Hernandez Environmental Services

GENERAL BIOLOGICAL ASSESSMENT
FOR
ASSESSOR'S PARCEL NUMBERS
0281-301-17, 20, 21, 0281-311-06, 07, 08, 11, 12, 18, AND 19

CITY OF SAN BERNARDINO, SAN BERNARDINO COUNTY, CALIFORNIA

Prepared for:

EPD Solutions, Inc.
2355 Main Street, Suite 100
Irvine CA 92614

Prepared by:

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, California 92530
(909) 772-9009

NOVEMBER 2021
(Updated July 2023)

TABLE OF CONTENTS

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, CA 92530

FIGURES

APPENDICES

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, CA 92530

1.0 Introduction

Hernandez Environmental Services (HES) was retained by EPD Solutions, Inc. to perform a General Biological Assessment (GBA) on an approximately 7.67-acre site comprised of Assessor's Parcel Numbers (APNs) 0281-301-17, 20, 21, 0281-311-06, 07, 08, 11, 12, 18, and 19. The purpose of the GBA is to document the presence/absence of sensitive resources that may be present on the site, to document existing habitats, and generally address biological questions that may be needed for project approval. This GBA will present the results obtained from the field survey and will provide recommendations that may be needed to mitigate potential biological impacts from project activities.

1.1 Project Location

The proposed project site is located north of East Brier Drive, south of Southern California Regional Rail A, east of South Gilford Avenue, and west of South Tippecanoe Avenue within the City of San Bernardino, San Bernardino County, California (Figures 1 and 2, *Location Map* and *Vicinity Map*). Specifically, the project site is located within the San Bernardino land grant of the *San Bernardino South* United States Geological Survey (USGS) 7.5-minute topographic quadrangle. The project site center point latitude and longitude are 34°04'20.3714" North and 117°15'51.2794" West.

1.2 Project Description

The proposed project consists of the construction of five new facilities for business commercial use and associated features, including parking lots, landscaping, and bioretention basins (Figure 3, *Project Plans*). The proposed development is expected to impact the entire 7.67 acres.

2.0 Methodology

2.1 Literature Review

HES conducted a literature review and reviewed aerial photographs and topographic maps of the project location and surrounding areas. The following USGS quads were used to query the California Natural Diversity Database (CNDDB): *San Bernardino South, Fontana, Devore, San Bernardino North, Harrison Mtn, Redlands, Sunnymead, Riverside East,* and *Riverside West*. The United States Fish and Wildlife Service (USFWS) County Endangered Species Lists and California Native Plant Society (CNPS) Rare Plant Inventory were reviewed to obtain species information for the project area.

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, CA 92530

2.2 Field Survey

On November 5, 2021, HES conducted a field survey of the approximate 7.67-acre project site. Ambient temperature at 8:50 A.M. was 61° Fahrenheit, 5 percent cloud cover, with winds ranging from 0 to 1 mile per hour from the west. The purpose of the field survey was to document the existing habitat conditions, obtain plant and animal species information, view the surrounding uses, assess the potential for state and federal waters, assess the potential for wildlife movement corridors, and assess for the presence of critical habitat constituent elements.

The entire 7.67-acre project site was surveyed. Linear transects approximately 50 feet apart were walked for 100 percent coverage. All species observed were recorded and Global Positioning System (GPS) way points were taken to delineate specific habitat types, species locations, state or federal waters, or any other information that would be useful for the assessment of the project site. A comprehensive list of all plant and wildlife species that were detected during the field survey within the project site is included in Appendix A, *Observed Species List*. Sensitive plant and wildlife species with the potential to occur within the project area are listed in Appendix B, *Potential Species List*. Representative site photographs were taken and are included within Appendix C, *Site Photographs*.

3.0 Results

3.1 Environmental Setting

The project site consists predominantly of ruderal land characterized by sparse vegetation. The project site is bordered by commercial and industrial development in all directions, including adjacent parking lots and a railroad. The project site is split into three individual areas with East Hardt Street in the middle, but not included within property boundaries. The site is flat with elevations ranging from 1,046 feet above mean sea level (AMSL) to 1,053 feet AMSL.

3.2 Soils

According to the USDA Web Soil Survey, soil at the project site is classified as Grangeville fine sandy loam (Gs), saline-alkali (Appendix D, *Soils Map*).

3.3 Habitat Communities

The predominant habitat type within project boundaries is ruderal (Figure 4, *Habitat Map*). Following is a description of this habitat type:

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, CA 92530

Ruderal
Approximately 7.67 acres of ruderal habitat occur within the project site. This habitat is characterized by the growth of new vegetation on recently disturbed land and a sparse shrub layer. Species found in this habitat are flat-spine burr ragweed (*Ambrosia acanthicarpa*), jimsonweed (*Datura stramonium*), common sunflower (*Helianthus annuus*), telegraphweed (*Heterotheca grandiflora*), and puncture vine (*Tribulus terrestris*).

3.4 Sensitive Biological Resources

A total of 56 sensitive species of plants and 65 sensitive species of animals has the potential to occur on or within the vicinity of the project location. These include those species listed or candidates for listing by the U. S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW) and California Native Plant Society (CNPS) and Bureau of Land Management (BLM). All habitats utilized by these species was evaluated during the site visit and a determination has been made for the presence or probability of presence in this report. This section will address those species listed as Candidate, Rare, Threatened, or Endangered under the state and federal endangered species laws or directed to be evaluated under other state, county, or municipal regulations. Other special status species will be reported in Appendix B, *Potential Species List*.

3.4.1 Special Status Plants

Fourteen plant species are listed as state and/or federally Threatened, Endangered, Candidate, Rare, or as 1B.1 in the CNPS Rare Plan Inventory. The following is a description of these species:

San Diego ambrosia
San Diego ambrosia (*Ambrosia pumila*) is a federally Endangered Species and ranked 1B.1 in the CNPS Rare Plant Inventory. Its habitat includes wetlands in chaparral, coastal sage scrub, valley and foothill grassland. It is commonly found in sandy loam or clay soil and sometimes in alkaline soils. This species persists where disturbance has been superficial. It is also sometimes found on margins or near vernal pools. No habitat for this species is present on the project site. **This species is not present.**

Marsh sandwort
Marsh sandwort (*Arenaria paludicola*) is a federally and state listed Endangered Species and ranked 1B.1 in the CNPS Rare Plant Inventory. It is found in freshwater marsh, wetland, and marsh and swamp habitats. No habitat for this species is present on the project site. **This species is not present.**

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, CA 92530

Horn's milk-vetch
Horn's milk-vetch (*Astragalus hornii var. hornii*) is ranked 1B.1 in the CNPS Rare Plant Inventory. It is typically found in alkali playa, meadow, seep, and wetland habitats. No habitat for this species is present on the project site. **This species is not present.**

Nevin's barberry
Nevin's barberry (*Berberis nevinii*) is a federally and state listed Endangered Species and is ranked 1B.1 in the CNPS Rare Plant Inventory. It is typically found on steep, north facing slopes or in low grade sandy washes. Its habitat includes chaparral, cismontane woodland, coastal scrub, and riparian scrub. No habitat for this species is present on the project site. **This species is not present.**

Thread-leaved brodiaea
Thread-leaved brodiaea (*Brodiaea filifolia*) is a federally Threatened and state Endangered Species and is ranked 1B.1 in the CNPS Rare Plant Inventory. This species is usually associated with annual grassland and vernal pools and is often surrounded by shrubland habitats. Its habitats include chaparral, cismontane woodlands, coastal sage scrub, valley and foothill grasslands, vernal pools and wetland. No habitat for this species is present on the project site. **This species is not present.**

Smooth tarplant
Smooth tarplant (*Centromadia pungens ssp. laevis*) is ranked 1B.1 in the CNPS Rare Plant Inventory. Its habitat includes alkali playa, chenopod scrub, meadows and seeps, riparian woodlands, wetlands, and valley and foothill grasslands. It is commonly found in alkali meadow, alkali scrub, and disturbed habitat. Historic data found that this species was observed on the project site in 2003. Focused botanical surveys found approximately 300 individuals, with the majority concentrated in the northern of the three parcels (Appendix E). **This species is present.**

Salt marsh bird's-beak
Salt marsh bird's-beak (*Chloropyron maritimum ssp. maritimum*) is a federally and state listed Endangered Species. This species is limited to the higher zones of salt marsh habitat at elevations of less than ten meters. Its habitat includes coastal dunes, marsh and swamp, salt marsh, and wetland. No habitat for this species is present on the project site. **This species is not present.**

Parry's spineflower
Parry's spineflower (*Chorizanthe parryi var. parryi*) is ranked 1B.1 in the CNPS Rare Plant Inventory. The species occurs in dry, sandy soils on dry slopes and flats, sometimes at the interface of two vegetations types, such as chaparral and oak woodland. Its habitat includes coastal scrub, chaparral, cismontane woodland, valley and foothill grassland. No habitat for this species is

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, CA 92530

present on the project site. **This species is not present.**

Slender-horned spineflower
Slender-horned spineflower (*Dodecahema leptoceras*) is a federally and state listed Endangered Species and is ranked 1B.1 in the CNPS Rare Plant Inventory. This species is typically found near flood deposited terraces and washes. Its habitat includes chaparral, cismontane woodland, and coastal scrub (alluvial fan sage scrub). No habitat for this species is present on the project site. **This species is not present.**

