

**APPENDIX C – BIOLOGICAL TECHNICAL REPORT (BTR) FOR THE ENERGY SOURCE
MINERAL PROJECT IMPERIAL COUNTY**

**BIOLOGICAL TECHNICAL REPORT FOR THE
ENERGY SOURCE MINERAL PROJECT
IMPERIAL COUNTY, CALIFORNIA**

Prepared for:

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SECTION 1.0 – INTRODUCTION

Chambers Group, Inc. (Chambers Group) was retained by the County of Imperial to conduct a literature review and reconnaissance-level survey for the development of a commercial lithium hydroxide production plant for the Energy Source Mineral Project (Project). The survey identified vegetation communities, potential for the occurrence of sensitive species, or habitats that could support sensitive wildlife species. Information contained in this Biological Technical Report is in accordance with accepted scientific and technical standards that are consistent with the requirements of United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW).

1.1 PROJECT BACKGROUND

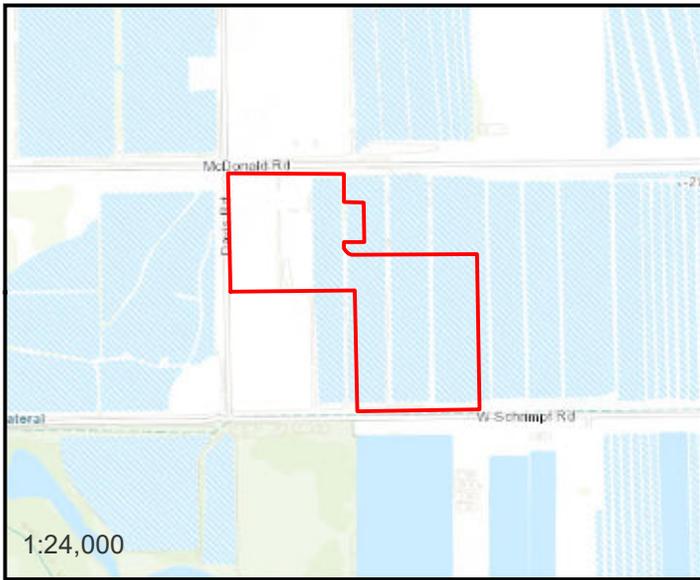
The Project's plant facilities would be built on an approximately 37-acre area that would be subdivided out of the existing 65.12 acres, an additional 15 acres of the Project site located on the northwestern parcel APN 020-100-025, and approximately 40 acres of the Project site located on the southeast parcel APN 020-100-046, for a total of approximately 92 acres. The Project would consist of the following activities:

- Construction and operation of a plant to extract lithium, manganese, zinc, and other commercially viable substances from geothermal brine and process the extracted substances to produce commercial quantities of lithium and, to the extent possible, manganese and zinc products and other products
- Construction and operation of brine supply and return pipelines and other associated interconnection facilities with the HR1 power plant
- Construction of a primary access road from McDonald Road (approximately 500 feet west of the HR 1 entrance) and an emergency access entrance only from Davis Road
- Paving of McDonald Road from State Route (Highway) 111 to English Road (approximately 3 miles)
- Construction of a power interconnection line from the Imperial Irrigation District (IID) and HR1 switchyard located at the northeast corner of the Hudson Ranch Power I (HR1) site
- Construction of associated facilities between HR1 and the Project site to facilitate the movement of brine and other services
- Construction of a laydown yard that will also support temporary offices during construction as well as serve as a truck management yard during operations
- Construction of offices, repair facilities, shipping and receiving facilities, and other infrastructure components.

1.2 PROJECT LOCATION

The Project site is located at 477 West McDonald Road, Calipatria, California, which is approximately 3.8 miles southwest of the community of Niland on three parcels privately owned by HR1 in Imperial County, California. The Project is located within the U.S. Geological Survey (USGS) *Niland*, California 7.5-minute topographic quadrangle. The Project site is partially on the existing HR1 site, while the remainder

of the land has been used for laydown areas, storage areas, and stormwater management. The Project site is surrounded by open, vacant land. To the west of the Project site is IID-owned vacant marsh land adjoining the Salton Sea. To the north of the Project site is vacant land that is mostly used for duck hunting clubs and the location of the production and injection wells for HR1. To the south is vacant land that has never been in any production and is also the site of numerous “mud-pots.” The elevation at the Project site is approximately 225 feet below mean sea level (bmsl). Maps of the Project location and Project vicinity are provided in Figure 1.



