with locations and directions of exhibits shown in Figure 9. ©2014 Google™ Earth was accessed via the internet to provide recent aerial photographs of the subject property and surrounding areas (Figure 6).

3.0. Results

3.1. Common Biological Resources. The common plant and animal species identified during the surveys are influenced by multiple factors such as elevation, topography, soil substrates, and previous land uses. Based on DeLorme Topo North America® 10.0 software, elevations on the private property range from approximately 718 meters (2,356 feet) near the southeast corner down to 648 meters (2,125 feet) near the northwest corner. The west boundary of the BLM parcel is at 689 meters (2,260 feet) gradually ascending up to an elevation of 736 meters (2,415 feet). Elevations along the proposed access road range from 648 meters (2,125 feet) at the north end up to 676 meters (2,217 feet) at the south end where it intersects Santa Fe Avenue.

On the private parcel, terrain is gently to moderately sloping on most of the site, except for within the existing quarry area, where there are nearly vertical cliffs, and on the steep, rocky slopes of Lynx Cat Mountain to the east and southeast. Soils range from very sandy on the alluvial fans on the western parts of the site to extremely rocky and boulder-strewn to the east and southeast. There are several small areas interspersed among the shrubs and immediately north of the site that apparently hold surface water. These sites are like miniature playas, with pebbly substrates, which may be suitable for Barstow woolly sunflower. No USGS-designated blue line streams occur on the site, although a small wash drains from east to west near the southeast corner of the private parcel. The BLM parcel occurs on the lower, mountainous slopes of Lynx Cat Mountain and has massive boulder outcrops throughout. The access road runs through relatively flat terrain, mostly sandy, with some rocky areas on the slight rises near the middle.

3.1.1. *Common Flora.* The 66 plant species identified during the surveys are listed in Appendix A. The plant communities found on the private parcel are a blend of white bursage series and allscale series on the flats to the west, and white bursage series and creosote bush series on slightly higher elevations to the east (Sawyer and Keeler-Wolf 1995), and are the same along the access road, with creosote bush dominant to the southeast. Dominant shrubs include burro bush (*Ambrosia dumosa*), creosote bush (*Larrea tridentata*), allscale (*Atriplex polycarpa*), peach thorn (*Lycium cooperi*), and desert goldenhead (*Acamptopappus sphaerocephalus*).

Many annual plant species were still detectable on the site in May 2014, despite being fairly dried out. These include coreopsis (*Coreopsis* sp.), desert dandelion (*Malacothrix glabrata*), little blazing star (*Mentzelia albicaulis*), sunbonnets (*Loeseliastrum matthewsii*), loeseliastrum (*Loeseliastrum schottii*), desert five-spot (*Eremalche rotundifolia*), broad-flowered gilia (*Gilia latiflora*), dotted-throat gilia (*G. stellata*), yellow cups (*Camissonia brevipes*), Mojave sun-cups (*C. campestris*), brown-eyed primrose (*C. claviformis*), and others. Invasive, non-native species and disturbance-adapted native species were found on the site, especially along roads and at the edges of the existing open pit. These include cheat grass (*Bromus tectorum*), red brome (*B. madritensis* var. *rubens*), Russian thistle (*Salsola tragus*), split-grass (*Schismus* sp.), Saharan mustard (*Brassica tournefortii*), tansy (*Descurainia pinnata*), and fiddleneck (*Amsinckia tessellata*).

3.1.2. *Common Fauna.* The 9 reptile, 19 bird, and 9 mammal species identified during the surveys are listed in Appendix B. Reptiles include desert iguana (*Dipsosaurus dorsalis*), long-nosed leopard lizard (*Gambelia wislizenii*), common side-blotched lizard (*Uta stansburiana*), desert horned lizard (*Phrynosoma platyrhinos*), common chuckwalla (*Sauromalus obesus*), desert spiny lizard (*Sceloporus magister*), and western whiptail (*Cnemidophorus tigris*). Sidewinder (*Crotalus cerastes*) tracks were commonly observed on the sandy roads.

Birds observed on the site and in the vicinity include horned lark (*Eremophila alpestris*), rock wren (*Salpinctes obsoletus*), verdin (*Auriparus flavipes*), Say's phoebe (*Sayornis saya*), cactus wren (*Campylorhynchus brunneicapillus*), Brewer's sparrow (*Spizella breweri*), sage sparrow (*Amphispiza belli*), black-throated sparrow (*Amphispiza bilineata*), white-crowned sparrow (*Zonotrichia leucophrys*), blue-gray gnatcatcher (*Polioptila caerulea*), Wilson's warbler (*Wilsonia pusilla*), common raven (*Corvus corax*), and turkey vulture (*Cathartes aura*).

Mammals detected on the site include common desert species such as black-tailed hare (*Lepus californicus*), kangaroo rat (*Dipodomys* sp.), desert wood rat (*Neotoma lepida*), coyote (*Canis latrans*), kit fox (*Vulpes macrotis*), gray fox (*Urocyon cinereoargenteus*), and others. Evidence of bobcat (*Lynx rufus*) was very common, as might be expected from the name of the site.

3.2. Uncommon Biological Resources.

3.2.1. *Agassiz's Desert Tortoise.* A significant paper was published in June 2011 (Murphy et al. 2011) whereby the "desert tortoise" of the Mojave Desert was split into two species, including *G. agassizii*, referred to as "Agassiz's desert tortoise," and a newly described species, *G. morafkai*, referred to as "Morafka's desert tortoise," which occurs in the Sonoran Desert. According to Murphy et al. (2011), "...this action reduces the distribution of *G. agassizii* to only 30% of its former range. This reduction has important implications for the conservation and protection of *G. agassizii*, which may deserve a higher level of protection." Agassiz's desert tortoise is the threatened species that occurs in the region surrounding the subject property.

When tortoise sign is found, the County (2006) requires that the following information be included in technical reports: (a) the number of individual tortoises observed onsite and off-site during this survey; (b) an estimate of the total population present both on and off-site; and (c) exact locations of tortoise sign on a habitat map.

Positive evidence of tortoises found during these surveys is summarized in Table 2 below. Sign was abundant on all sites; the sandy roads were especially conducive to preserving tortoise tracks. Sign found *on* either the private site or BLM site is self explanatory. Those sign found "Off Private Site" were located in adjacent areas, but not on the BLM parcel or along the access road transects. Although the May 2014 survey included lands both on and north of the 48-acre± private parcel, only those sign found within the red boundary line depicted on Figure 2 are included as being on the site.

Data for scat include both time since deposition and diameter. "Fresh" scat are those deposited during 2014, versus "Older" scat that were deposited prior to this year. For these data, scat ≥ 12 mm in diameter are judged to be deposited by adult tortoises (≥ 180 mm mid carapace length), and those ≤ 11 mm were deposited by subadult tortoises (< 180 mm mid carapace length). "Dirt" burrows are those created in sandy soils by the active digging of the burrow floor and passive abrasion of the carapace on the upper soil surface. Whereas, "rock shelters" are naturally occurring crawl spaces (also called "coversites") in which tortoises seek refuge. Tortoises, tracks, scat, and/or egg shell fragments must be present for a rock shelter to be listed as such (i.e., there are numerous similar spaces without tortoise sign, which were not mapped or identified as rock shelters).

Table 2. Tortoise Sign Found During Four Surveys										
Site	Animals	Carcasses	Tortoise Scat				Burrows		Other*	
			Fresh Adult	Older Adult	Fresh Subadult	Older Subadult	Dirt	Rock Shelter	Tracks	Egg Shell
On Private Site	1	5	140	140	8	7	24	6	30	1
On BLM Site	-	4	4	14	1	1	-	3	-	-
Off Private Site	1	1	35	40	2	1	20	-	5	-
On Access Road	-	1	3	7	-	-	6	-	-	-
Off Access Road	-	3	45	64	4	24	41**	-	1	1
Totals	2	14	227	265	15	33	91	9	36	2

* Other sign included two courtship rings found on the private 48-acre± parcel.

** Two of the 41 burrows adjacent to the access road were judged to be those of subadult tortoises (i.e., with openings that were < 180 mm wide).

The following pertinent observations are given regarding the above data:

- Although two tortoises were found on the 25 acres surveyed in May 2014, only one of them was on the final 48-acre± private parcel, as reported in Table 2. In any case, the two are used herein so that the USFWS (2010) formula for determining densities can be used for that particular parcel.
- Only 2 of 91 burrows (2%) and 48 of 540 scat (9%) were judged to be from subadult tortoises, which therefore make up a relatively small proportion of detected tortoises in the area. The presence of egg shells indicates recent attempts at reproduction, although these shells are likely evidence of nest depredation.
- All nine of the rock shelter/coversites were restricted to the mountainous BLM parcel (3 sites) and small hill on the southeast corner of the private parcel (6 sites). There are a multitude of such sites available for tortoise use on Lynx Cat Mountain that were not counted for lack of tortoise sign but could be used in the future, during mining.
- The six burrows listed as occurring “On Access Road” were observed within approximately 5 meters of the compacted surface, and were not literally *on* the road. They do indicate that tortoises are using habitats, even for burrowing, immediately adjacent to this road.
- The prevalence of tortoise tracks on the private parcel (30 of 36, or 83%) is indicative of the relatively sandy substrates that are conducive to registering tortoise tracks. Conversely, the absence of tracks on the BLM parcel and rocky portions of the 48-acre± site are indicative of rocky-to-boulder-strewn substrates where tracks do not register.