Santa Ana River woollystar
Santa Ana River woollystar (*Eriastrum densifolium ssp. sanctorum*) is a federally and state listed Endangered Species and is ranked 1B.1 in the CNPS Rare Plant Inventory. It is typically found in sandy soils on river floodplains or terraced fluvial deposits. Its habitat includes chaparral and coastal scrub. No habitat for this species is present on the project site. **This species is not present.**

Mesa horkelia
Mesa horkelia (*Horkelia cuneate var. puberula*) is ranked 1B.1 in the CNPS Rare Plant Inventory. It is typically found in sandy or gravelly sites. Its habitat includes chaparral, cismontane woodland, and coastal scrub. No habitat for this species is present on the project site. **This species is not present.**

Coulter's goldfields
Coulter's goldfields (*Lasthenia glabrata ssp.coulteri*) is ranked 1B.1 in the CNPS Rare Plant Inventory. Its habitat includes alkali playas, marsh, swamp, salt marsh, vernal pool, and wetland. It is usually found on alkaline soils in playas, sinks, and grasslands. No habitat for this species is present on the project site. **This species is not present.**

Gambel's water cress
Gambel's water cress (*Nasturtium gambelii*) is a federally listed Endangered Species, a state listed Threatened Species, and is ranked 1B.1 in the CNPS Rare Plant Inventory. It is found in freshwater and brackish marshes at the margins of lakes and along streams, in or just above the water level. Its habitat includes brackish marsh, freshwater marsh, marsh and swamp, and wetland. No habitat for this species is present on the project site. **This species is not present.**

Brand's star phacelia
Brand's star phacelia (*Phacelia stellaris*) is ranked 1B.1 in the CNPS Rare Plant Inventory. Its habitat includes coastal dunes and coastal scrub. No habitat for this species is present on the project site. **This species is not present.**

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, CA 92530

3.4.2 Sensitive Wildlife

A total of nineteen wildlife species are listed as state and/or federal threatened, endangered, or candidate species. Sensitive species which have a potential to occur will also be discussed in this section. All sensitive species within a 5-mile radius of project area were reviewed and a complete list of those species are discussed in in Appendix B, *Potential Species List*.

Tricolored blackbird
Tricolored blackbird (*Agelaius tricolor)* is a state listed Threatened Species and listed by the CDFW as a Species of Special Concern. Its habitat includes freshwater marsh, marsh and swamp, swamp, and wetland. This species is largely endemic to California and is most numerous in and around Central Valley. This species requires open accessible water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony. There is no habitat for this species on the project site. **This species is not present.**

Burrowing owl
Burrowing owl (*Athene cunicularia*) is a CDFW Species of Special Concern. Its habitat includes coastal prairie, coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran Desert scrub, and valley and foothill grassland. This species is typically found in open and dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. It is a subterranean nester and is dependent upon burrowing mammals, most notably the California ground squirrel. The project site was evaluated for its potential to hold suitable burrowing owl habitat. No burrows or suitable habitat were found on site, and there is urban development surrounding the site in all directions. **This species is not present.**

Swainson's hawk
Swainson's hawk (*Buteo swainsoni*) is a state listed Threatened Species. This species favors open grasslands for foraging but also occurs in agricultural settings. It relies on scattered stands of trees near agricultural fields and grasslands for nesting sites. Its habitats include great basin grassland, riparian forest, riparian woodland, and valley and foothill grassland. No habitat for this species is present on the project site. **This species is not present.**

Santa Ana sucker
Santa Ana sucker (*Catostomus santaanae*) is a federally listed Threatened Species. Its habitat includes aquatic and south coast flowing waters. This species prefers sand-rubble-boulder bottoms, cool and clear water, and algae. It is endemic to Los Angeles Basin south coastal streams. No habitat for this species is present on the project site. **This species is not present.**

Southern rubber boa
Southern rubber boa (*Charina umbratica*) is a state Threatened Species. It is known to inhabit a variety of forest habitats from the San Bernardino and San Jacinto Mountains. This species resides near streams or wet meadows and requires loose, moist soil for burrowing. The project site does not contain suitable habitat for this species. **This species is not present.**

Western yellow-billed cuckoo
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) is a federally listed Threatened and state listed Endangered Species. This species typically nests in riparian jungles of willows, often mixed with cottonwoods, with a lower story of blackberry, nettles, or wild grape. It is found in riparian forest habitat. The project site does not contain suitable habitat for this species. **This species is not present.**

San Bernardino kangaroo rat
San Bernardino kangaroo rat (*Dipodomys merriami parvus*) is a federally listed Endangered Species, a state Candidate Endangered Species, and a CDFW Species of Special Concern. It is found in coastal scrub habitat. This species is found in alluvial scrub vegetation on sandy loam substrates, characteristic of alluvial fans and flood plains. It needs early to intermediate seral stages. No habitat for this species is present on the project site. **This species is not present.**

Stephens' kangaroo rat
Stephens' kangaroo rat (*Dipodomys stephensi*) is a federally listed Endangered Species and state listed Threatened Species. This species is found in coastal sage scrub with sparse vegetation cover, and in valley and foothill grasslands. This species prefers buckwheat, chamise, brome grass, and filaree, and will burrow into firm soil. The project site does not contain suitable habitat for this species. **This species is not present.**

Southwestern willow flycatcher
Southwestern willow flycatcher (*Empidonax traillii extimus*) is a federally and state listed Endangered Species. It is found in riparian woodland habitat in southern California. The project site does not contain suitable habitat for this species. **This species is not present.**

Quino checkerspot butterfly
Quino checkerspot butterfly (*Euphydryas editha quino*) is a federally listed Endangered Species. It is found in chaparral and coastal sage scrub. This species requires high densities of food plants, including *Plantago erecta*, *P. insularis*, and *Orthocarpus purpurescens*. The project site does not have suitable habitat for this species. **This species is not present.**

Bald eagle

Bald eagle (*Haliaeetus leucocephalus*) is a state listed Endangered Species and CDFW Fully Protected Species. This species is found in lower montane coniferous forest and old-growth. They nest in large old-growth or tress with open branches, especially ponderosa pine. The project site does not contain suitable habitat for this species. **This species is not present.**

California black rail

California black rail (*Laterallus jamaicensis coturniculus*) is a state listed Threatened Species and a CDFW Fully Protected Species. It inhabits freshwater marshes, wet meadows, and shallow margins of saltwater marshes bordering larger bays. This species needs water depths of about one inch that do not fluctuate throughout the year and dense vegetation for nesting habitat. Its habitat includes brackish marsh, freshwater marsh, marsh and swamp, salt marsh, and wetland. No habitat for this species is present on the project site. **This species is not present.**

Steelhead – southern California DPS

Steelhead-southern California DPS (*Oncorhynchus mykiss irideus pop. 10*) is a federally listed Endangered Species. This species is likely to have greater physiological tolerances to warmer water and more variable conditions. Its habitats include aquatic and south coast flowing waters. No habitat for this species is present on the project site. **This species is not present.**

Coastal California gnatcatcher

Coastal California gnatcatcher (*Polioptila californica californica*) is a federally listed Threatened Species and CDFW Species of Special Concern. This species is found in coastal bluff scrub and coastal scrub habitat. This species is typically found in low, coastal sage scrub in arid washes, on mesas and slopes. The project site does not contain suitable habitat for this species. **This species is not present.**

California red-legged frog

California red-legged frog (*Rana draytonii*) is a federally listed Threatened Species and a CDFW Species of Special Concern. Its habitat includes aquatic, artificial flowing waters, artificial standing waters, freshwater marsh, marsh and swamp, riparian forest, riparian scrub, riparian woodland, Sacramento, and San Joaquin flowing and standing waters, and south coast. It requires 11 to 20 weeks for larval development and must have access to estivation habitat. It is commonly found in lowlands and foothills, in or near permanent sources of deep water, with dense, shrubby, or emergent riparian vegetation. The project site does not contain suitable habitat for this species. **This species is not present.**

Southern mountain yellow-legged frog
Southern mountain yellow-legged frog (*Rana muscosa*) is a federally and state listed Endangered Species and a CDFW Watch List Species. It is found in aquatic habitat. This species is always encountered within a few feet of water. Tadpoles may require two to four years to complete their aquatic development. The project site does not contain suitable habitat for this species. **This species is not present.**

Dehli Sands flower-loving fly
Delhi Sands flower-loving fly (*Rhaphiomidas terminates abdominalis*) is a federally listed Endangered Species. It requires fine, sandy soils, often with wholly or partly consolidated dunes and sparse vegetation. It is found only in areas of the Delhi Sands formation in southwestern San Bernardino and northwestern Riverside counties. This species is found in interior dune habitat. The project site does not contain suitable habitat for this species. **This species is not present.**

Riverside fairy shrimp
Riverside fairy shrimp (*Streptocephalus woottoni*) is a federally listed Endangered Species. This species is found in coastal scrub, valley and foothill grassland, vernal pool, and wetland habitat. This species typically inhabits seasonally astatic pools filled by winter/spring rains. It is endemic to Western Riverside, Orange, and San Diego counties in areas of tectonic swales, or earth slump basins in grassland and coastal sage scrub habitat. The project site does not contain suitable habitat for this species. **This species is not present.**

Least Bell's vireo
Least Bell's vireo (*Vireo bellii pusillus)* is a federally and state listed Endangered Species. This species is found in riparian forest, riparian scrub, and riparian woodland. Nesting habitat of this species is restricted to willow and/or mulefat dominated riparian scrub along permanent or nearly permanent streams. The project site does not contain suitable habitat for this species. **This species is not present.**

3.5 Critical Habitat

The proposed project site is not located within any designated federal critical habitat. The closest federal critical habitat is San Bernardino kangaroo rat critical habitat located 0.23 miles north of the project site within the Santa Ana River. The San Bernardino kangaroo rat inhabits alluvial coastal scrub vegetation. No suitable habitat is present on the project site.