 Project Location

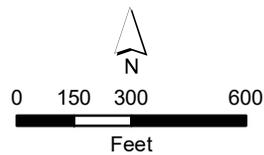


Figure 1
Energy Source Mineral Project
Project Location & Vicinity

SECTION 2.0 – METHODOLOGY

2.1 LITERATURE REVIEW

Prior to performing the field survey, existing documentation relevant to the Project site was reviewed. The most recent records of the California Natural Diversity Database (CNDDDB) managed by CDFW (CDFW 2020), the USFWS Critical Habitat Mapper (USFWS 2020), and the California Native Plant Society's Electronic Inventory (CNPSEI) of Rare and Endangered Vascular Plants of California (CNPS 2020) were reviewed for the following quadrangles containing and surrounding the Project site: *Niland*, *Obsidian Butte*, *Westmorland West*, *Westmorland East*, *West*, *Iris*, *Iris Wash*, *Wister*, and *Frink*, California USGS 7.5-minute quadrangles. These databases contain records of reported occurrences of federally or state listed endangered or threatened species, California Species of Concern (SSC), or otherwise sensitive species or habitats that may occur within or in the immediate vicinity of the Project site.

2.2 SOILS

Before conducting the survey, soil maps for Imperial County were referenced online to determine the soil types found within the Project site. Soils were determined in accordance with categories set forth by the U.S. Department of Agriculture (USDA) Soil Conservation Service and by referencing the USDA Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2020).

2.3 JURISDICTIONAL WATERS

A general assessment of jurisdictional waters regulated by the United States Army Corps of Engineers (USACE), California Regional Water Quality Control Board (RWQCB), and CDFW was conducted for the Project area. Pursuant to Section 404 of the Clean Water Act, USACE regulates the discharge of dredged and/or fill material into waters of the United States. The State of California (State) regulates discharge of material into waters of the State pursuant to Section 401 of the Clean Water Act and the California Porter-Cologne Water Quality Control Act (California Water Code, Division 7, §13000 et seq.). Pursuant to Division 2, Chapter 6, Sections 1600-1602 of the California Fish and Game Code, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake which supports fish or wildlife. The assessment was conducted by a desktop survey through the USGS National Hydrography Dataset for hydrological connectivity.

2.4 BIOLOGICAL RECONNAISSANCE-LEVEL SURVEY

Chambers Group Biologists Heather Franklin and Jessica Calvillo conducted the general reconnaissance survey within the Project site to identify the potential for occurrence of sensitive species, vegetation communities, or habitats that could support sensitive wildlife species. The survey was conducted on foot throughout the Project site between 0930 and 1230 hours on October 30, 2020. Weather conditions during the survey included temperatures ranging from 64 to 79 degrees Fahrenheit, with zero percent cloud cover and no precipitation. Photographs of the Project site were recorded to document existing conditions (Appendix A).

2.4.1 Vegetation

All plant species observed within the Project site were recorded. Vegetation communities within the Project site were identified, qualitatively described, and mapped onto a high-resolution imagery aerial

photograph. Plant communities were determined in accordance with the *Manual of California Vegetation, Second Edition* (Sawyer et al. 2009). Plant nomenclature follows that of *The Jepson Manual* (Baldwin et al. 2012). A comprehensive list of the plant species observed during the survey is provided in Appendix B.

2.4.2 Wildlife

All wildlife and wildlife signs observed and detected, including tracks, scat, carcasses, burrows, excavations, and vocalizations, were recorded. Additional survey time was spent in those habitats most likely to be utilized by wildlife (native vegetation, wildlife trails, etc.) or in habitats with the potential to support state and/or federally listed or otherwise sensitive species. Notes were made on the general habitat types, species observed, and the conditions of the Project site. A comprehensive list of the wildlife species observed during the survey is provided in Appendix C.

SECTION 3.0 – RESULTS

3.1 NATURAL COMMUNITY CONSERVATION PLAN & HABITAT CONSERVATION PLAN

The Project is located within the designated boundaries of the Desert Renewable Energy Community Conservation Plan & Habitat Conservation Plan (NCCP/HCP). However, the Project is not located within or adjacent to an Area of Critical Environmental Concern.

3.2 SOILS

According to the results from the USDA NRCS Web Soil Survey (USDA 2020), the Project Site is located in the Imperial Valley Area, CA683 part of the soil map. One soil type is known to occur within and/or adjacent to the site and is described below.