Although all four surveys were performed during the suggested seasons (i.e., in the period of April-May and September-October), and within the recommended temperature limits (i.e., below 40°C or 104°F), only two tortoise were observed during the survey of the 25 acres in May of 2014. In the final proposal, the northern 3.5 acres± have been excluded from the mine footprint, where one of the two tortoises was observed. Even so, it does provide an opportunity to estimate the number of tortoises on that 25-acre site, and compare those findings to the other sites where tortoises occur.

Based on the equation provided in USFWS (2010) that considers the number of tortoises observed, various probability parameters, and the size of the area surveyed, a total of approximately 5 (formula result = 4.96) adult tortoises are estimated to occur on the 25-acre site surveyed in May 2014. Since no tortoises were observed on either the remaining 25 acres of the private parcel or on the 8.5-acre BLM parcel and the density formula cannot be applied, the amount of tortoise sign on those sites compared to the May 2014 site are given in Table 3.

		Tortoise Scat				Burrows		Other*		
Site	Animals	Carcasses	Fresh Adult	Older Adult	Fresh Subadult	Older Subadult	Dirt	Rock Shelter	Tracks	Egg Shell
25 acres in May	2	1	59	38	6	2	11	2	9	-
25 acres in Sept/Oct	0	3	91	104	2	5	16	6	26	1
8.5-acre BLM	0	4	4	14	1	1	-	3	-	-

One can see that more sign was found on the 25-acre site where no tortoises were observed in September/October 2014 than on the 25-acre site where two tortoises were observed in May 2014, where the estimated density is five animals. Burrows are probably a better indicator of tortoise abundance than are scat. So, if the estimate of five tortoises was associated with 13 burrows and coversites, there would be 8.5 tortoises associated with the 22 burrows and coversites found on the other 25-acre parcel. Given these observations, we estimate as few as 10 and as many as 15 tortoises on the 48-acre± site.

The same burrow comparisons cannot readily be applied to the BLM parcel where tortoises are hiding beneath boulders rather than digging burrows. Given the distribution of tortoise sign depicted in Figure 3a, we would judge that a minimum of three tortoises and perhaps as many as seven may occur. Given this rationale, we would estimate between 13 and 22 tortoises on the 57 acres±. In spite of these discussions (and because one of the two tortoises observed occurs north of the proposed, reduced footprint), we believe there are likely fewer than 10 tortoises on this site. However, since the USFWS' biological opinion would need to be amended if the number of tortoises is underestimated, we provide the more liberal estimate of 13 to 22 tortoises.

Tortoise sign found along the proposed access road is depicted in Figure 4a. As with the mine sites, most of the tortoise sign was that of adult tortoises, with some minimal amount of subadult sign found. Although the sign was found throughout, there do seem to be concentration areas near the center, southeast of the bend in the road and another one further southeast. This “bend”

in the road equates to the intersection of Water Valley Road and the unnamed road that enters the mine site. The older scat of an adult tortoise found 600 meters east of the access road, immediately adjacent to Santa Fe Avenue (light gray circle in Figure 4a), indicates that tortoises may be found along the entire length of this road.

Five of the 47 burrows were found within approximately five meters of the road indicating that suitable, occupied habitat occurs right up to the road’s edge. None of these burrows was occupied by tortoises at the time of the survey in October 2014. There is some limited likelihood that a tortoise may be inside one of these burrows or a new burrow constructed between now and the time of ground disturbance.

Even so, we believe that the liberal take limit associated with the mine site would accommodate any tortoises found within the area that is to be fenced along the access road. As such, the suggested limit has not been increased to accommodate negligible impacts to tortoises associated with widening the access road. It is also very likely that fencing the access road will predictably minimize the number of tortoises injured or fatally crushed, as the fence will prevent tortoises from entering the road during heightened use for the first 16-36 months the road is used for widening Highway 58.

As mentioned in Section 2.2.2, LaRue tallied disturbances along his transects. The methodologies were similar enough that the two 25-acre parcels and BLM parcel (although slightly more meandering) may be directly compared, showing how current uses differ on flat versus mountainous portions of the site.

Table 4. Observable Human Disturbances on the Two 25-acre Parcels and 8.5-acre BLM Parcel

Site	OHV Tracks	Roads & Trails	Shotgun Shells	Skeet Targets	Shooting Areas	Shooting Targets	Rifle Shells
25 acres in May	165	59	46	25	15	6	22
25 acres in Sept/Oct	129	5	19	2	0	4	5
8.5-acre BLM	8	0	7	2	0	0	15

An important distinction between the 25-acre site surveyed in the spring compared to the 25 acres surveyed in the fall is that the May 2014 survey area encompasses the existing open pit in its entirety, whereas the September/October survey area is to the west and south of the open pit. One can see that all forms of observable human disturbance, and particularly shooting, increase as one approaches the quarry pit. The several roads leading in to the mine, including proposed access road, provide ready access for even passenger vehicles, and the pit serves as a focal point for shooting and target practice. In fact, our field notes indicate that “shooting and OHV are too common to tally in the open pit.” Several disturbances common to more urban areas including dumping, domestic dog sign, and equine use were not observed. The site is within the southern boundary of the Harper Lake Cattle Allotment that was recently retired, and old cow dung is present throughout and common in places.

The County (2004) requires that habitat categories designated by the BLM (1989) be identified in all Agassiz's desert tortoise technical reports. Although habitat categories apply only to public lands administered by the BLM, regulatory agencies typically determine habitat compensation ratios based on the nearest BLM habitat categories (BLM 2005, 2006). With the formulation of the West Mojave Plan (BLM 2005) and its formal adoption through a Record of Decision (BLM 2006), all lands that are inside Desert Wildlife Management Areas, including the subject property, are characterized as having the highest priority management for viable populations of the Agassiz's desert tortoise.

Both sites and the northern 1.25 miles of the proposed (existing) access road are found within the Superior-Cronese Desert Wildlife Management Area (DWMA) as recommended in the Desert Tortoise (Mojave Population) Recovery Plan (USFWS 1994b) and formally adopted in March 2006 as a result of the West Mojave Plan Record of Decision (BLM 2006). However, neither is found within designated critical habitat (USFWS 1994b). The DWMA designation in this area is only two miles wide, located between areas to the north associated with Harper Lake and to the south associated with the community of Hinkley (Figure 8). The 2.1± linear miles of access road between Santa Fe Avenue and the DWMA are in BLM-designated Category 3 habitats.

3.2.2. *Other Special Status Species.* USFWS (2008), California Department of Fish and Wildlife (CDFG 2011; CDFW 2014a and 2014b), and California Native Plant Society (CNPS 2014) maintain lists of animals and/or plants considered rare, threatened, or endangered, which are collectively referred to as "special status species." Three special status species were identified during the surveys, including American badger, burrowing owl, and LeConte's thrasher. These and other special status plant and animal species reported from the region are discussed below.

PLANTS

There are six reports of **Barstow woolly sunflower** (*Eriophyllum mohavensis*) from the CNDDDB (CDFW 2014a) for the Hinkley, Twelve Gauge Lake, and Water Valley USGS 7.5' quadrangles. This species is designated as a List 1B.2 species by the CNPS (2014) and is considered sensitive by the BLM. Barstow woolly sunflower is found mostly in open, silty, or sandy areas in saltbush scrub or creosote bush scrub habitats. It is known from barren ridges or the margins of playas, at elevations from 500 to 900 meters. The "miniature playas" that occur immediately north of the site and in adjacent areas appear to be ideal habitat for the species, which would likely not have been detectable since the plants are very small and would have dried up by the time of surveys, including the May 2014 effort. There are no suitable habitats on the BLM parcel. The closest records for this plant are approximately 4.2 miles south (1985), 4.8 miles west-southwest (1983), and 5.8 miles southwest (2010).

Desert cymopterus (*Cymopterus deserticola*) has been reported seven times from the CNDDDB (CDFW 2014a) for the Hinkley, Twelve Gauge Lake, and Water Valley USGS 7.5' quadrangles. This species is designated as a List 1B.2 species by the CNPS (2014) and is considered sensitive by the BLM. Desert cymopterus typically occurs in Joshua tree woodland and Mojavean desert scrub, on fine to coarse, loose, sandy soil of flats in old dune areas with well-drained sand, at elevations between 625 and 910 meters. There are no dune areas on the private 48-acre± site,

although soils are very sandy. The closest records for desert cymopterus are 3.6 miles west-northwest (1998) and 4.8 miles northeast (2001). The species was not detected during CMBC's surveys, and if present, would likely have been detectable, since it is a fairly large plant with persisting parts when it dies. CMBC considers the desert cymopterus absent from the private site because it was not detected and from the BLM parcel because it is too rocky.

BIRDS

Each of the bird species discussed below is considered a Bird of Conservation Concern by the USFWS (2008) and/or a Bird Species of Special Concern by the CDFG (2011).