3.6 Migratory Nesting Birds

Migratory non-game native bird species are protected under the federal Migratory Bird Treaty Act.

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, CA 92530

Additionally, Sections 3503, 3503.5, and 3513 of the California Fish and Game Code prohibit take of all birds and their active nests. The study area has shrubs that can be used by nesting songbirds during the nesting bird season of February 1 to September 15.

3.7 Wildlife Movement Corridors

Wildlife movement corridors link together areas of suitable habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbances. The project site was evaluated for its function as a wildlife corridor that species would use to move between wildlife habitat zones. Usually, mountain canyons or riparian corridors are used by wildlife as corridors. The project site is flat and surrounded by urban development. No wildlife movement corridors were found to be present on the project site.

3.8 Other City, County, Regional, State, or Federal Conservation Plans

The proposed project would not be anticipated to conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

3.9 Jurisdictional Waters

The project area does not contain any state or federal jurisdictional drainages.

4.0 Project Impacts

4.1 Impacts to Habitat Types

The proposed project will impact the entire 7.67-acre site consisting of ruderal habitat.

4.2 Impacts to Sensitive Species

Onsite habitat is primarily ruderal with sparse non-native vegetation. No habitat for sensitive species occurs within project boundaries; therefore, impacts to sensitive plant or wildlife species are not expected to occur.

Smooth tarplant, a CNPS ranked 1.B1 species, was documented on the project site during focused surveys. Smooth tarplant is not state or federally listed as Threatened or Endangered. There are no City or regional protections, policies, or removal requirements for this species: therefore, mitigation for impacts to this species would not be required.

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, CA 92530

4.3 Impacts to Critical Habitat

The proposed project site is not located within any designated federal critical habitat. The closest federal critical habitat is San Bernardino kangaroo rat critical habitat located 0.23 miles north of the project site within the Santa Ana River. No impacts to federal critical habitat are expected to occur.

4.4 Impacts to Migratory Nesting Birds

Migratory nongame native bird species are protected under the federal Migratory Bird Treaty Act. Additionally, Sections 3503, 3503.5 and 3513 of the California Fish and Game Code prohibit take of all birds and their active nests. If vegetation removal and other ground disturbance activities can be conducted outside of the recognized nesting bird season (February 15 through September 15), impacts to nesting birds is not expected.

If work cannot be avoided during the nesting bird season, prior to initiation of project activities that would remove vegetation or otherwise disturb nesting activity (for instance, mobilization of heavy equipment), work associated with project activities have the potential to impact nesting birds.

4.5 Impacts to Jurisdictional Waters

No jurisdictional waters are present on the project site. Therefore, no impacts to state or federal jurisdictional waters are expected to occur.

5.0 Recommendations

Based upon the findings of this report, it is recommended that the following measures be implemented as part of the project to avoid and/or minimize anticipated impacts from project activities:

<u>Nesting Birds</u>

- If ground disturbing and vegetation clearing activities cannot be avoided during the nesting bird season (February 15 through September 15), a qualified biologist should conduct a pre-construction nesting bird survey within all areas of breeding/nesting habitat within and adjacent to the project site prior to initiation of project activities that would remove vegetation or otherwise disturb nesting activity (for instance, mobilization of heavy equipment). Surveys should be conducted not more than 3 days prior to initiation of activities.

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, CA 92530

- If nesting birds are encountered, a qualified biologist will establish an avoidance buffer zone around the nest (buffer zones vary according to species involved and shall be determined by the qualified biologist). No activities that would adversely affect the nest shall occur within the buffer zone until the qualified biologist has determined the nest is no longer active and the young are no longer dependent on the nest.

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, CA 92530

6.0 CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Date 07-15-2023 Signed _____

PROJECT MANAGER

Fieldwork Performed By:

Sarah Vasquez

ASSOCIATE BIOLOGIST

Elizabeth Gonzalez

ASSOCIATE BIOLOGIST

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, CA 92530

7.0 REFERENCES

American Ornithologists' Union. 1983 (and supplements 1985, 1987, 1989, 1991, 1993, and 1995). *The A.O.U. Check-List of North American Birds.* 6th ed. Allen Press. Lawrence, Kansas.

Burt, W.H., and Grossenheider, R.P., 1980. *Peterson Field Guides, Mammals.* Houghton Mifflin Company. New York, New York.

CDFG (California Department of Fish and Game). 1988a. *California's wildlife, Volume I: Amphibians and Reptiles.* State of California Resources Agency. Sacramento, California.

CDFG (California Department of Fish and Game). 1988b. *California's Wildlife, Volume II: Birds.* State of California's Resource Agency. Sacramento, California.

CDFG (California Department of Fish and Game). 1988c. *California's Wildlife, Volume III: Mammals*. State of California Resources Agency. Sacramento, California.

CDFG (California Department of Fish and Game). 2014 (October). *Natural Communities List.* The Resources Agency of California, Department of Fish and Game, Natural Diversity Data Base. Sacramento, California.

CDFG (California Department of Fish and Game). 2014 (October*). Endangered and Threatened Animals List.* The Resources Agency of California, Department of Fish and Game, Natural Diversity Data Base. Sacramento, California.

CDFG (California Department of Fish and Game). 2014 (October). *Endangered Threatened and Rare Plants.* The Resources Agency of California, Department of Fish and Game, Natural Diversity Data Base. Sacramento, California.

CDFG (California Department of Fish and Game). 2014 (October). *Special Animals List* . The Resources Agency of California, Department of Fish and Game, Natural Diversity Data Base. Sacramento, California.

CDFG (California Department of Fish and Game). 2015. RareFind On-line program. Data Base Record Search for Information on Threatened, Endangered, Rare, or Otherwise Sensitive Species California Department of Fish and Game, State of California Resources Agency. Sacramento,

California.

CDFW (California Department of Fish and Wildlife). 2018. *CNDDB MGS Data. The Conservation Strategy for the Mohave Ground Squirrel*. The Resources Agency of California, Department of Fish and Wildlife, Natural Diversity Data Base. Sacramento, California.

Department of the Army. 1986 (Nov 13). 33 CFR Parts 320 Through 330, Regulatory Programs of the Corps of Engineers; Final Rule. Federal Register 51(219):41206-41206.

Department of the Army. 2000 (Mar 9). 33 CFR Parts 320 Through 330, Regulatory Programs of the Corps of Engineers; Final Rule. Federal Register 65(47):12818-12899.

Department of the Army. 2002 (Jan 15). 33 CFR Parts 320 Through 330, Regulatory Programs of the Corps of Engineers; Final Rule. Federal Register 67(10):20020-2095.

Hickman, J.C. 1993. The *Jepson Manual: Higher Plants of California*. University of California Press. Berkeley, California.

Holland, R.F. 1986 (updated 1996). *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Non-game Heritage Program. California Department of Fish and Game. Sacramento, California.

Munz, P.A. 1974. *A Flora of Southern California.* University of California Press. Berkeley, California.

Sawyer, J.O. and T. Keeler-Wolf. 1995. *A Manual of California Vegetation*. California Native Plant Society. Sacramento, California.

Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California.* Prepared for California Department of Transportation, California Department of Fish and Game, and Federal Highways Administration.

Stebbins, R.C. 2003. *A Field Guide to Western Reptiles and Amphibians*. 2nd ed. Houghton Mifflin Company. Boston, Massachusetts.

Tibor, D.P. 2001. California *Native Plant Society's Inventory of Rare and Endangered Plants of California*. California Native Plant Society. Special Publication, No. 1, 6th ed.

Udvardy, M.D. 1994. *National Audubon Society Field Guide to North American Birds.* Alfred A. Knopf, Inc. New York, New York.

USFWS (United States Fish and Wildlife Service). 2008. *Draft revised recovery plan for the Mojave population of the desert tortoise (Gopherus agassizii)*. U.S. Fish and Wildlife Service, California and Nevada Region, Sacramento, California. 209 pp.

USFWS (United States Fish and Wildlife Service). 1993 (Sep 30). *Plant Taxa for Listing as Endangered or Threatened Species; Notice of Review*. Federal Register 50 CFR Part 17. U.S. Department of the Interior. Washington, D.C.