Imperial Silty Clay complex occurs throughout the Project site. The parent material is clayey alluvium derived from mixed or clayey lacustrine deposits. The available water capacity is classified as moderate (approximately 8.3 inches) with a depth to the water table of more than 80 inches (USDA 2020).

3.3 JURISDICTIONAL WATERS

No jurisdictional water features or wetlands were observed within the Project site. The Project site was uncultivated farmland and portions of the site was previously used for duck ponds for a hunting club (historically flooded seasonally to attract waterfowl for hunting but was abandoned in 2010); and were historically mapped as freshwater ponds (Figure 2). However, according to historic aerials, the area has not been flooded since 2009 and has been void of water for the past 11 years. In addition, the Project site is mostly void of any vegetation, with sparse vegetation occurring throughout the southern portion. One man-made ditch is located in the northwest section of the Project site. The ditch comes off Davis Road, flows east, and empties into a small man-made detention area. The area appears to have been created to facilitate flow from Davis Road during rain events; however, the detention area does not connect to other drainages or canals. In addition, one culvert is located near the southwest section of the site. The culvert appears to direct flow into the site from the south; however, it appears to have been altered to stop flow, as no water was observed flowing into the area during the survey. The IID “N” drain with flowing water is located approximately 40 feet south of the Project site boundary on the north side of Schrimpf Road and is not connected to any water features on the Project Site. The culvert can be avoided during work activities with the use of best management practices (BMPs) including straw wattle and silt fencing. No impacts near the IID “N” drain are anticipated. No construction activities will occur within IID canals, drains, or ditches. Therefore, no impacts to waters of the United States and waters of the State are anticipated to occur as a result of this Project.

3.4 VEGETATION COMMUNITIES

Two vegetation communities, Ruderal and Bare Ground, were observed within the Project site. A map showing the vegetation communities observed within the Project site is provided in Figure 2, and the communities are described in the following subsections.

3.4.1 Ruderal

Areas classified as Ruderal tend to be dominated by pioneering species that readily colonize disturbed ground and that are typically found in temporary, often frequently disturbed habitats (Barbour et al. 1999). The soils in ruderal areas are typically characterized as compacted or frequently disturbed. Often, Ruderal areas are dominated by species of the Tamarix, Brassica, Malva, Salsola, Eremocarpus, Amaranthus, and Atriplex genera.

Ruderal vegetation occurs in the disturbed southern portion of the Project site that was previously used as a duck hunting club. Vegetation found on site typical of this vegetation included scattered iodine bush (*Allenrolfea occidentalis*) with a few scattered Mediterranean tamarisk (*Tamarix ramosissima*).