Burrowing owls (*Athene cunicularia*) have been reported in the CNDDDB approximately 3.0 miles and 4.0 miles to the west-northwest in 2006 and 1989, respectively, as well as 3.8 miles west-southwest of the site in 2007 (CDFW 2014a), so the species is known to occur in the area. Although no evidence was found on either the private site, which includes suitable habitats and available burrows (Figure 3b), or on the BLM parcel, which is too rocky to be ideal, diagnostic evidence was found in three locations adjacent to the proposed access road, as depicted in Figure 4b.

As part of the formal habitat assessment for burrowing owl, biologists recorded UTM coordinates for 43 badger digs and 58 tortoise burrows/coversites on and adjacent to the 57-acre± mine site (Figure 3b) and 136 badger digs, 47 tortoise burrows, and 12 kit fox dens along the access road (Figure 4b). As shown in Figures 4b and 5, diagnostic burrowing owl sign was found at one badger dig, one tortoise burrow, and one kit fox den along the access road.

A pair of **LeConte's thrashers** (*Toxostoma lecontei*) was observed by Dougherty and LaRue approximately 5 miles west of the site following the 4 May 2014 survey. Then on the subsequent survey of the private portion of the site in September 2014, LaRue observed a single individual on one occasion and a pair of adults on a second occasion, although they were proximate enough that only the pair (and not a third bird) may occur. Suitable habitat for the species is present on the site and along the entire length of the access road.

Though not observed during any of the four surveys, **loggerhead shrike** (*Lanius ludovicianus*) has been reported approximately 3.7 miles west-northwest of the site in 2006 (CDFW 2014a). Habitat on the site is suitable for the species. Large spiny shrubs, such as peach thorn, could provide nest sites and there is suitable foraging habitat throughout.

Suitable foraging habitat for **prairie falcons** (*Falco mexicanus*) and **golden eagles** (*Aquila chrysaetos*) is present on the site and in adjacent areas, and these species are known to occur in the region (LaRue, personal observation in Hinkley and Black Mountain to the northwest). No evidence of current nesting by raptors was found on the site or in adjacent areas, but suitable nesting habitat may be present on steeper parts of Lynx Cat Mountain to the east.

MAMMALS

Mohave ground squirrel (*Xerospermophilus mohavensis*) is designated as a threatened species by the California Fish and Game Commission and is not federally listed. In spite of two petitions, one in 1993 and another in 2005, to list the Mohave ground squirrel as a federally Endangered species, the USFWS ruled in October 2011 that listing was not warranted at that time. In recent years, the CDFW has considered three criteria in assessing potential impacts to the Mohave ground squirrel (Adrienne Disbrow, personal communication to CMBC in 2004): (1) Is the site within the range of the species? (2) Is there native habitat with a relatively diverse shrub component? (3) Is the site surrounded by development and therefore isolated from potentially occupied habitat?

First, Figure 7 shows known locations of Mohave ground squirrels relative to the subject property (CDFW 2014a) and the suspected range of the species (Gustafson 1993; BLM 2005). The nearest reported occurrence was approximately one mile west of the site, where squirrels were trapped by Dr. Philip Leitner in 2012 (Leitner personal communication to LaRue on 7 May 2014). Other proximate occurrences have been 4.2 miles to the south (2007), 4.6 miles to the south-southwest (2007), 4.6 miles to the south (2007), and 5.9 miles to the west (1998). When a line is drawn to connect the known occurrences to determine the approximate range of the species (the “red line” in Figure 7), the site is approximately 8.6 miles northwest of the extrapolated eastern boundary (BLM 2005), or approximately 9 miles *within* the suspected species range.

Second, Mohave ground squirrel has been reported between 1,800 feet (549 meters) and 5,600 feet (1,707 meters) elevation from a wide range of habitats including creosote bush scrub, Joshua tree woodland, juniper woodland, and Mohave mixed woody scrub (BLM 2005). At about 2,300-foot (700 meters) elevation, the site is well within the known elevation range of the species. There is a relatively high level of diversity of native perennial plants, with about 24 shrub species identified.

In the northern part of the range, winter fat and spiny hop-sage are ecologically important shrubs for Mohave ground squirrel (BLM 2005). During May and September surveys of the private parcel, biologists tallied 16 winter fat and 29 spiny hop-sage on the subject property. During the October survey of the access road, 29 winter fat and 1 spiny hop-sage were tallied within approximately 5 meters either side of this 3.4-mile± road. In any case, the presence of these plants does NOT imply that the Mohave ground squirrel occurs. There are no data to suggest that these plants are important to the species in the south as they appear to be in the Coso Range, near the northern extent of the Mohave ground squirrel known range.

Finally, all contiguous lands are undeveloped. Lands immediately to the east and south of the private mine site are public lands under the jurisdiction of the BLM. The open pit, mountainous parts of the private site, and the entire BLM parcel are likely too rocky to be suitable for Mohave ground squirrels. All lands adjacent to the entire length of the access road are judged to comprise suitable Mohave ground squirrel habitats.

Given the above information, CMBC concludes that there is potential for Mohave ground squirrels to occur on the subject property and along the entire length of the access road; CMBC cannot conclude that the species is absent.

American badger (*Taxidea taxus*) is a California Species of Special Concern and not designated by USFWS (CDFW 2014a). This species, which occurs throughout California except for the far northwestern corner of the state (Zeiner *et al.* 1990), is relatively intolerant of urbanization. The distribution of 179 badger digs recorded during the four surveys is shown in Figures 3b for the sites and 4b for the access road. As evidenced by the lack of digs, badgers may be absent from the rockier portions of the site and BLM parcel but likely occur throughout all level, sandy areas.

3.3. Other Protected Biological Resources. Stream courses provide relatively important resources to animals and plants. In dry years, and particularly during prolonged drought, annual plants may only germinate in the vicinity of washes where the water table is relatively near the surface. Perennial shrubs adjacent to washes are often the only plants that produce flowers and fruit, which in turn are important to insects and the avian predators that feed on them. Shrubs also tend to be somewhat taller and denser alongside washes, which provides cover for medium and larger sized animals that may use them as travel corridors. Biodiversity is generally enhanced by washes, and there are often both annual and perennial plants that are either restricted to or mostly associated with wash margins. There are both anecdotal accounts and published literature on washes being important to tortoises, which use them as travel corridors and access to nearby annual forage. There are no blue line streams on the private and BLM sites, although several small, undesignated washes occur.

At the County level, the San Bernardino County Development Code was revised and adopted on 12 April 2007. Chapter 88.01 Plant Protection and Management, Section 88.01.020 states, “The provisions of this Chapter apply to the removal and relocation of regulated trees or plants and to any encroachment (for example, grading) within the protected zone of a regulated tree or plant on all private land within the unincorporated areas of the County and on public lands owned by the County, unless otherwise specified...”

Section 88.01.060 Desert Native Plant Protection states, “This Section provides regulations for the removal or harvesting of specified desert native plants in order to preserve and protect the plants and to provide for the conservation and wise use of desert resources...”

Section 88.01.060(c) Regulated Desert Native Plants states, “The following desert native plants or any part of them, except the fruit, shall not be removed except under a Tree or Plant Removal Permit in compliance within Section 88.01.050 (Tree or Plant Removal Permits):

- (1) The following desert native plants with stems two inches or greater in diameter or six feet or greater in height:
 - (A) *Dalea spinosa* (smoke tree).
 - (B) All species of the genus *Prosopis* (mesquites).
- (2) All species of the family *Agavaceae* (century plants, nolinias, yuccas).
- (3) Creosote Rings, 10 feet or greater in diameter.
- (4) All Joshua trees.
- (5) Any part 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).”

At the state level, the 1998 Food and Agricultural Code, Division 23: California Desert Native Plants, Chapter 3: Regulated Native Plants, Section 80073 states: The following native plants, or any parts thereof, may not be harvested except under a permit issued by the commissioner or the sheriff of the county in which the native plants are growing:

- (a) All species of the family Agavaceae (century plants, nolinias, yuccas).
- (b) All species of the family Cactaceae (cacti), except for the plants listed in subdivisions (b) and (c) of Section 80072 (i.e., saguaro and barrel cacti), which may be harvested under a permit obtained pursuant to that section.
- (c) All species of the family Fouquieriaceae (ocotillo, candlewood).
- (d) All species of the genus *Prosopis* (mesquites).
- (e) All species of the genus *Cercidium* (palo verdes).
- (f) *Senegalia (Acacia) greggii* (catclaw acacia).
- (g) *Atriplex hymenelytra* (desert holly).
- (h) *Dalea (Psoralea) spinosa* (smoke tree).
- (i) *Olneya tesota* (desert ironwood), including both dead and live desert ironwood.

Silver cholla (*Cylindropuntia echinocarpa*) and cottontop cactus (*Echinocactus polycephalus*) are the two plant species included in one or both of the above lists that were observed on the subject property.

4.0. Conclusions and Recommendations

CMBC has been asked by the BLM (Lorenzo Encinas on 10/24/2014; Larry LaPre on 11/6/2014) to prepare both a formal Biological Assessment (CMBC 2014a) and Environmental Assessment (BLM 2014) to fully analyze the impacts and propose mitigation measures for this project. The following, then, is a much-reduced summary of impacts and mitigation measures, which will be elucidated in the other two documents and the 2081 incidental take permit, for which an application has been prepared (CMBC 2014b).