USFWS (United States Fish and Wildlife Service). 1994 (Nov 15*). Endangered or Threatened Wildlife and Plants; Animal Candidate Review for Listing as Endangered or Threatened Species.* Federal Register 50 CFR Part 17. U.S. Department of the Interior. Washington, D.C.

USFWS (United States Fish and Wildlife Service). 1997c (Oct. 31*). Endangered or Threatened Wildlife and Plants.* Federal Register 50 CFR Part 17. U.S. Department of the Interior. Washington, D.C.

FIGURES

Figure 1

Location Map
Hardt & Brier
San Bernardino County, California

Legend

Project Site Boundary

N

Figure 2

Vicinity Map
Hardt & Brier
San Bernardino County, California

Legend

Project Site Boundary

LEGAL DESCRIPTION

PARCELS 29 & 30 OF PARCEL MAP NO. 5464
FILED IN SAN BERNARDING COUNTY

APN: 0281-311-17 & 08

ADDRESS: HARDT STREET

USE: SHELL

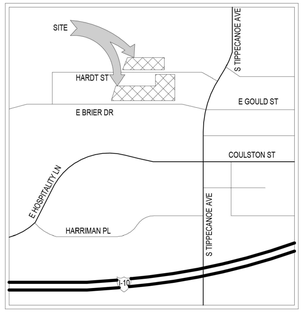
ZONE: TOD CR-3

SITE INFORMATION

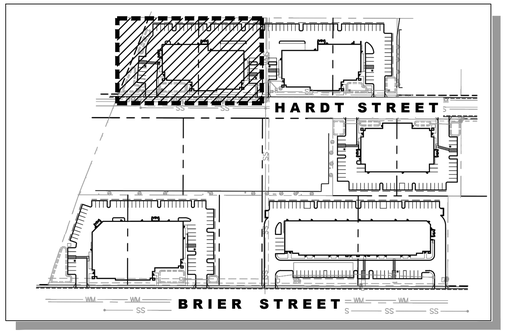
SITE AREA:	54,315 SF	1.25 ACRES
PROPOSED BUILDING COVERAGE:	17,580 SF	32.37 %
PROPOSED LANDSCAPE AREA:	14,206 SF	26.15 %
PROPOSED PAVING AREA:	22,529 SF	41.48 %

TYPE OF DEVELOPMENT: SHELL

VICINITY MAP



KEY MAP



North
NTS

(a) Hydrozone Category	PF- Plant Factor
Very Low Water Use	0.0 - 0.1
Low Water Use*	0.2 - 0.3
Moderate Water Use	0.4 - 0.6
High Water Use	0.7 - 1.0

*Artificial turf and temporarily irrigated areas are considered Low Water Use.

(b) Irrigation Method	(c) IE- Irrigation Efficiency
Filler Pipe for Pools/Spas	1.00
Drip/Subsurface	0.90
Bubblers	0.85
Rotors	0.75
Rotators	0.70
Overhead Spray	0.60

(d)
ETWU (Annual Gallons Required) =
Eto x 0.62 x ETAF x Area

ETo - see Appendix A in Water Efficient Land: **(ETO = 55.1)**
Design Manual.
0.62 is the conversion factor to gallons per sq. ft.
ETAF is Plant Factor/Irrigation Efficiency.
Area is the Landscaped Area for each hydrozone.

(e)
MAWA (Annual Gallons Allowed) =
(ETo)(0.62)[(ETAF x LA) + ((1- ETAF) x SLA)]

LA is the total landscape of all hydrozone areas in sq. ft.
SLA is the total special landscape area in square feet.
ETAF is 0.42 for all areas

WATER EFFICIENT LANDSCAPE WORKSHEET

Building 'A'

REFERENCE EVAPOTRANSPIRATION (ETo)____ 55.1

ETWU (Annual Gallons Required) =
Eto x 0.62 x ETAF x Area

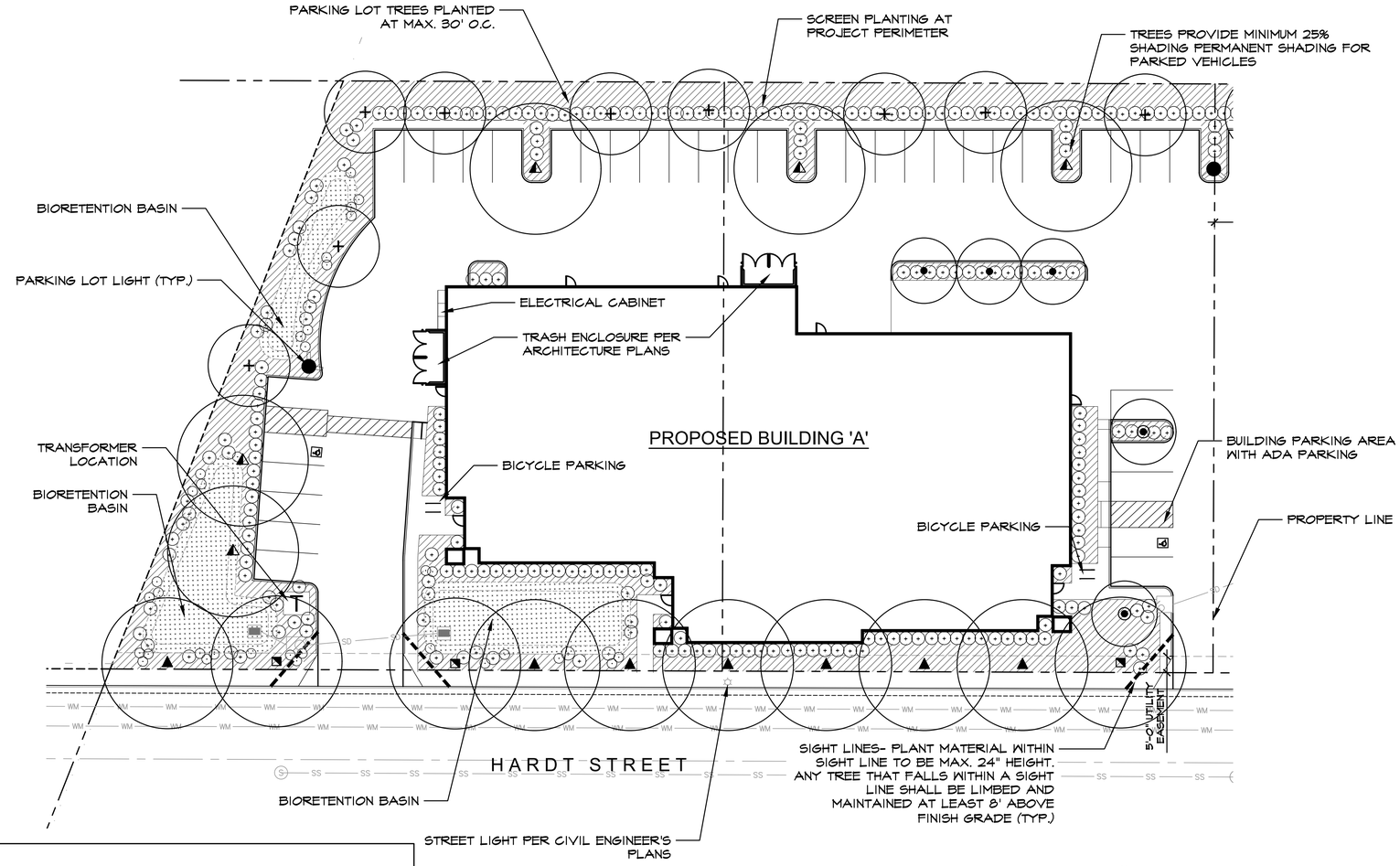
Hydrozone # / Planting **(a)** Description	Plant Factor (PF)	Irrigation **(b)** Method	Irrigation Efficiency **(c)** (IE)	ETAF (PF/IE)	Landscape Area In Square Feet	ETAF x Area	Estimated Total Water Use **(d)** (ETWU)
Regular Landscape Areas							
Trees, Shrubs, GC	0.2	Drip-sub	0.9	0.22	9,427	2,095	71,566
Trees, Shrubs, GC	0.5	Drip-sub	0.9	0.56	1,421	789	26,969
Basin	0.2	Rotors	0.75	0.27	3,358	895	30,591
				Totals	14,206	3,780	129,126
Special Landscape Areas							
						0	0
				Totals	0	0	0
Estimated Total Water Use in Gallons Per Year **(ETWU) Total**							**129,126**
Maximum Annual Water Allowance in Gallons Per Year **(MAWA) Total**							**203,828**
						MAWA - ETWU =	**74,703**
MAWA (Annual Gallons Allowed) =							must be a postitive number
(ETo)(0.62)[(ETAF x LA) + ((1- ETAF) x SLA)]							

****Average Irrigation Efficiency for overall irrigation system shall meet or exceed 0.75 (total of all efficiency ratings divided by number of hydrozones).**

ETAF CALCULATIONS

Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas and 0.45 or below for non-residential areas. ***Provide Totals based on information calculated in Worksheet above.***

Regular Landscape Areas		***Totals***	**All Landscape Areas**		***Totals***
Total ETAF x Area	(B) =	3,780	Total ETAF x Area	(B+D) =	3,780
Total Area	(A) =	14,206	Total Area	(A+C) =	14,206
Average ETAF	**(B) ÷ (A) =**	0.27	**Site wide ETAF**	(B+D) ÷ (A+C) =	0.27



NOTE: PLANT MATERIAL WITHIN SIGHT LINE TO BE MAX. 24" HEIGHT. ANY TREE THAT FALLS WITHIN A SIGHT LINE SHALL BE LIMBED AND MAINTAINED AT LEAST 8' ABOVE FINISH GRADE (TYP.)