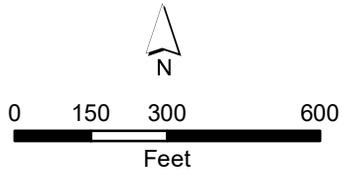
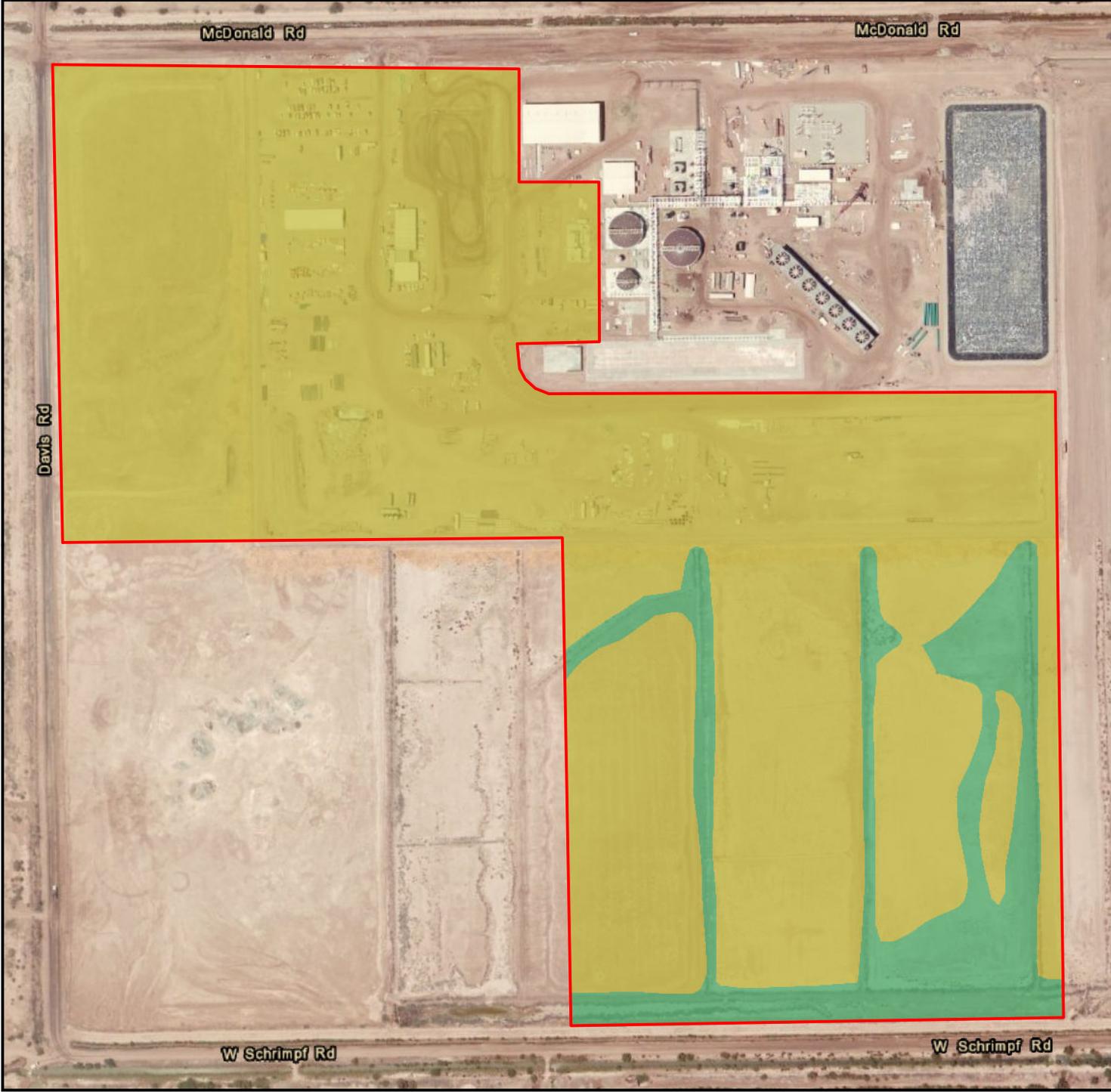
3.4.2 Bare Ground

Bare Ground (BG) areas are generally devoid of vegetation but do not contain any form of pavement. BG has higher water permeability and higher fossorial rodent habitat potential. BG is present throughout the entire Project site with large, uninterrupted expanses in the eastern portion of the Project site. Scattered, dead Mediterranean tamarisk seedlings were the only vegetation observed in these areas.

Figure 3

**Energy Source Mineral Project
Vegetation Communities**

- Project Location
- Vegetation Communities**
- Bare Ground (74.73 acres)
- Ruderal (10.24 acres)



3.5 SENSITIVE SPECIES

The following information is a list of abbreviations used to help determine the significance of biological sensitive resources potentially occurring on the Project site.

Rare Plant Rank (RPR)

- List 1A = Plants presumed extinct in California.
- List 1B = Plants rare and endangered in California and throughout their range.
- List 2 = Plants rare, threatened, or endangered in California but more common elsewhere in their range.
- List 3 = Plants about which we need more information; a review list.
- List 4 = Plants of limited distribution; a watch list.

RPR Extensions

- 0.1 = Seriously endangered in California (greater than 80 percent of occurrences threatened/high degree and immediacy of threat).
- 0.2 = Fairly endangered in California (20-80 percent occurrences threatened).
- 0.3 = Not very endangered in California (less than 20 percent of occurrences threatened).

Federal

- FE = Federally listed; Endangered
- FT = Federally listed; Threatened

State

- ST = State listed; Threatened
- SE = State listed; Endangered
- RARE = State-listed; Rare (Listed "Rare" animals have been re-designated as Threatened, but Rare plants have retained the Rare designation.)
- SSC = State Species of Special Concern

The following information was used to determine the significance of biological resources potentially occurring within the Project site. The criteria used to evaluate the potential for sensitive species to occur on the Project site are outlined in Table 1.