4.1. Impacts to the Agassiz’s Desert Tortoise and Proposed Mitigation. Based on the presence of numerous sign and two adult animals, CMBC concludes that Agassiz’s desert tortoise occurs on both the private and BLM sites, more so in level areas but also in rocky, mountainous areas, and alongside the entire length of the 3.4.-mile± access road. Based on USFWS’ (2010) formula, a total of five adult tortoises was estimated to occur on the 25-acre site surveyed in May 2014. Based on these calculations and other rationale given in Section 3.2, we believe that there may be fewer than 10 tortoises onsite. However, in the interest of avoiding re-consultation under Section 7 between BLM and USFWS should this limit be exceeded, we estimate there may be between 13 and 22 tortoises on the 57 acres± comprising the private and public mine sites. This estimate is considered sufficient to account for any tortoises found within the fenced portion of the road at the time of blading and grading.

The surveys along the proposed access road from Santa Fe Avenue to the mine reveal that tortoises occur along the entire length of the unimproved road (Figure 4a). The northern 3,100 feet of the unnamed road and northern 3,500 feet (6,600 feet or 1.25 miles) of Water Valley Road are within the DWMA, and the 2.1 miles south to Santa Fe Avenue are outside the DWMA. The acreage of impacts associated with widening the road from existing widths to 40 feet wide is calculated in Table 5.

Road Segment	Existing Measurements (feet)			Impact Measurements			Total Impact Acreage
	Width	Length	Acres	Width	Length	Acres	
Unnamed Road*	17.01	3,100	1.21	40	3,100	2.84	1.63
Water Valley Road in DWMA	22.60	3,500	1.81	40	3,500	3.21	1.40
Total acreage of impacts within the DWMA =							3.03 acres
Water Valley Road out DWMA	22.60	11,088	5.75	40	11,088	10.18	4.43
Total acres of impacts inside and outside DWMA =							7.46 acres

* Given its length of 0.6 miles, the unnamed road accessing the mine is all within the DWMA.

Given the average width of the unnamed road as 17.01 feet and a length of 3,100 feet, the existing road occupies 1.21 acres. The average width of Water Valley Road is 22.60 feet and 3,500 feet are within the DWMA, so the existing road occupies 1.81 acres. Using the new width of all roads out to 40 feet and the same lengths, we find that 3.03 acres will be lost inside the DWMA, 4.43 acres would be lost outside the DWMA, for a total impact area of 7.46 acres, which we will round up to 7.5 acres.

The real concern here is accidentally crushing tortoises crossing the road and deposition of dust raised by the haul trucks entering and exiting the site. The potential to crush tortoises will be heightened during their activity period, between late March and early November; dust deposition on adjacent habitats will occur for as long as the road is being used to access the site. The Proponent working with BLM, CDFW, and USFWS determined that the 3.4-mile length of the access road would be fenced during heightened use by haul trucks during widening of Highway 58, which is estimated to occur the first 16 to 36 months after mining is initiated. After this intensive use period subsides, the fence would be removed to reduce habitat fragmentation, and the speed limit would be reduced to 20 miles per hour. Speed limit signs would be posted and mine personnel would be provided with brochures reminding them to watch for and avoid tortoises.

Although habitat within the existing open pit itself is highly disturbed and probably not suitable for tortoises, all surrounding habitat surveyed showed evidence of the species, and tracks of desert tortoise were found on all roads accessing the site. Given the amount and distribution of tortoise sign throughout the site and along the entire length of the access road, direct and indirect impacts are likely and would be considered significant and unavoidable.

Generic minimization and mitigation measures required for previous projects in occupied tortoise habitat are described in Appendix E. The County (2006) also requires that specific mitigation measures, such as project redesign to avoid or reduce impacts that could be included in County approval of the project, be identified. Such measures will be mandatory components of the state incidental take permit and federal authorizations by both BLM and USFWS. These documents will be provided to the County as they become available.

According to USFWS (2010) pre-project survey protocol the results of tortoise surveys remain valid for the period of one year. Since tortoise sign was found throughout the site and tortoises are not likely to be eliminated within the foreseeable future, in April 2014, Ray Bransfield of USFWS and Becky Jones of CDFW agreed that the data may serve as a baseline for the foreseeable future, with no need for additional presence-absence surveys.

The following are disclaimers required by the County (2006): Regardless of survey results and conclusions given herein, tortoises are protected by applicable state and federal laws, including the California Endangered Species Act and Federal Endangered Species Act, respectively. Importantly, nothing given in this report, including recommended mitigation measures, is intended to authorize the incidental take of tortoises during mine development. Such authorization must come from the appropriate regulatory agencies, including BLM in its right-of-way grant(s), CDFW in its incidental take permit under section 2081 of the Fish and Game Code, and USFWS in its formal biological opinion under section 7 of the Federal Endangered Species Act.

4.2. Impacts to Other Biological Resources and Proposed Mitigation.

4.2.1 *Other Special Status Species.* The other special status species identified during the surveys are burrowing owl, LeConte's thrasher, and American badger. The species that *may occur*, and if so would require mitigation, include Mohave ground squirrel and loggerhead shrike.

There are numerous protective measures that will likely be implemented for desert tortoise and Mohave ground squirrel that will predictably minimize or avoid impacts to **burrowing owl**, including pre-disturbance surveys to move animals out of harm's way, burrow excavations, delineating boundaries at both the mine site and along the access road and restricting impacts to those areas, onsite biological monitoring, etc. Environmental documents will identify these and other specified measures to reduce or avoid impacts, should burrowing owl be found onsite at the time of ground disturbance.

No mitigation measures are known for **American badger**, which may be sufficiently mobile that they can disperse from the site as it is being mined. Similarly, if **Barstow woolly sunflower** occurs, avoidance would be the only way to minimize impacts.

Although a focused **Mohave ground squirrel** trapping survey was not performed, CMBC assessed habitats and reviewed available information to provide a professional opinion as to the presence or absence of this species on the subject properties. Given the information discussed herein, CMBC concludes that the species may be present on level portions of the private parcel, within the 7.5 acres that would be impacted by road widening, and are likely absent from rocky portions of the private parcel and the 8.5-acre BLM parcel.

Using aerial photographs and Topo USA, CMBC judges that the following areas are not considered suitable Mohave ground squirrel habitat: 5.5 acres of the existing quarry and mountainous areas immediately east; 6.0 acres encompassed by the rugged hill on the southeastern part of the private property; and the 8.5-acre BLM parcel. Therefore, given a total area of 57 acres± and these 20 acres± of non-habitat, we judge that if the entire parts of both parcels are mined, it would result in the loss of 37 acres± of Mohave ground squirrel habitat, plus 7.5 acres during widening of the access road.

Since CDFW will require a 2081 incidental take permit for take of desert tortoise, it is prudent that the incidental take permit also include Mohave ground squirrel as a covered species. Mitigation for this species will be combined with that given for desert tortoise, so that CDFW's incidental take permit, inclusive of specified minimization and mitigation measures, covers both species.

Impacts to bird species are likely to be relatively small in scope, and would include the loss of approximately 57 acres of foraging habitat from the mine site, assuming entire build-out of the mine, and 7.5 acres from alongside the access road. No raptor nests were observed during surveys, although cliffs and crags in the rocky areas nearby could be suitable for special status raptors, including **golden eagle** and **prairie falcon**. No mitigation is suggested for birds of prey. If **loggerhead shrikes** or **LeConte's thrashers** nest on the site, protections of the California Fish and Game Code and the Migratory Bird Treaty Act, described below, would apply.

4.2.2. Other Protected Biological Resources.

4.2.2.a. Washes. No impacts to blue line streams are anticipated, and the CDFW is not likely to require a 1600 Streambed Alteration Agreement.

4.2.2.b. Protected Plants. It is beyond the scope of this focused survey and general resource assessment to provide necessary baseline data and a proposed program to minimize and mitigate impacts to protected native desert plants. The County is requiring a Revegetation Plan, which in part, will identify the numbers and locations of protected plants to be in compliance with the California Native Plant Protection Act. Silver cholla and cottontop cactus are species found on-site that will likely be salvaged and replanted as part of this plan.

4.2.2.c. Bird Nests. Sections 3503, 3503.5, and 3513 of the California Fish and Game Code prohibit take of all birds and their active nests, including raptors and other migratory nongame birds (As listed under the Migratory Bird Treaty Act). Typically, CDFW requires that vegetation not be removed from a project site between March 15 and September 15 to avoid impacts to nesting birds. If it is necessary to commence mining activities requiring the removal of vegetation between March 15 and September 15, a qualified biologist should survey all shrubs and structures within the project site for nesting birds, prior to project activities (including construction and/or site preparation).

Surveys should be conducted at the appropriate time of day during the breeding season, and surveys would end no more than three days prior to clearing. CDFW is typically notified in writing prior to the start of the surveys. Documentation of surveys and findings should be submitted to the CDFW within ten days of the last survey. If no nesting birds are observed, project activities may begin. If an active bird nest is located, the plant in which it occurs should be left in place until the birds leave the nest. No construction is allowed near active bird nests of threatened or endangered species.