PARKING SPACES: 36
24' BOX TREES PROPOSED: 17
RATIO: 1 TREE PER 2.12 SPACES

SEE SHEET 2 FOR PLANTING LEGEND AND NOTES

North

0 10' 20' 60'
Scale 1" = 20'

Underground Service Alert
Call: TOLL FREE
1–800
422–4133
TWO WORKING DAYS BEFORE YOU DIG

rla 2681
HOWARD ASSOCIATES
landscape architecture
1951 Fourth avenue
Suite 302
san diego ca 92101 619 718 9660

MARK	REVISIONS	BY	APPR.	DATE

BENCH MARK:

APPROVED _____ 2007

SENIOR CIVIL ENGINEER _____
REGISTERED CIVIL ENGINEER NO. _____

DRAWN BY:
CHECKED BY:
RECOMMENDED BY:

CITY OF SAN BERNARDINO
DEVELOPMENT SERVICES–PUBLIC WORKS/ENGINEERING

Landscape Concept Plan for:
BUILDING 'A'
San Bernardino Business Park
HARDT ST TO E BRIER DR

DRAWING NO. XXXX

SHEET 1 OF 2 SHEETS

FOR CITY USE ONLY: FILE NO. W.O. NO.

LEGAL DESCRIPTION

PARCELS 31 & 32 OF PARCEL MAP NO. 5464
FILED IN SAN BERNARDING COUNTY

APN: 0281-311-07 & 06

ADDRESS: HARDT STREET

USE: SHELL

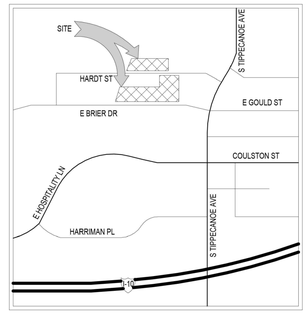
ZONE: TOD CR-3

SITE INFORMATION

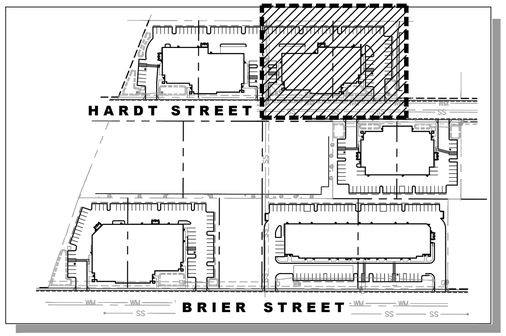
SITE AREA:	56,564 SF	1.30 ACRES
PROPOSED BUILDING COVERAGE:	17,147 SF	30.31 %
PROPOSED LANDSCAPE AREA:	13,704 SF	24.23 %
PROPOSED PAVING AREA:	25,713 SF	45.46 %

TYPE OF DEVELOPMENT: SHELL

VICINITY MAP



KEY MAP



North
NTS

(a) Hydrozone Category	PF- Plant Factor
Very Low Water Use	0.0 - 0.1
Low Water Use*	0.2 - 0.3
Moderate Water Use	0.4 - 0.6
High Water Use	0.7 - 1.0

*Artificial turf and temporarily irrigated areas are considered Low Water Use.

(b) Irrigation Method	(c) IE- Irrigation Efficiency
Filler Pipe for Pools/Spas	1.00
Drip/Subsurface	0.90
Bubblers	0.85
Rotors	0.75
Rotators	0.70
Overhead Spray	0.60

(d)
ETWU (Annual Gallons Required) =
Eto x 0.62 x ETAF x Area

ETo - see Appendix A in Water Efficient Landscape Design Manual. **(ETO = 55.1)**
0.62 is the conversion factor to gallons per sq. ft.
ETAF is Plant Factor/Irrigation Efficiency.
Area is the Landscaped Area for each hydrozone.

(e)
MAWA (Annual Gallons Allowed) =
(ETo)(0.62)[(ETAF x LA) + ((1- ETAF) x SLA)]

LA is the total landscape of all hydrozone areas in sq. ft.
SLA is the total special landscape area in square feet.
ETAF is 0.42 for all areas

WATER EFFICIENT LANDSCAPE WORKSHEET

Building 'B'

REFERENCE EVAPOTRANSPIRATION (ETo)____ 55.1

ETWU (Annual Gallons Required) =
Eto x 0.62 x ETAF x Area

Hydrozone # / Planting **(a)** Description	Plant Factor (PF)	Irrigation **(b)** Method	Irrigation Efficiency **(c)** (IE)	ETAF (PF/IE)	Landscape Area In Square Feet	ETAF x Area	Estimated Total Water Use **(d)** (ETWU)
Regular Landscape Areas							
Trees, Shrubs, GC	0.2	Drip-sub	0.9	0.22	10,425	2,317	79,142
Trees, Shrubs, GC	0.5	Drip-sub	0.9	0.56	1,371	762	26,020
Basin	0.2	Rotors	0.75	0.27	1,908	509	17,382
				Totals	13,704	3,587	122,544
Special Landscape Areas							
						0	0
				Totals	0	0	0
Estimated Total Water Use in Gallons Per Year **(ETWU) Total**							**122,544**
Maximum Annual Water Allowance in Gallons Per Year **(MAWA) Total**							**196,626**
MAWA - ETWU =							**74,082**
MAWA (Annual Gallons Allowed) =							must be a postitive number
(ETo)(0.62)[(ETAF x LA) + ((1- ETAF) x SLA)]							

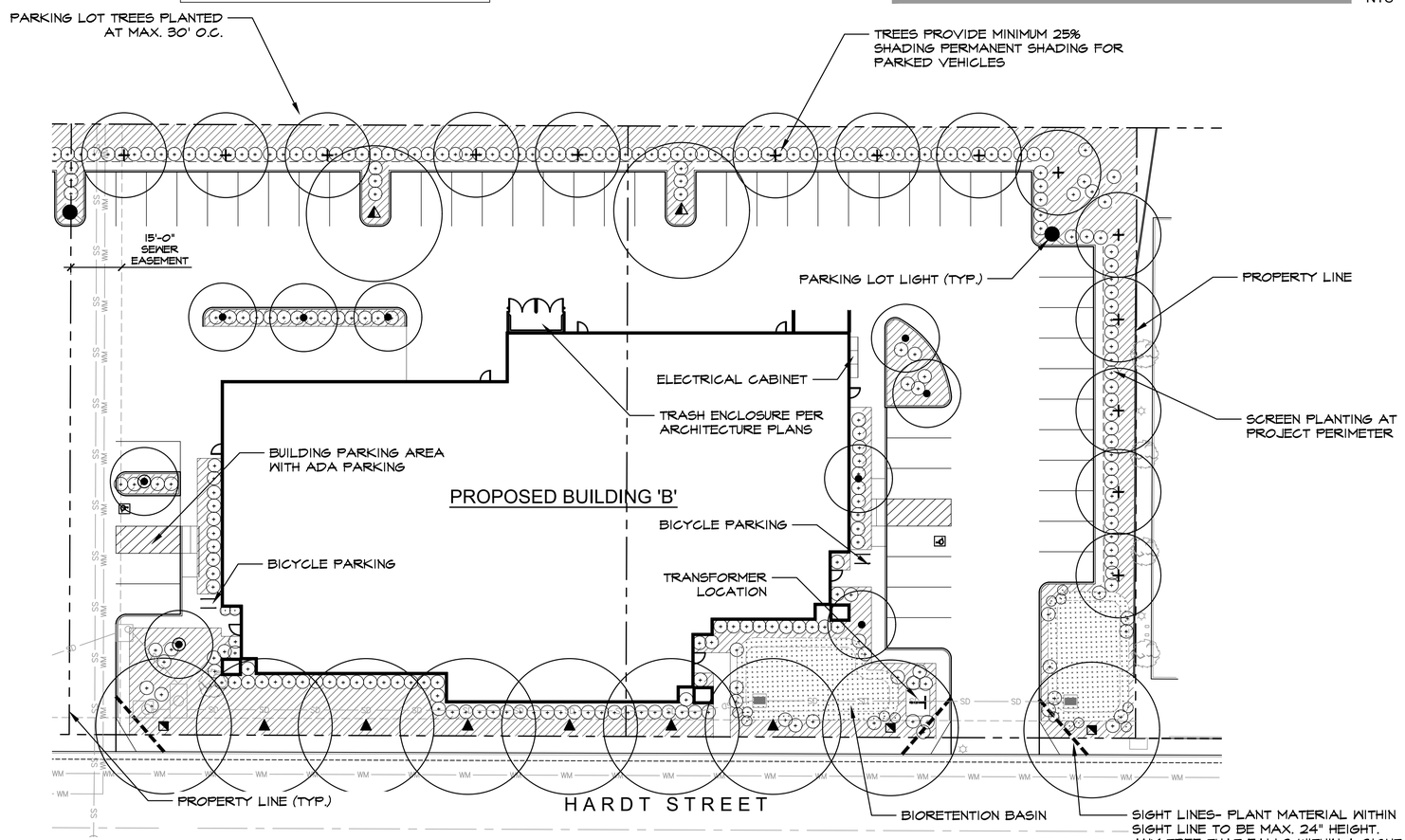
****Average Irrigation Efficiency for overall irrigation system shall meet or exceed 0.75 (total of all efficiency ratings divided by number of hydrozones).**