Table 1: Criteria for Evaluating Sensitive Species Potential for Occurrence (PFO)

PFO	CRITERIA
Absent:	Species is restricted to habitats or environmental conditions that do not occur within the Project site. Additionally, if the survey was conducted within the blooming period of the species and appropriate habitat was observed in the surrounding area but the species was not observed within the Project impact area, it was considered absent.
Low:	Historical records for this species do not exist within the immediate vicinity (approximately 5 miles) of the Project site, and/or habitats or environmental conditions needed to support the species are of poor quality.
Moderate:	Either a historical record exists of the species within the immediate vicinity of the Project site (approximately 3 miles) and marginal habitat exists on the Project site, or the habitat requirements or environmental conditions associated with the species occur within the Project site, but no historical records exist within 5 miles of the Project site.
High:	Both a historical record exists of the species within the Project site or its immediate vicinity (approximately 1 mile), and the habitat requirements and environmental conditions associated with the species occur within the Project site.
Present:	Species was detected within the Project site at the time of the survey.

* PFO: Potential for Occurrence

3.5.1 Sensitive Plants

Factors used to determine the potential for occurrence included the quality of habitat, elevation, and the results of the reconnaissance survey. In addition, the location of prior CNDDDB records of occurrence were used as additional data; but since the CNDDDB is a positive-sighting database, this data was used only in support of the analysis from the previously identified factors.

Current database searches (CDFW 2020; CNPSEI 2020) resulted in a list of seven federally and/or state listed threatened and endangered or rare sensitive plant species that may potentially occur within the Project site (Figure 4). After the literature review and the reconnaissance-level survey, it was determined that all seven of these species are considered Absent from the Project site due to lack of suitable habitat.

The following seven plant species are considered **Absent** from the Project site due to lack of suitable habitat:

- Harwood's milk-vetch (*Astragalus insularis* var. *harwoodii*) - CRPR 2B.2
- gravel milk-vetch (*Astragalus sabulonum*) – CRPR 2B.2
- Munz's cholla (*Cylindropuntia munzii*) – CRPR 1B.3
- glandular ditaxis (*Ditaxis claryana*) – CRPR 2B.2
- Orocopia sage (*Salvia greatae*) – CRPR 1B.3
- chaparral sand-verbena (*Abronia villosa* var. *aurita*) – CRPR 1B.2
- Abram's spurge (*Chamaesyce abramisiana*) –CRPR 2

3.5.2 Sensitive Wildlife

A current database search (CDFW 2020) resulted in a list of 27 federally and/or state listed endangered or threatened, Species of Concern, or otherwise sensitive wildlife species that may potentially occur within

the Project site (Figure 4). After a literature review and the assessment of the various habitat types within the Project site, it was determined that 26 sensitive wildlife species were considered absent from the Project site, and one species was present within the Project site. Factors used to determine potential for occurrence included the quality of habitat and the location of prior CNDDDB records of occurrence.

The following 26 wildlife species are considered **absent** from the Project site due to lack of suitable habitat present on the Project site:

- American badger (*Taxidea taxus*)- SSC
- black skimmer (*Rynchops niger*) – SSC
- California black rail (*Laterallus jamaicensis coturniculus*) – **ST**
- Couch's spadefoot (*Scaphiopus couchii*) – SSC
- Crissal thrasher (*Toxostoma crissale*) – SSC
- desert pupfish (*Cyprinodon macularius*) – **FE, SE**
- desert tortoise (*Gopherus agassizii*)- **FT, ST**
- flat-tailed horned lizard (*Phrynosoma mcallii*) -- SSC
- gull-billed tern (*Gelochelidon nilotica*) – SSC
- Le Conte's thrasher (*Toxostoma lecontei*) – SSC
- loggerhead shrike (*Lanius ludovicianus*) – SSC
- lowland leopard frog (*Lithobates yavapaiensis*) – SSC
- mountain plover (*Charadrius montanus*) – SSC
- pallid bat (*Antrozous pallidus*)- SSC
- pocketed free-tailed bat (*Nyctinomops femorosaccus*)- SSC
- short-eared owl (*Asio flammeus*) – SSC
- razorback sucker (*Xyrauchen texanus*) – **FE, SE**
- Sonoran Desert toad (*Incilius alvarius*) – SSC
- southwestern willow flycatcher (*Empidonax traillii extimus*)- **FE, SE**
- western snowy plover (*Charadrius alexandrinus nivosus*) – **FE, SSC**
- western mastiff bat (*Eumops perotis californicus*) - SSC
- western yellow bat (*Lasiurus xanthinus*) – SSC
- yellow warbler (*Setophaga petechia*) – SSC
- yellow-breasted chat (*Icteria virens*) – SSC
- Yuma hispid cotton rat (*Sigmodon hispidus eremicus*) – SSC
- Yuma Ridgway's rail (*Rallus obsoletus yumanensis*) – **FE, ST**

One species, the burrowing owl (*Athene cunicularia*; SSC), was **present** within and directly adjacent to the Project site during the survey. In addition, this species has been recorded to nest within and surrounding the Project site.