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Appendix A. Plant Species Detected

The following plant species were identified onsite or in adjacent areas (i.e., signified by "+") during the general biological inventories described in this report. Those plant species that are protected by pertinent County and/or state ordinances are signified by "(SC)" following the common name.

GNETAE

Ephedraceae

Ephedra nevadensis

ANGIOSPERMAE: DICOTYLEDONES

Asteraceae

Acamptopappus sphaerocephalus

Ambrosia dumosa

Ambrosia salsola

Chaenactis fremontii

Coreopsis sp.

Malacothrix glabrata

Peucephyllum schottii

Tetradymia sp.

Viguiera deltoidea var. *parishii*

Xylorhiza tortifolia

Boraginaceae

Amsinckia tessellata

Cryptantha angustifolia

Cryptantha c.f. *circumscissa*

Cryptantha dumetorum

Cryptantha nevadensis

Cryptantha pterocarya

Pectocarya sp.

Brassicaceae

**Brassica tournefortii*

**Descurainia pinnata*

Guillenia lasiophylla

Lepidium fremontii

Thysanocarpus curvipes

Cactaceae

Cylindropuntia echinocarpa

Echinocactus polycephalus

GNETAE

Joint-fir family

Nevada joint-fir

DICOT FLOWERING PLANTS

Sunflower family

Desert goldenhead

Burrobush

Cheesebush

Desert pincushion

Coreopsis

Desert dandelion

Pigmy-cedar

Cottonthorn

Parish's golden-eye

Desert aster

Borage family

Fiddleneck

Narrow-leaved forget-me-not

Capped cryptantha

Forget-me-not

Nevada forget-me-not

Wing-nut forget-me-not

Pectocarya

Mustard family

Saharan mustard

Tansy

California mustard

Bush peppergrass

Lace pod

Cactus family

Silver cholla (SC)

Cottontop cactus (SC)

Chenopodiaceae*Atriplex confertifolia**Atriplex polycarpa**Grayia spinosa**Krascheninnikovia lanata***Salsola tragus***Fabaceae***Psoralea argemone***Geraneaceae****Erodium cicutarium***Hydrophyllaceae***Phacelia c.f. crenulata**Phacelia tanacetifolia***Lamiaceae***Salvia columbariae***Loasaceae***Mentzelia albicaulis***Malvaceae***Eremalche rotundifolia***Nyctaginaceae***Mirabilis bigelovii***Onagraceae***Camissonia brevipes**Camissonia campestris**Camissonia claviformis***Polemoniaceae***Eriastrum sp.**+Eriastrum densifolium**Eriastrum eremicum**Gilia latiflora**Gilia stellata**Loeseliastrum matthewsii**Loeseliastrum schottii***Goosefoot family**

Spiny saltbush

Allscale

Spiny hop-sage

Winter fat

Russian thistle

Pea family

Indigo bush

Geranium family

Red-stemmed filaree

Water-leaf family

Purple phacelia

Phacelia

Mint family

Chia

Stick-leaf family

Little blazing star

Mallow family

Desert fivespot

Four o'clock family

Desert wishbone plant

Evening-primrose family

Yellow cups

Mojave sun-cups

Brown-eyed primrose

Phlox family

Woolly star

Woolly star

Woolly star

Broad-flowered gilia

Dotted-throat gilia

Sunbonnets

Loeseliastrum

Polygonaceae

Chorizanthe brevicornu
Chorizanthe rigida
Eriogonum fasciculatum
Eriogonum pusillum
Eriogonum c.f. thomasii
Eriogonum trichopes
Eriogonum viridescens

Ranunculaceae

Delphinium parishii

Solanaceae

Lycium andersonii
Lycium cooperi

Zygophyllaceae

Larrea tridentata

ANGIOSPERMAE: MONOCOTYLEDONES

Poaceae

Achnatherum hymenoides
Achnatherum speciosum
 **Bromus madritensis* ssp. *rubens*
 **Bromus tectorum*
Pleuraphis rigida
Poa secunda
 **Schismus* sp.

Buckwheat family

Brittle spineflower
 Rigid spineflower
 California buckwheat
 Buckwheat
 Thomas eriogonum
 Little trumpet
 Buckwheat

Crowfoot larkspur

Larkspur

Nightshade family

Anderson's box-thorn
 Peach thorn

Caltrop family

Creosote bush

MONOCOT FLOWERING PLANTS

Grass family

Indian ricegrass
 Desert needlegrass
 Red brome
 Cheat grass
 Big galleta
 Fowl bluegrass
 Split-grass

* - indicates a non-native (introduced) species.

c.f. - compares favorably to a given species when the actual species is unknown.

Some species may not have been detected because of the seasonal nature of their occurrence. Common names are taken from Beauchamp (1986), Hickman (1993), Jaeger (1969), and Munz (1974).

Appendix B. Animal Species Detected

The following animal species were detected during the general biological inventory described in this report. Special status animal species are highlighted red and signified by “(SC).”

REPTILIA

Testudinidae

Gopherus agassizii

Iguanidae

Dipsosaurus dorsalis

Sauromalus obesus

Gambelia wislizenii

Sceloporus magister

Uta stansburiana

Phrynosoma platyrhinos

Teiidae

Cnemidophorus tigris

Viperidae

Crotalus cerastes

AVES

Cathartidae

Cathartes aura

Cuculidae

Geococcyx californianus

Tytonidae

Tyto alba

Strigidae

Bubo virginianus

Athene cunicularia

Camprimulgidae

Chordeiles acutipennis

Tyrannidae

Sayornis saya

Alaudidae

Eremophila alpestris

Corvidae

Corvus corax

REPTILES

Land tortoises

Agassiz's desert tortoise (SC)

Iguanids

Desert iguana

Common chuckwalla

Long-nosed leopard lizard

Desert spiny lizard

Common side-blotched lizard

Desert horned lizard

Whiptails

Western whiptail

Vipers

Sidewinder

BIRDS

Vultures

Turkey vulture

Cuckoos

Greater roadrunner

Barn Owls

Common barn owl

Typical owls

Great horned owl

Burrowing owl (SC)

Nightjars

Lesser nighthawk

Tyrant flycatchers

Say's phoebe

Larks

Horned lark

Crows and jays

Common raven

Remizidae
Auriparus flavipes

Troglodytidae
Campylorhynchus brunneicapillus
Salpinctes obsoletus

Mimidae
Toxostoma lecontei

Muscicapidae
Polioptila caerulea

Emberizidae
Wilsonia pusilla
Spizella breweri
Amphispiza bilineata
Amphispiza belli
Zonotrichia leucophrys

MAMMALIA

Leporidae
Lepus californicus

Geomyidae
Thomomys bottae

Heteromyidae
Dipodomys sp.

Cricetidae
Neotoma lepida

Canidae
Canis latrans
Vulpes macrotis
Urocyon cinereoargenteus

Mustelidae
Taxidea taxus

Felidae
Lynx rufus

Verdins
Verdin

Wrens
Cactus wren
Rock wren

Mockingbirds and thrashers
LeConte's thrasher (SC)

Thrushes and allies
Blue-gray gnatcatcher

Sparrows, warblers, tanagers
Wilson's warbler
Brewer's sparrow
Black-throated sparrow
Sage sparrow
White-crowned sparrow

MAMMALS

Hares and rabbits
Black-tailed hare

Pocket gophers
Botta pocket gopher

Pocket mice
Kangaroo rat

Rats and mice
Desert wood rat

Foxes, wolves and coyotes
Coyote
Kit fox (fur-bearing mammal)
Gray fox

Weasels and skunks
American badger (SC)

Cats
Bobcat

Nomenclature follows Stebbins, *A Field Guide to Western Reptiles and Amphibians* (2003), third edition; Sibley, National Audubon Society, the Sibley Guide to Birds (2000), first edition; and Ingles, *Mammals of the Pacific States* (1965), second edition.

Appendix C. U.S. Fish and Wildlife Service Data Sheets for Tortoise Surveys

The USFWS asks that consultants include copies of the data collected in the field from which the results and conclusions given in reports are derived. As such, following this page are copies of the four data sheets completed by Ed LaRue for the four surveys on the 48-acre± private mine site (i.e., two, 25-acre surveys in May and September 2014), access road (October 2014), and the 8.5-acre BLM mine site (October 2014).