ETAF CALCULATIONS

Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas and 0.45 or below for non-residential areas. ***Provide Totals based on information calculated in Worksheet above.***

Regular Landscape Areas		***Totals***	**All Landscape Areas**		***Totals***
Total ETAF x Area	(B) =	3,587	Total ETAF x Area	(B+D) =	3,587
Total Area	(A) =	13,704	Total Area	(A+C) =	13,704
Average ETAF	**(B) ÷ (A) =**	0.26	**Site wide ETAF**	(B+D) ÷ (A+C) =	0.26

NOTE: PLANT MATERIAL WITHIN SIGHT LINE TO BE MAX. 24" HEIGHT. ANY TREE THAT FALLS WITHIN A SIGHT LINE SHALL BE LIMBED AND MAINTAINED AT LEAST 8' ABOVE FINISH GRADE (TYP.)



PARKING SPACES: 51
24' BOX TREES PROPOSED: 26
RATIO: 1 TREE PER 1.96 SPACES

SEE SHEET 2 FOR PLANTING LEGEND AND NOTES

North

0 10' 20' 60'

Scale 1" = 20'

Underground Service Alert
Call: TOLL FREE
1–800
422–4133
TWO WORKING DAYS BEFORE YOU DIG

rla 2681
HOWARD ASSOCIATES
landscape architecture
1951 Fourth avenue
Suite 302
san diego ca 92101 619 718 9660

MARK	REVISIONS	BY	APPR.	DATE

BENCH MARK:

APPROVED _____ 2007

SENIOR CIVIL ENGINEER _____
REGISTERED CIVIL ENGINEER NO. _____

DRAWN BY:

CHECKED BY:

RECOMMENDED BY:

CITY OF SAN BERNARDINO
DEVELOPMENT SERVICES–PUBLIC WORKS/ENGINEERING

Landscape Concept Plan for:
BUILDING 'B'
San Bernardino Business Park
HARDT ST TO E BRIER DR

DRAWING NO. *XXXX*

SHEET 1 OF 2 SHEETS

FOR CITY USE ONLY: FILE NO. W.O. NO.

LEGAL DESCRIPTION

PARCELS 24 & 25 OF PARCEL MAP NO. 5464
FILED IN SAN BERNARDING COUNTY

APN: 0281-311-11 & 12

ADDRESS: HARDT STREET

USE: SHELL

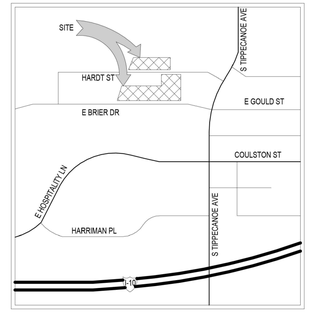
ZONE: TOD CR-3

SITE INFORMATION

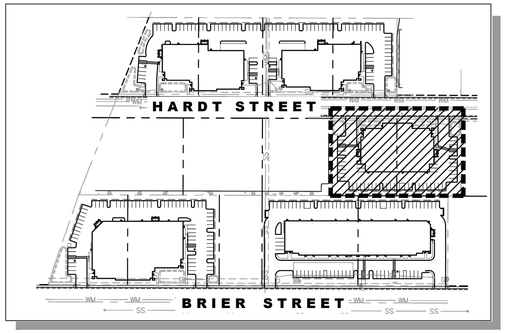
SITE AREA:	54,041 SF	1.24 ACRES
PROPOSED BUILDING COVERAGE:	17,813 SF	32.96 %
PROPOSED LANDSCAPE AREA:	13,939 SF	25.79 %
PROPOSED PAVING AREA:	22,289 SF	41.24 %

TYPE OF DEVELOPMENT: SHELL

VICINITY MAP



KEY MAP



North
NTS

(a) Hydrozone Category	PF- Plant Factor
Very Low Water Use	0.0 - 0.1
Low Water Use*	0.2 - 0.3
Moderate Water Use	0.4 - 0.6
High Water Use	0.7 - 1.0

*Artificial turf and temporarily irrigated areas are considered Low Water Use.

(b) Irrigation Method	(c) IE- Irrigation Efficiency
Filler Pipe for Pools/Spas	1.00
Drip/Subsurface	0.90
Bubblers	0.85
Rotors	0.75
Rotators	0.70
Overhead Spray	0.60

(d)
ETWU (Annual Gallons Required) =
Eto x 0.62 x ETAF x Area

ETo - see Appendix A in Water Efficient Lands Design Manual. **(ETO = 55.1)**
0.62 is the conversion factor to gallons per sq. ft.
ETAF is Plant Factor/Irrigation Efficiency.
Area is the Landscaped Area for each hydrozone.

(e)
MAWA (Annual Gallons Allowed) =
(ETo)(0.62)[(ETAF x LA) + ((1- ETAF) x SLA)]

LA is the total landscape of all hydrozone areas in sq. ft.
SLA is the total special landscape area in square feet.
ETAF is 0.42 for all areas

WATER EFFICIENT LANDSCAPE WORKSHEET

Building 'C'

REFERENCE EVAPOTRANSPIRATION (ETo)____ 55.1

ETWU (Annual Gallons Required) =
Eto x 0.62 x ETAF x Area

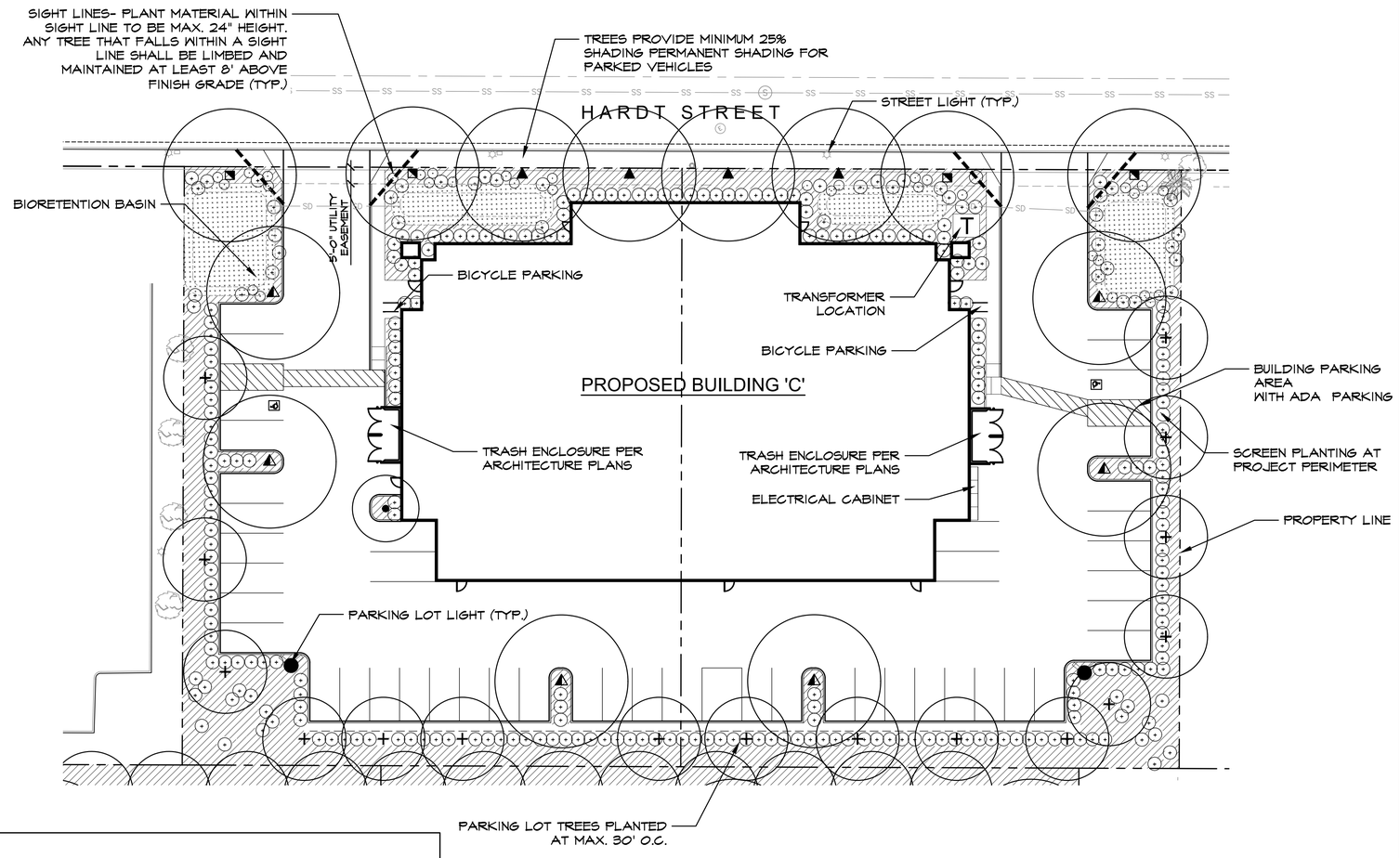
Hydrozone # / Planting **(a)** Description	Plant Factor (PF)	Irrigation **(b)** Method	Irrigation Efficiency **(c)** (IE)	ETAF (PF/IE)	Landscape Area In Square Feet	ETAF x Area	Estimated Total Water Use **(d)** (ETWU)
Regular Landscape Areas							
Trees, Shrubs, GC	0.2	Drip-sub	0.9	0.22	9,898	2,200	75,141
Trees, Shrubs, GC	0.5	Drip-sub	0.9	0.56	1,395	775	26,476
Basin	0.2	Rotors	0.75	0.27	2,646	706	24,105
				Totals	13,939	3,680	125,721
Special Landscape Areas							
						0	0
				Totals	0	0	0
Estimated Total Water Use in Gallons Per Year **(ETWU) Total**							**125,721**
Maximum Annual Water Allowance in Gallons Per Year **(MAWA) Total**							**199,997**
						MAWA - ETWU =	**74,276**
MAWA (Annual Gallons Allowed) =						must be a postitive number	
(ETo)(0.62)[(ETAF x LA) + ((1- ETAF) x SLA)]							