Burrowing owl- SSC

The burrowing owl (BUOW) is a California Species of Special Concern. The burrowing owl breeds in open plains from western Canada and the western United States, Mexico through Central America, and into South America to Argentina (Klute et al. 2003). This species inhabits dry, open, native or non-native grasslands, deserts, and other arid environments with low-growing and low-density vegetation (Ehrlich et al. 1988). It may occupy golf courses, cemeteries, road rights-of way, airstrips, abandoned buildings, irrigation ditches, and vacant lots with holes or cracks suitable for use as burrows (TLMA 2006). Burrowing owls typically use burrows made by mammals such as

California ground squirrels (*Otospermophilus beecheyi*), foxes, or badgers (Trulio 1997). When burrows are scarce, the burrowing owl may use man-made structures such as openings beneath cement or asphalt pavement, pipes, culverts, and nest boxes (TLMA 2006). Ten artificial burrows are located within 150 feet of the southwest Project boundary. During the survey, several burrowing owls were observed utilizing these artificial burrows (Figure 5). In addition, one owl was observed foraging within the Project site, northeast of the artificial burrows (Figure 5).

3.6 GENERAL PLANTS

No sensitive plant species were observed during the survey effort. A complete list of plants observed is provided in Appendix B.

3.7 GENERAL WILDLIFE

A total of 12 wildlife species were observed during the survey. Wildlife species observed or detected during the site survey were characteristic of the existing Project site conditions. A complete list of wildlife observed is provided in Appendix C.

Figure 4
Energy Source Mineral Project
CNDDB Occurrences

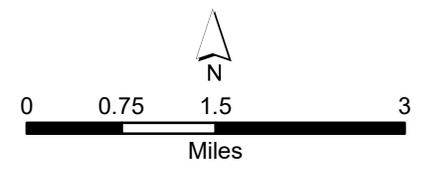
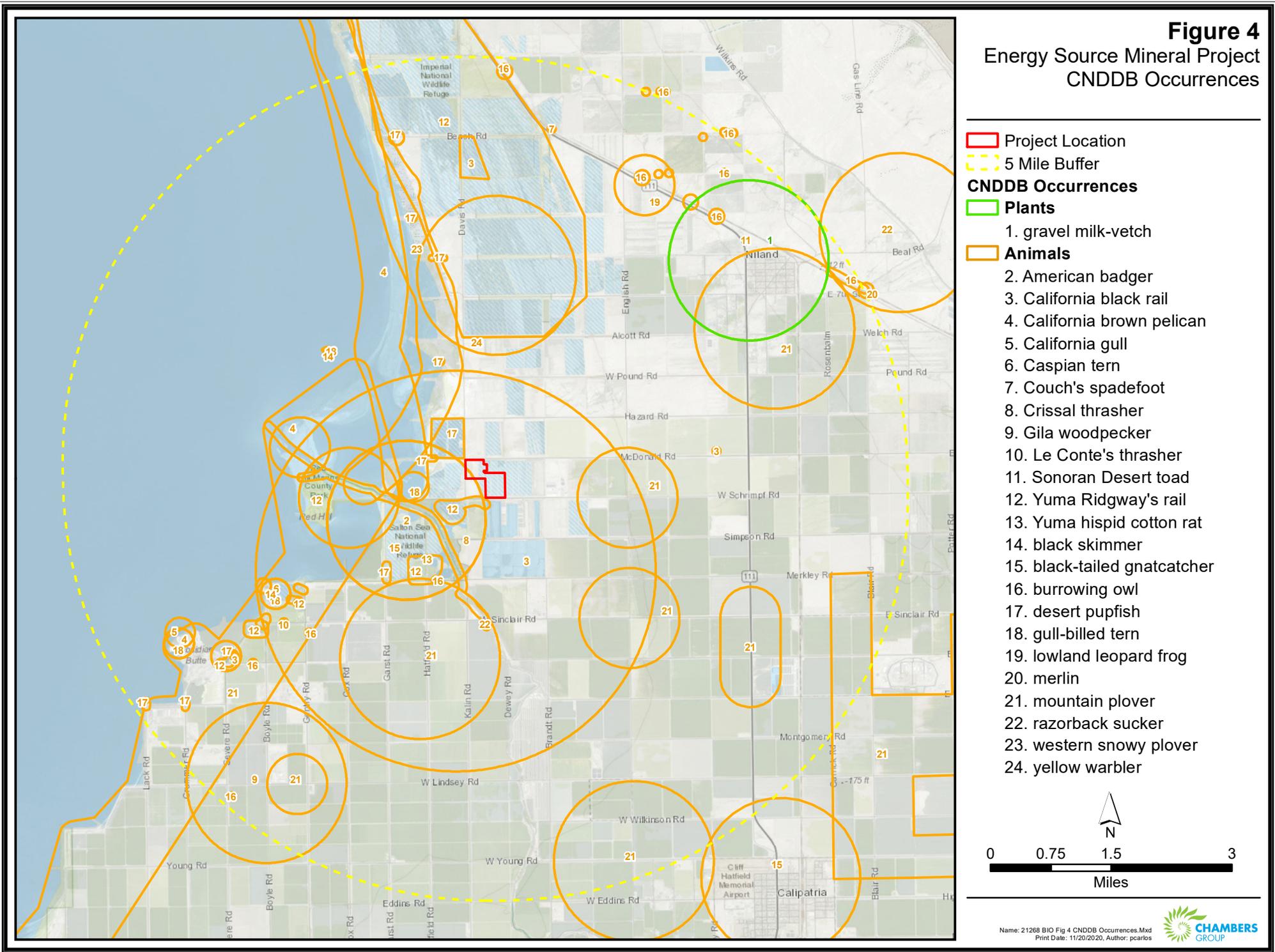
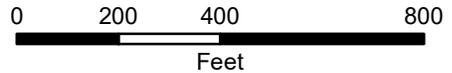