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: 4/5/2014 Survey biologist(s): Ed Calver and Steven Daugherty (see table page)
(day, month, year) (name, email, and phone number)

Site description: 25 acres on the north and east sides of the private quarry area
(project name and size; general location)

County: San Bernardino Quad: Hinkley Location: 471790/3871285 NAD83
(UTM coordinates, lat-long, and/or TMS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: 25 acres Transect #: 46 Transect length: Variable

GPS Start-point: 471735/3871590 (658 m) Start time: 0830 am/pm
(easting, northing, elevation in meters)

GPS End-point: 471910/3871080 (718 m) End time: 1600 am/pm
(easting, northing, elevation in meters)

Start Temp: 22 °C End Temp: 34 °C

Live Tortoises

Detection number	GPS location Easting Northing		Time	Tortoise location <small>(in burrow: all of tortoise beneath plane of burrow opening, or not in burrow)</small>	Approx MCL >160-mm? <small>(Yes, No or Unknown)</small>	Existing tag # and color, if present
1	471835	3871462	7-0900	Burrow	7-250mm	None
2	471846	3871498	7-1030	Burrow	7-240mm	None
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting Northing		Type of sign <small>(burrows, scats, carcass, etc)</small>	Description and comments
1	Variable		3 carcasses, 280 adult scat, 15 subadult scat, 30 burrows	30 tracks
2	See maps in report		1 egg shell fragment	
3				
4				
5				
6				
7				
8				

Page: 1 of 4

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: 30/9/2014 Survey biologist(s): Ed Lohr and Mike Rodalovich (see the page)
(day, month, year) (name, email, and phone number)

Site description: 25 acres on south and west sides of private quarry area
(project name and size; general location)

County: San Bernardino Quad: Hinkley Location: 47760/387160 NAD 83
(UTM coordinates, lat-long, and/or TFRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: 25 acres Transect #: 50 Transect length: Variable

GPS Start-point: 47765/3871400 (418m) Start time: 1530 am/pm
(easting, northing, elevation in meters)

GPS End-point: 47796/3870950 (603m) End time: 1830 am/pm
(easting, northing, elevation in meters)

Start Temp: 33 °C End Temp: 29 °C

Live Tortoises

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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location		Type of sign <small>(burrows, scats, carcass, etc)</small>	Description and comments
	Easting	Northing		
1				
2				
3				
4	See Notes on previous page			
5				
6				
7				
8				

Page: 2 of 4
 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: 28/10/2014 Survey biologist(s): Ed Lafue and Patricia Stewart (see table page)
(day, month, year) (name, email, and phone number)
 Site description: 3.4-mile access road between Lynx Cat mine and Santa Fe Pond
(project name and size; general location)
 County: San Bernardino Quad: Hinkley Location: 477530/387050 (NAD83)
(UTM coordinates, lat-long, and/or TRS; map datum)
 Circle one: 100% coverage or Sampling Area size to be surveyed: 3.4 miles Transect #: B Transect length: 7.34 miles
(easting, northing, elevation in meters)
 GPS Start-point: 477310/387060 (648 m) Start time: 0730 am/pm
(easting, northing, elevation in meters)
 GPS End-point: 480315/3866820 (676 m) End time: 1730 am/pm
(easting, northing, elevation in meters)
 Start Temp: 9 °C End Temp: 28 °C

Live Tortoises

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

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location		Type of sign <small>(burrows, scats, carcass, etc)</small>	Description and comments
	Easting	Northing		
1	Variable		4 carcass, 19 adult scat, 288 subadult scat	
2	See map in report		47 burrows, 1 tracks, 1 egg shell fragment	
3				
4				
5				
6				
7				
8				

Page: 3 of 4

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: 30/10/2014 Survey biologist(s): Ed Lohr and Patricia Stewart (see title page)
(day, month, year) (name, email, and phone number)

Site description: 8.5-acre BLM parcel
(project name and size; general location)

County: San Bernardino Quad: Hinkley Location: 478020/387120 (MAP 83)
(UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: 8.5a. Transect #: 20 Transect length: Variable

GPS Start-point: 477910/3871235 (685m) Start time: 1145 am
(easting, northing, elevation in meters) (am/pm)

GPS End-point: 478060/3871450 (694m) End time: 1515 am
(easting, northing, elevation in meters) (am/pm)

Start Temp: 9 °C End Temp: 29 °C

Live Tortoises

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

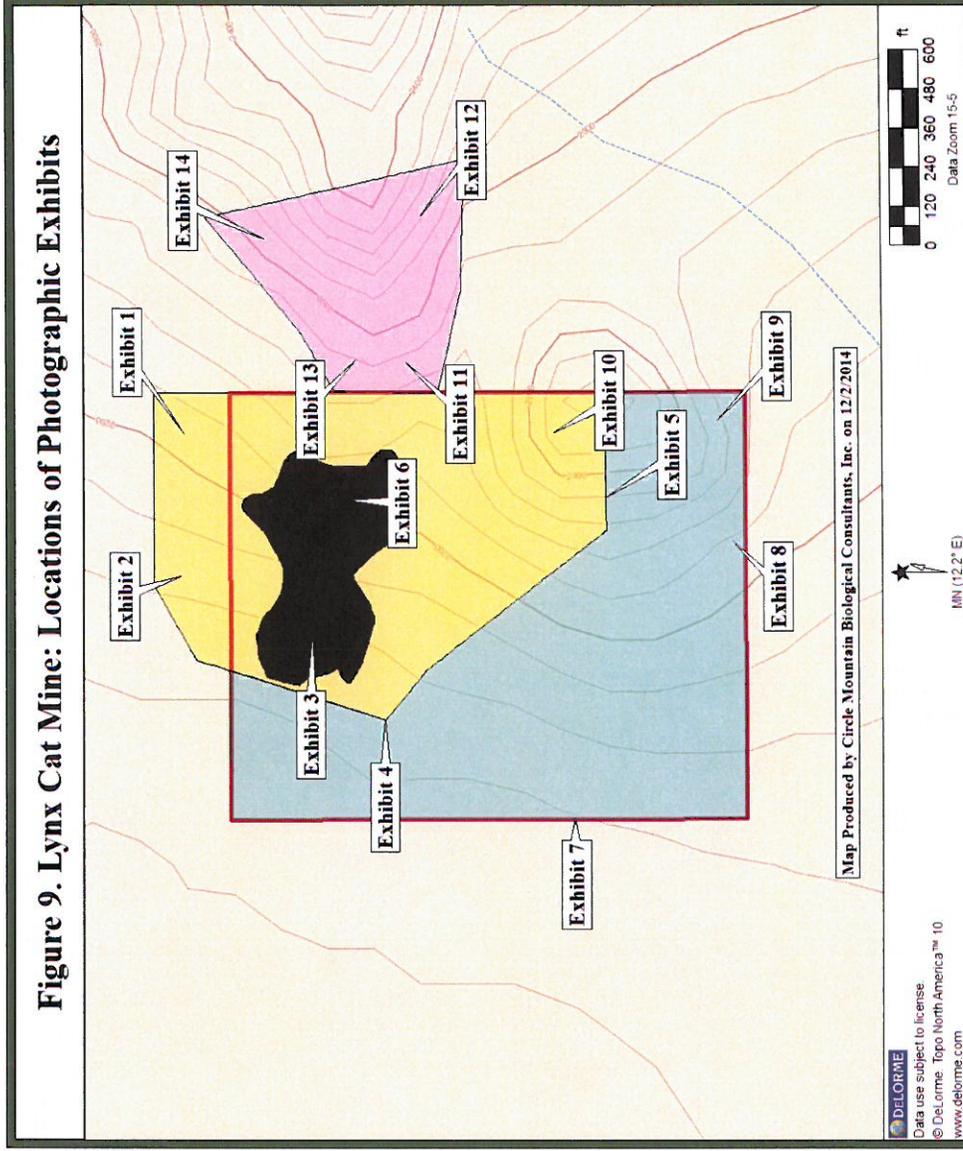
Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location		Type of sign <small>(burrows, scats, carcass, etc)</small>	Description and comments
	Easting	Northing		
1	<u>Variable</u>		<u>4 carcasses</u>	<u>18 adult scats, 2 subadult scats</u>
2	<u>see map in report</u>		<u>3 rock shelters/coversites</u>	
3				
4				
5				
6				
7				
8				

Page: 4 of 4

Transect number: _____

Appendix D. Photographic Exhibits



Locations of the 14 photographic exhibits on the next 7 pages are depicted in Figure 9.



Exhibit 1. View from the northeast corner of the private mine site, facing southwest (see Figure 9 for locations and directions of photographs).



Exhibit 2. View from the northwest corner of the private mine site, facing southeast.



Exhibit 3. View from entrance of the existing quarry, facing east.



Exhibit 4. View from west of the existing quarry site, facing east.



Exhibit 5. View from southern boundary of private site, facing northwest.



Exhibit 6. Raven nest on wall of existing quarry.



Exhibit 7. Active adult tortoise burrow on private parcel with extreme amounts of tracks.