****Average Irrigation Efficiency for overall irrigation system shall meet or exceed 0.75 (total of all efficiency ratings divided by number of hydrozones).**

ETAF CALCULATIONS

Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas and 0.45 or below for non-residential areas. ***Provide Totals based on information calculated in Worksheet above.***

Regular Landscape Areas		***Totals***	**All Landscape Areas**		***Totals***
Total ETAF x Area	(B) =	3,680	Total ETAF x Area	(B+D) =	3,680
Total Area	(A) =	13,939	Total Area	(A+C) =	13,939
Average ETAF	**(B) ÷ (A) =**	0.26	**Site wide ETAF**	(B+D) ÷ (A+C) =	0.26



NOTE: PLANT MATERIAL WITHIN SIGHT LINE TO BE MAX. 24" HEIGHT. ANY TREE THAT FALLS WITHIN A SIGHT LINE SHALL BE LIMBED AND MAINTAINED AT LEAST 8' ABOVE FINISH GRADE (TYP.)

PARKING SPACES: 47
24' BOX TREES PROPOSED: 22
RATIO: 1 TREE PER 2.13 SPACES

SEE SHEET 2 FOR PLANTING LEGEND AND NOTES

North

0 10' 20' 60'
Scale 1" = 20'

Underground Service Alert
Call: TOLL FREE
1-800
422-4133
TWO WORKING DAYS BEFORE YOU DIG

rla 2681
HOWARD ASSOCIATES
landscape architecture
1951 Fourth avenue
Suite 302
san diego ca 92101 619 718 9660

MARK	REVISIONS	BY	APPR.	DATE

BENCH MARK:

APPROVED _____ 2007

SENIOR CIVIL ENGINEER _____
REGISTERED CIVIL ENGINEER NO. _____

DRAWN BY:
CHECKED BY:
RECOMMENDED BY:

CITY OF SAN BERNARDINO
DEVELOPMENT SERVICES--PUBLIC WORKS/ENGINEERING

Landscape Concept Plan for:
BUILDING 'C'
San Bernardino Business Park
HARDT ST TO E BRIER DR

DRAWING NO. XXXX
SHEET 1 OF 2 SHEETS

FOR CITY USE ONLY: FILE NO. W.O. NO.

PARKING SPACES: 69
24' BOX TREES PROPOSED: 37
RATIO: 1 TREE PER 1.86 SPACES

LEGAL DESCRIPTION

PARCELS 18 & 19 OF PARCEL MAP NO. 5464
FILED IN SAN BERNARDING COUNTY

APN: 281-311-18 & 19

ADDRESS: HARDT STREET

USE: SHELL

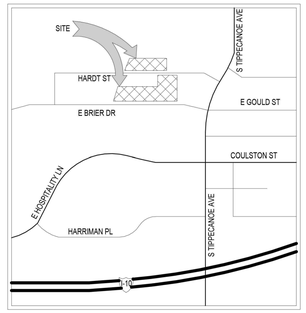
ZONE: TOD CR-3

SITE INFORMATION

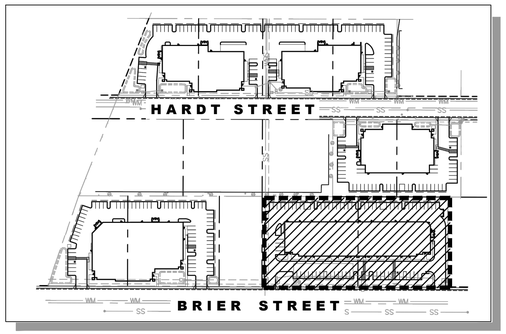
SITE AREA:	91,559 SF	2.10 ACRES
PROPOSED BUILDING COVERAGE:	27,008 SF	29.5 %
PROPOSED LANDSCAPE AREA:	18,904 SF	20.65 %
PROPOSED PAVING AREA:	45,647 SF	49.86 %

TYPE OF DEVELOPMENT: SHELL

VICINITY MAP



KEY MAP



North
NTS

(a) Hydrozone Category	PF- Plant Factor
Very Low Water Use	0.0 - 0.1
Low Water Use*	0.2 - 0.3
Moderate Water Use	0.4 - 0.6
High Water Use	0.7 - 1.0

*Artificial turf and temporarily irrigated areas are considered Low Water Use.

(b) Irrigation Method	(c) IE- Irrigation Efficiency
Filler Pipe for Pools/Spas	1.00
Drip/Subsurface	0.90
Bubblers	0.85
Rotors	0.75
Rotators	0.70
Overhead Spray	0.60

(d) ETWU (Annual Gallons Required) =
Eto x 0.62 x ETAF x Area

ETo - see Appendix A in Water Efficient Lands Design Manual. **(ETO = 55.1)**
0.62 is the conversion factor to gallons per sq. ft.
ETAF is Plant Factor/Irrigation Efficiency.
Area is the Landscaped Area for each hydrozone.

(e) MAWA (Annual Gallons Allowed) =
(ETo)(0.62)[(ETAF x LA) + ((1- ETAF) x SLA)]

LA is the total landscape of all hydrozone areas in sq. ft.
SLA is the total special landscape area in square feet.
ETAF is 0.42 for all areas

WATER EFFICIENT LANDSCAPE WORKSHEET

Building 'D'

REFERENCE EVAPOTRANSPIRATION (ETo)____ 55.1

ETWU (Annual Gallons Required) =
Eto x 0.62 x ETAF x Area

Hydrozone # / Planting **(a)** Description	Plant Factor (PF)	Irrigation **(b)** Method	Irrigation Efficiency **(c)** (IE)	ETAF (PF/IE)	Landscape Area In Square Feet	ETAF x Area	Estimated Total Water Use **(d)** (ETWU)
Regular Landscape Areas							
Trees, Shrubs, GC	0.2	Drip-sub	0.9	0.22	17,013	3,781	129,155
Trees, Shrubs, GC	0.5	Drip-sub	0.9	0.56	1,891	1,051	35,889
				Totals	18,904	4,831	165,044
Special Landscape Areas							
						0	0
				Totals	0	0	0
					Estimated Total Water Use in Gallons Per Year **(ETWU) Total**		**165,044**
					Maximum Annual Water Allowance in Gallons Per Year **(MAWA) Total**		**271,235**
						MAWA - ETWU =	**106,191**
MAWA (Annual Gallons Allowed) =							must be a postitive number
(ETo)(0.62)[(ETAF x LA) + ((1- ETAF) x SLA)]							