Figure 5

**Energy Source Mineral Project
Burrowing Owl Occurrences**

- Project Location
- Species Occurrences**
- ⚡ Burrowing Owl



SECTION 4.0 – CONCLUSIONS AND RECOMMENDATIONS

4.1 SENSITIVE PLANTS

After the literature review, the assessment of the various habitat types in the Project site, and the reconnaissance survey were conducted, it was determined that no rare plant species have a potential to occur within the Project site.

4.2 SENSITIVE WILDLIFE

Of the 27 sensitive wildlife species identified in the literature review, it was determined that 26 sensitive wildlife species were considered absent from the Project site, and one was present within the Project site.

Approximately 10 artificial burrowing owl burrows are located within 130 feet west of the Project boundary. These burrows were installed as mitigation for other projects within the surrounding area. Several burrowing owl were observed utilizing the artificial burrows during the survey. In addition, one individual was observed foraging within the southwest portion of the Project site. The artificial burrows are outside the Project boundary and will be avoided during construction activities.

In order to minimize potential impacts to burrowing owl, the following mitigation measures outlined in the 2010 Hudson Ranch II Environmental Impact Report (EIR; County of Imperial 2012) should be implemented prior to and during construction activities:

- MM BIO 1.1-1: Occupied burrows on site will be avoided during nesting season (February 1 – August 31).
- MM BIO 1.1-2: A preconstruction survey will be conducted within 30 days of ground-breaking activities.
- MM BIO 1.1-3: If burrowing owls are found within the Project site, a Burrowing Owl Mitigation Plan must be prepared by a qualified biologist and approved by CDFW.
- MM BIO 1.1-4: No construction will occur within 250 feet of the artificial burrows or other active or occupied burrows unless active or occupied burrows are sheltered with hay bales and monitored by a qualified biologist; if this is done, work may occur within 20 feet of active or occupied burrows. If qualified biologists observe BUOW agitation, work in the vicinity will stop. Additional shelter materials can be added until BUOW remain calm during construction activities.
- MM BIO 1.1-5: If passive relocation is required, it will be done from September 1 to January 31 and will follow the CDFW Staff Report on Burrowing Owl Mitigation Guidelines (CDFW 2012)

4.3 JURISDICTIONAL WATERS

No jurisdictional water features or wetlands were observed within the Project site. No impacts to jurisdictional waters/wetlands are anticipated; therefore, a USACE 404 permit, State 401 certification, or State Streambed Alteration Agreement will not be required for Project authorization.