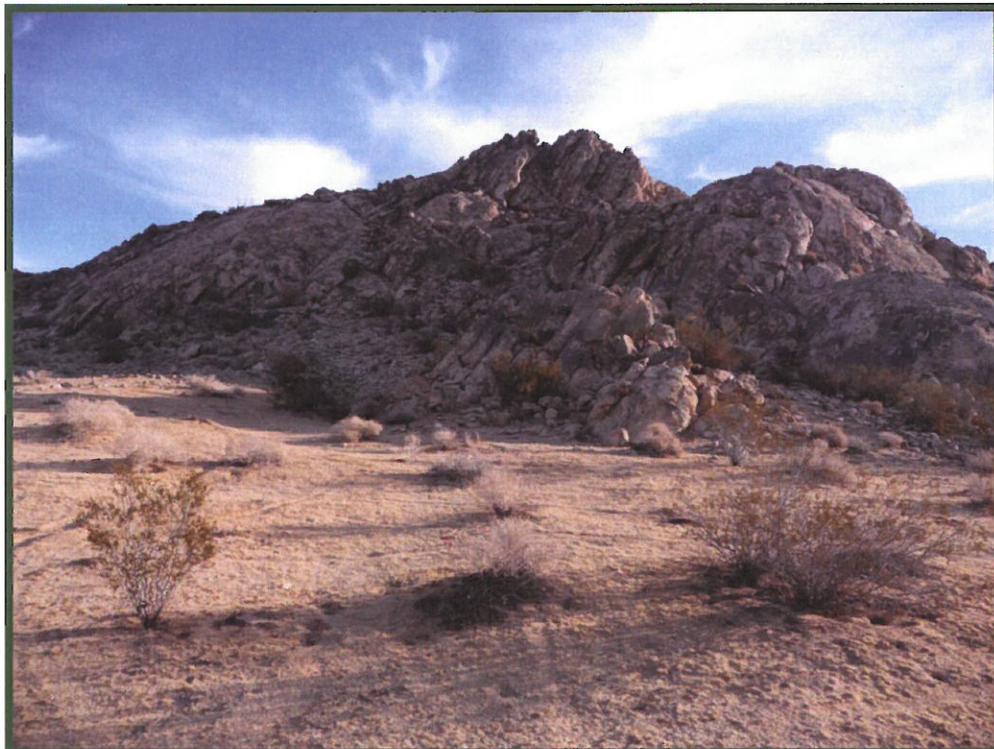


Exhibit 8. View of the southern outcrop area of private parcel, facing northeast.



Exhibit 9. View of the southeastern corner of the private parcel, facing north-northwest.

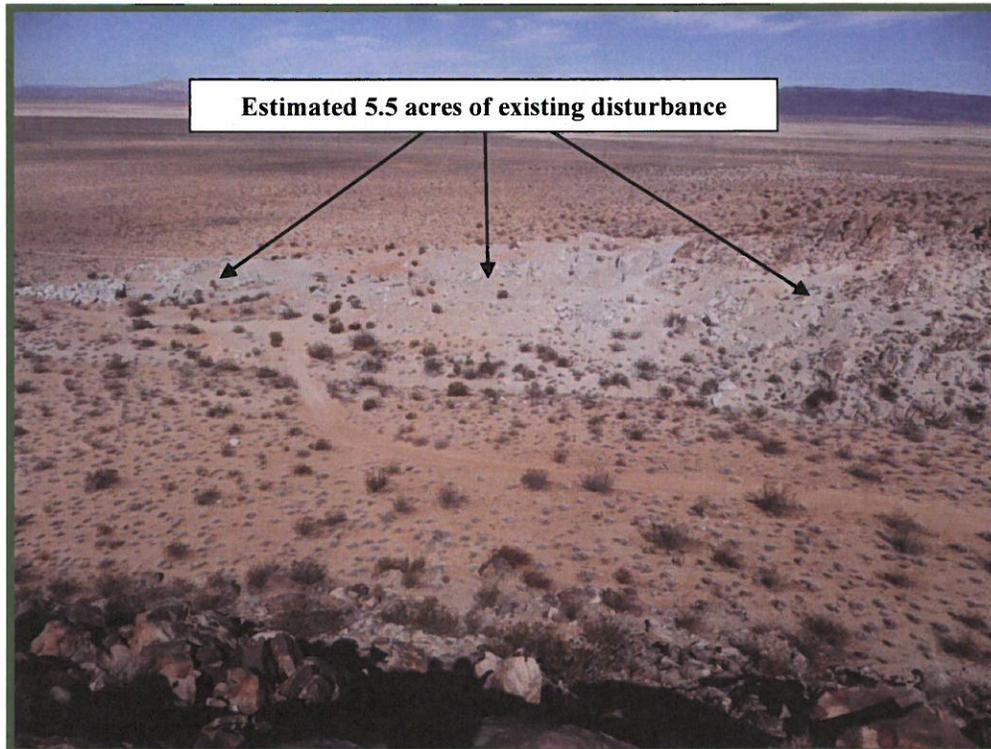


Exhibit 10. Overview of existing quarry from top of southeast hill, facing northwest.

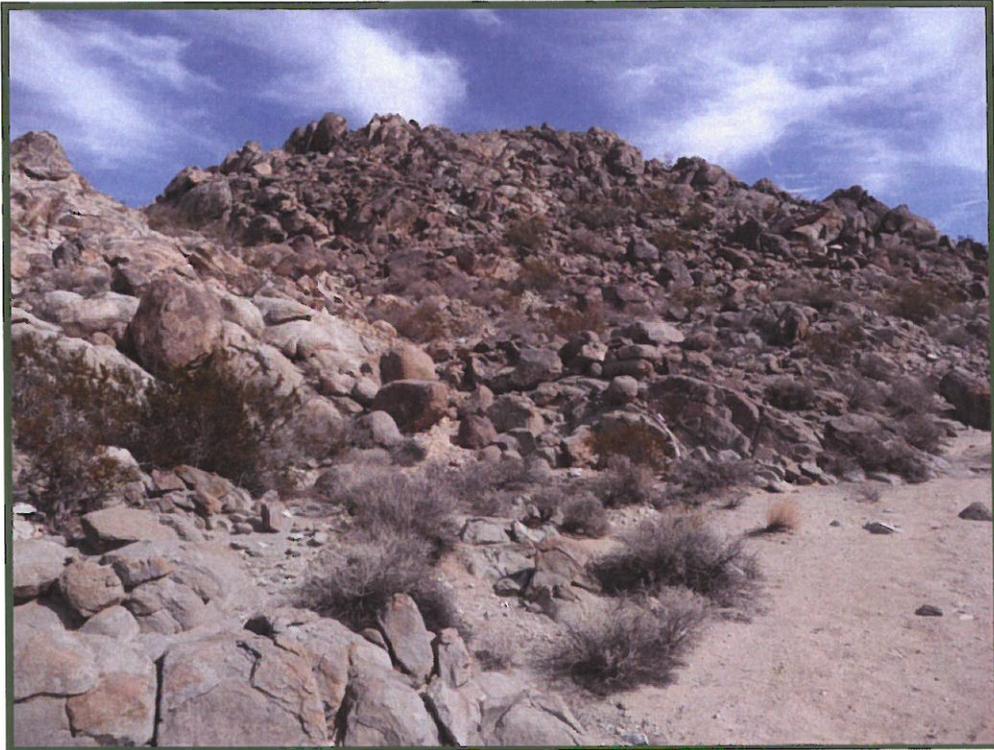


Exhibit 11. View of BLM parcel from southwest corner, facing northeast.

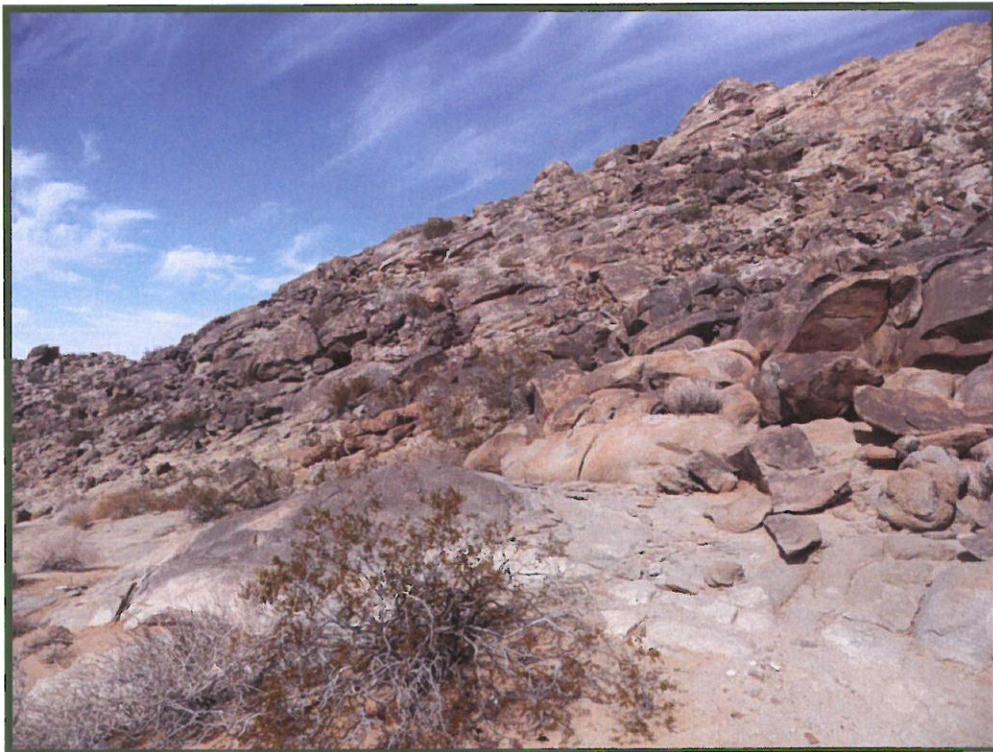


Exhibit 12. View of BLM parcel from southeast corner, facing northwest.