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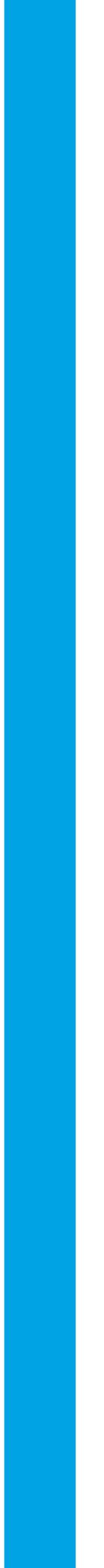
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APPENDIX A – SITE PHOTOGRAPHS



APPENDIX A – SITE PHOTOGRAPHS



Photo 1.
Overview of
the Project site
from the
eastern
boundary,
facing
northwest.



Photo 2.
Overview of
the Project site
from the
northwest
section of the
site near the
Davis Road and
McDonald
Road
intersection,
facing
southeast.



Photo 3.
Overview of the Project site from the southwestern corner, adjacent to Schrimpf Road, facing northeast.



Photo 4.
Photo showing the iodine bush scrub occurring throughout the southern portion of the Project site. Photo is facing northeast.



Photo 5.
Man-made ditch created off Davis Road in the northwest section of the Project site. The ditch flows from the road into a man-made detention area where it terminates. Photo facing east.



Photo 6.
Small, man-made detention area at the east of the man-made ditch. Photo facing north.



Photo 7.
Culvert located
at the southern
boundary,
parallel to
Schrimpf Road,
facing west.



Photo 8.
Overview
within the
Project site
with the
existing
Hudson Ranch I
in the
background,
facing
northwest.



Photo 9.
Photo showing berms located in the southern portion of the Project site. This area provides suitable habitat for burrowing owl. Photo is facing north.

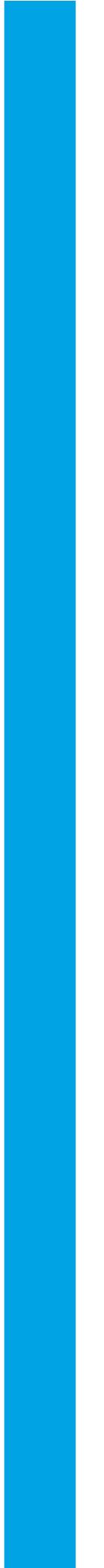


Photo 10.
Artificial pipe burrows and surrounding habitat located 130 feet west of the western Project boundary (outside the Project site). Photo is facing south.



Photo 11.
Artificial
burrows,
showing
occupied
burrow,
located 130
feet outside
the
southwestern
Project
boundary.
Photo is facing
south.

APPENDIX B – PLANT SPECIES LIST



APPENDIX B – PLANT SPECIES LIST

Scientific Name	Common Name
ANGIOSPERMS (EUDICOTS)	
CHENOPODIACEAE	GOOSEFOOT FAMILY
<i>Allenrolfea occidentalis</i>	iodine bush
TAMARICACEAE	TAMARISK FAMILY
<i>Tamarix ramosissima</i> *	Mediterranean tamarisk
*Non-Native Species	

APPENDIX C – WILDLIFE SPECIES LIST



APPENDIX C – WILDLIFE SPECIES LIST

Scientific Name	Common Name
CLASS REPTILIA	REPTILES
PHRYNOSOMATIDAE	ZEBRA-TAILED, EARLESS, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, AND HORNED LIZARDS
<i>Sceloporus occidentalis</i>	western fence lizard
CLASS AVES	BIRDS
ARDEIDAE	HERONS, BITTERNS
<i>Egretta thula</i>	snowy egret
<i>Ardea herodias</i>	great blue heron
CATHARTIDAE	NEW WORLD VULTURES
<i>Cathartes aura</i>	turkey vulture
ACCIPITRIDAE	HAWKS, KITES, EAGLES
<i>Buteo jamaicensis</i>	red-tailed hawk
COLUMBIDAE	PIGEONS & DOVES
<i>Streptopelia decaocto</i>	Eurasian collared-dove
<i>Zenaida macroura</i>	mourning dove
STRIGIDAE	TRUE OWLS
<i>Athene cunicularia</i>	burrowing owl
TYRANNIDAE	TYRANT FLYCATCHERS
<i>Sayornis nigricans</i>	black phoebe
MIMIDAE	MOCKINGBIRDS, THRASHERS
<i>Mimus polyglottos</i>	northern mockingbird
ICTERIDAE	BLACKBIRDS
<i>Quiscalus mexicanus</i>	great-tailed grackle
FRINGILLIDAE	FINCHES
<i>Haemorhous mexicanus</i>	house finch