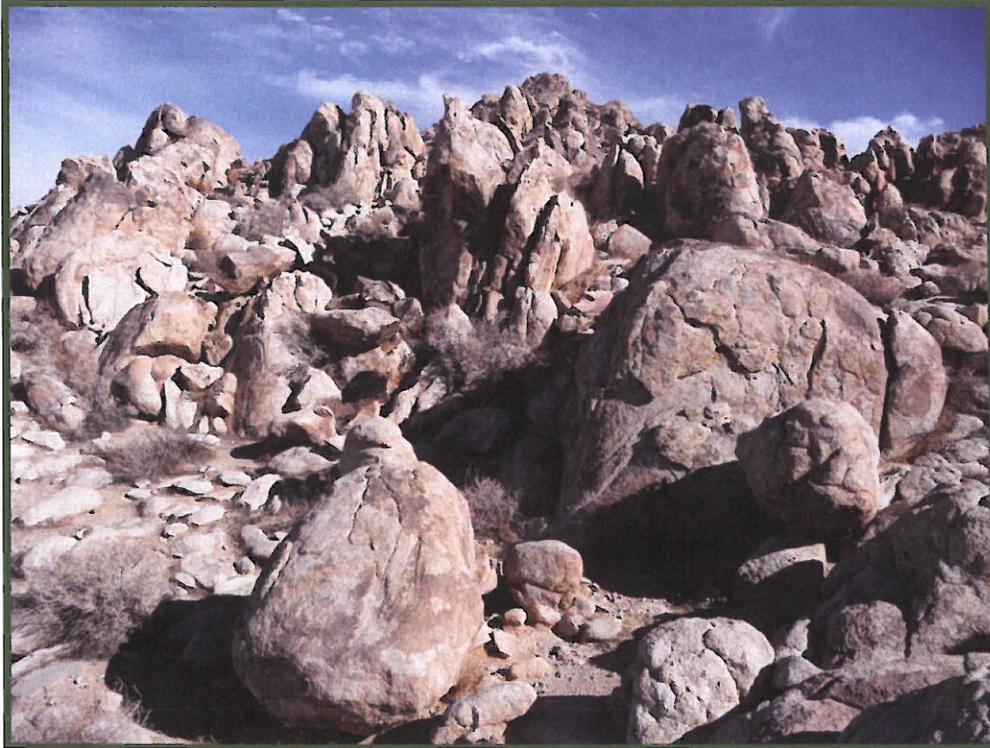


Exhibit 13. View of BLM parcel from northwest corner, facing southeast.

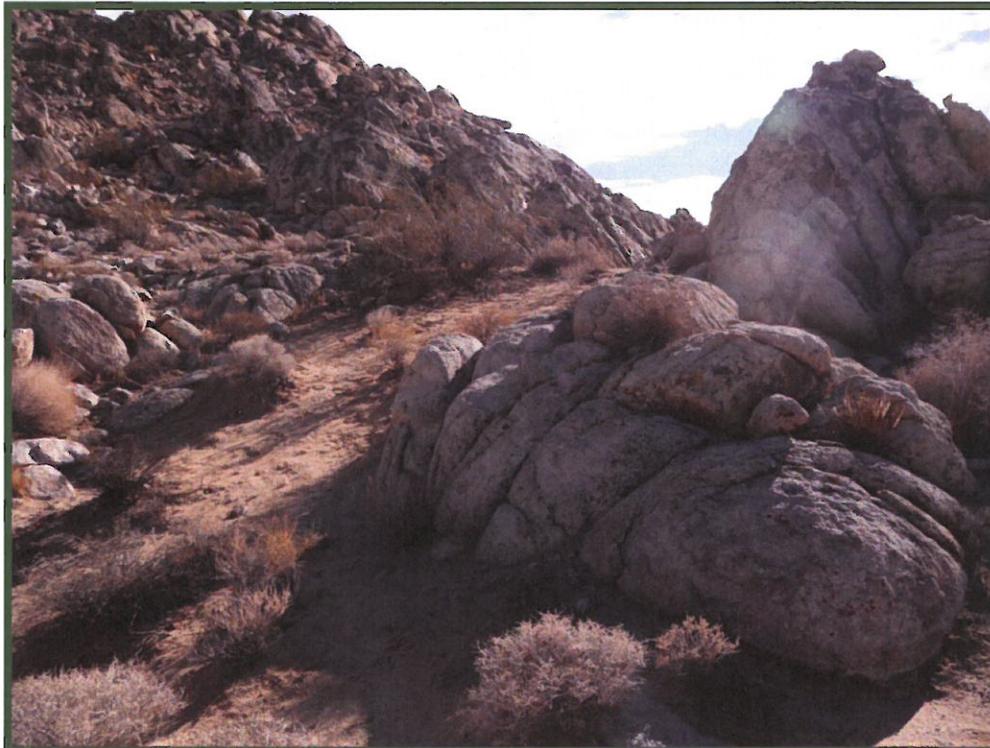


Exhibit 14. View of BLM parcel from northeast corner, facing southwest.

Appendix E. Minimization and Mitigation Measures for Impacts to Tortoises.

In the past, the regulatory agencies have equated tortoise sign with occupied habitat; there is no requirement that an animal be observed onsite. Both the USFWS and CDFW have required incidental take permits when tortoise sign (not animals) was the only evidence found.

Given the findings of this study, development of the mine site will likely impact the Agassiz's desert tortoise, which, as a state-listed species, would be considered a *significant impact* under the California Environmental Quality Act (CEQA). Since it is a threatened species, the Proponent will need to minimize and mitigate the impact to avoid "take" under state (CESA) and federal endangered species acts (FESA).

Both the CDFW and USFWS must authorize incidental take, since both state and federal governments list the tortoise as threatened. Since the BLM would issue a right-of-way grant along the public access road between the site and Santa Fe Avenue and the 8.5-acre parcel located east of the existing quarry is on public lands managed by the BLM, the site would be developed under authority of section 7 of FESA, which is required when a federal action agency *funds, authorizes, or carries out* some portion of the project that *may affect* the Agassiz's desert tortoise. Although focused trapping surveys have not been performed for the state-listed, threatened Mohave ground squirrel, we assume that it may occur on the flatter portions of the site to the west, and it is also included in the incidental take permit application as a *covered species*. Take permits will identify both *minimization measures* and *mitigation measures* to offset the impacts.

Minimization measures are applied onsite at the time of initial construction and mine operation. As the name implies, the intent of these measures is to minimize direct impacts to tortoises, Mohave ground squirrels, and occupied habitat. These measures typically include hiring a biological monitor to remove all tortoises from the fenced, mine area. Tortoise awareness programs are given to construction personnel who are prohibited from driving cross-country, littering, bringing pets into the area, etc. *Mitigation measures* are applied off-site, which will require that compensation lands are acquired in tortoise conservation areas. Given the location of the subject property is outside the Superior-Cronese Desert Wildlife Management Area (DWMA), the BLM compensation ratio would likely be 1:1, although the compensation ratio may be higher in the incidental take permit issued by CDFW.

Collectively, these measures are part of a *conservation strategy* that is intended to *fully mitigate impacts to the maximum extent practicable*, as required by the USFWS. The CDFW's fully mitigate standard is worded somewhat differently, but the conservation strategy outlined in the 2081 permit would be similar to that given in the federal *biological opinion*. A *biological assessment* has been drafted in addition to this technical report to provide baseline data specific to the desert tortoise (excluding other special status species) from which USFWS can extract information and data to complete formal consultation with the BLM, and draft a project specific *biological opinion* for the project.

Appendix F. Project Map and Proposed Project Narrative Description

For this report to be complete, the County (2006) requires that **the Proponent provide the following information**. The following descriptions and clarifications were taken, verbatim, from a letter to CMBC, dated 27 March 2006, from Matthew Slowik, then Senior Associate Planner with the County:

Project Map

“All biological survey reports are required to include a copy of the project map. ‘The project map’ is not a vicinity map, nor is it a copy of the USGS map with the site outlined. ‘The project map’ is, for example: 1) the tentative tract map, 2) the tentative parcel map, 3) the conditional use permit (site plan), 4) the Planned Unit Development (site plan), and so forth. ‘The project map’ is required to be included within (and made part of) the biological survey report.”

In addition to the maps produced by CMBC, two maps produced by Merrell Johnson, Inc. for the Proponent are included in the following pages.

Proposed Project Narrative Description

“The ‘narrative project description’ for all biological reports shall include (at a minimum) and not be limited to: a) identification of the project (i.e., Tentative Tract Map #, Tentative Parcel Map #, Conditional Use Permit #, Planned Development #, etc.), b) the number of proposed lots (for tentative tract maps and tentative parcel maps), c) the amount of square feet (for commercial, industrial and/or institutional uses), d) the mix of uses (and square footage), if it is mixed use development, e) the number of proposed units, if it is an apartment, condominium, or multi-family development, and so forth. An adequate ‘narrative project description’ is required to be included within the biological survey report.”

Again, for this report to be considered complete, it is necessary that the Proponent provide a sufficiently detailed *Project Map* and *Project Narrative Description* at the time this report is submitted to the County. This appendix is intentionally placed at the end of this report to facilitate the Proponent attaching this required information without the need to change page numbers. In addition to the two maps that follow showing the mine site, **the Proponent should also attach Webber and Webber Mining Consultants, Inc. (2014a) to this report for it to be considered complete and satisfy the above requirements.**