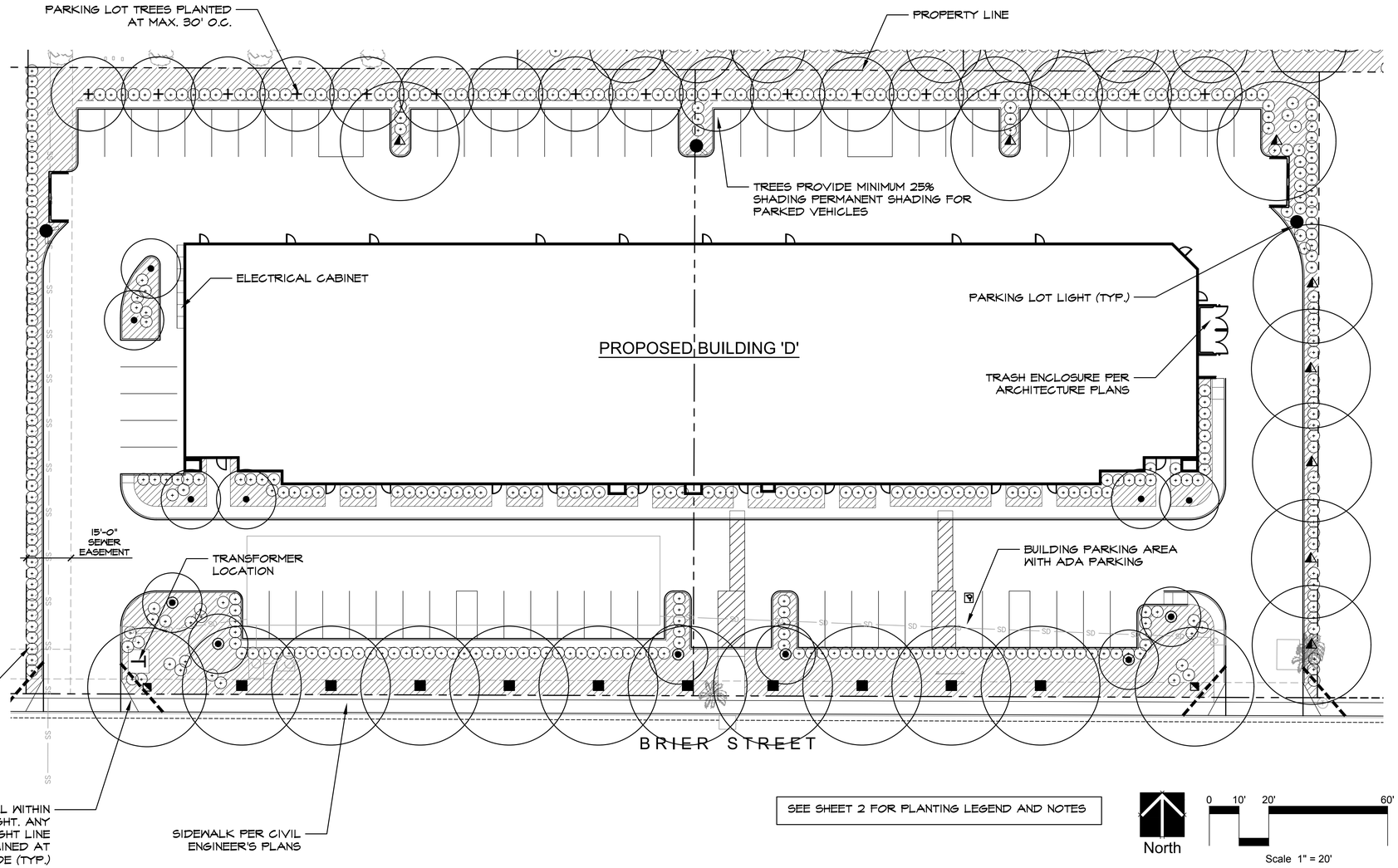
****Average Irrigation Efficiency for overall irrigation system shall meet or exceed 0.75 (total of all efficiency ratings divided by number of hydrozones).**

ETAF CALCULATIONS

Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas and 0.45 or below for non-residential areas. ***Provide Totals based on information calculated in Worksheet above.***

Regular Landscape Areas		***Totals***	**All Landscape Areas**		***Totals***
Total ETAF x Area	(B) =	4,831	Total ETAF x Area	(B+D) =	4,831
Total Area	(A) =	18,904	Total Area	(A+C) =	18,904
Average ETAF	**(B) ÷ (A) =**	0.26	**Site wide ETAF**	(B+D) ÷ (A+C) =	0.26

NOTE: PLANT MATERIAL WITHIN SIGHT LINE TO BE MAX. 24" HEIGHT. ANY TREE THAT FALLS WITHIN A SIGHT LINE SHALL BE LIMBED AND MAINTAINED AT LEAST 8' ABOVE FINISH GRADE (TYP.)



SEE SHEET 2 FOR PLANTING LEGEND AND NOTES

North
0 10' 20' 60'
Scale 1" = 20'

Underground Service Alert
Call: TOLL FREE
1–800
422–4133
TWO WORKING DAYS BEFORE YOU DIG

rla 2681
HOWARD ASSOCIATES
landscape architecture
1951 Fourth avenue
Suite 302
san diego ca 92101 619 718 9660

MARK	REVISIONS	BY	APPR.	DATE

BENCH MARK:

APPROVED _____ 2007

SENIOR CIVIL ENGINEER _____
REGISTERED CIVIL ENGINEER NO. _____

DRAWN BY:
CHECKED BY:
RECOMMENDED BY:

CITY OF SAN BERNARDINO
DEVELOPMENT SERVICES–PUBLIC WORKS/ENGINEERING

Landscape Concept Plan for:
BUILDING 'D'
San Bernardino Business Park
HARDT ST TO E BRIER DR

FOR CITY USE ONLY: FILE NO. W.O. NO.

DRAWING NO. XXXX

SHEET 1 OF 2 SHEETS

LEGAL DESCRIPTION

PARCELS 1 & 2 OF PARCEL MAP NO. 5464
FILED IN SAN BERNARDING COUNTY

APN: 0281-301- 20 & 21

ADDRESS: BRIER STREET

USE: SHELL

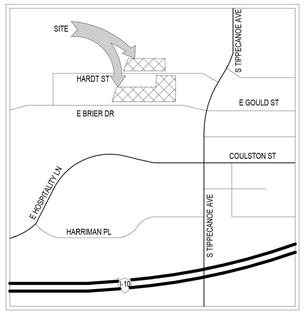
ZONE: TOD CR-3

SITE INFORMATION

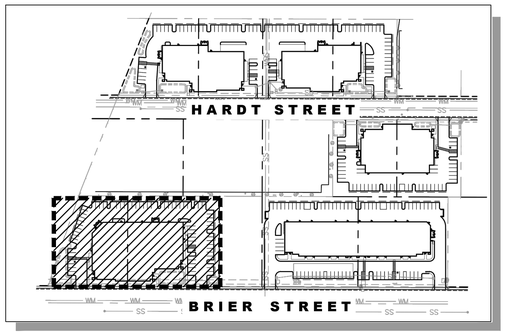
SITE AREA:	76,935 SF	1.77 ACRES
PROPOSED BUILDING COVERAGE:	26,562 SF	34.53 %
PROPOSED LANDSCAPE AREA:	19,823 SF	25.77 %
PROPOSED PAVING AREA:	30,550 SF	39.71 %

TYPE OF DEVELOPMENT: SHELL

VICINITY MAP



KEY MAP



North
NTS

PARKING SPACES: 71
24' BOX TREES PROPOSED: 37
RATIO: 1 TREE PER 1.92 SPACES

(a) Hydrozone Category	PF- Plant Factor
Very Low Water Use	0.0 - 0.1
Low Water Use*	0.2 - 0.3
Moderate Water Use	0.4 - 0.6
High Water Use	0.7 - 1.0

*Artificial turf and temporarily irrigated areas are considered Low Water Use.

(b) Irrigation Method	(c) IE- Irrigation Efficiency
Filler Pipe for Pools/Spas	1.00
Drip/Subsurface	0.90
Bubblers	0.85
Rotors	0.75
Rotators	0.70
Overhead Spray	0.60

(d)
ETWU (Annual Gallons Required) =
Eto x 0.62 x ETAF x Area

ETo - see Appendix A in Water Efficient Land Design Manual: **(ETO = 55.1)**
0.62 is the conversion factor to gallons per sq. ft.
ETAF is Plant Factor/Irrigation Efficiency.
Area is the Landscaped Area for each hydrozone.

(e)
MAWA (Annual Gallons Allowed) =
(ETo)(0.62)[(ETAF x LA) + ((1- ETAF) x SLA)]

LA is the total landscape of all hydrozone areas in sq. ft.
SLA is the total special landscape area in square feet.
ETAF is 0.42 for all areas

WATER EFFICIENT LANDSCAPE WORKSHEET

Building 'E'

REFERENCE EVAPOTRANSPIRATION (ETo)____ 55.1

ETWU (Annual Gallons Required) =
Eto x 0.62 x ETAF x Area

Hydrozone # / Planting **(a)** Description	Plant Factor (PF)	Irrigation **(b)** Method	Irrigation Efficiency **(c)** (IE)	ETAF (PF/IE)	Landscape Area In Square Feet	ETAF x Area	Estimated Total Water Use **(d)** (ETWU)
Regular Landscape Areas							
Trees, Shrubs, GC	0.2	Drip-sub	0.9	0.22	13,401	2,978	101,734
Trees, Shrubs, GC	0.5	Drip-sub	0.9	0.56	1,984	1,102	37,654
Basin	0.2	rotors	0.75	0.27	4,438		
				Totals	19,823	4,080	139,389
Special Landscape Areas							
						0	0
				Totals	0	0	0
Estimated Total Water Use in Gallons Per Year **(ETWU) Total**							**139,389**
Maximum Annual Water Allowance in Gallons Per Year **(MAWA) Total**							**284,421**
						MAWA - ETWU =	**145,033**
MAWA (Annual Gallons Allowed) =						**must be a positive number**	
(ETo)(0.62)[(ETAF x LA) + ((1- ETAF) x SLA)]							

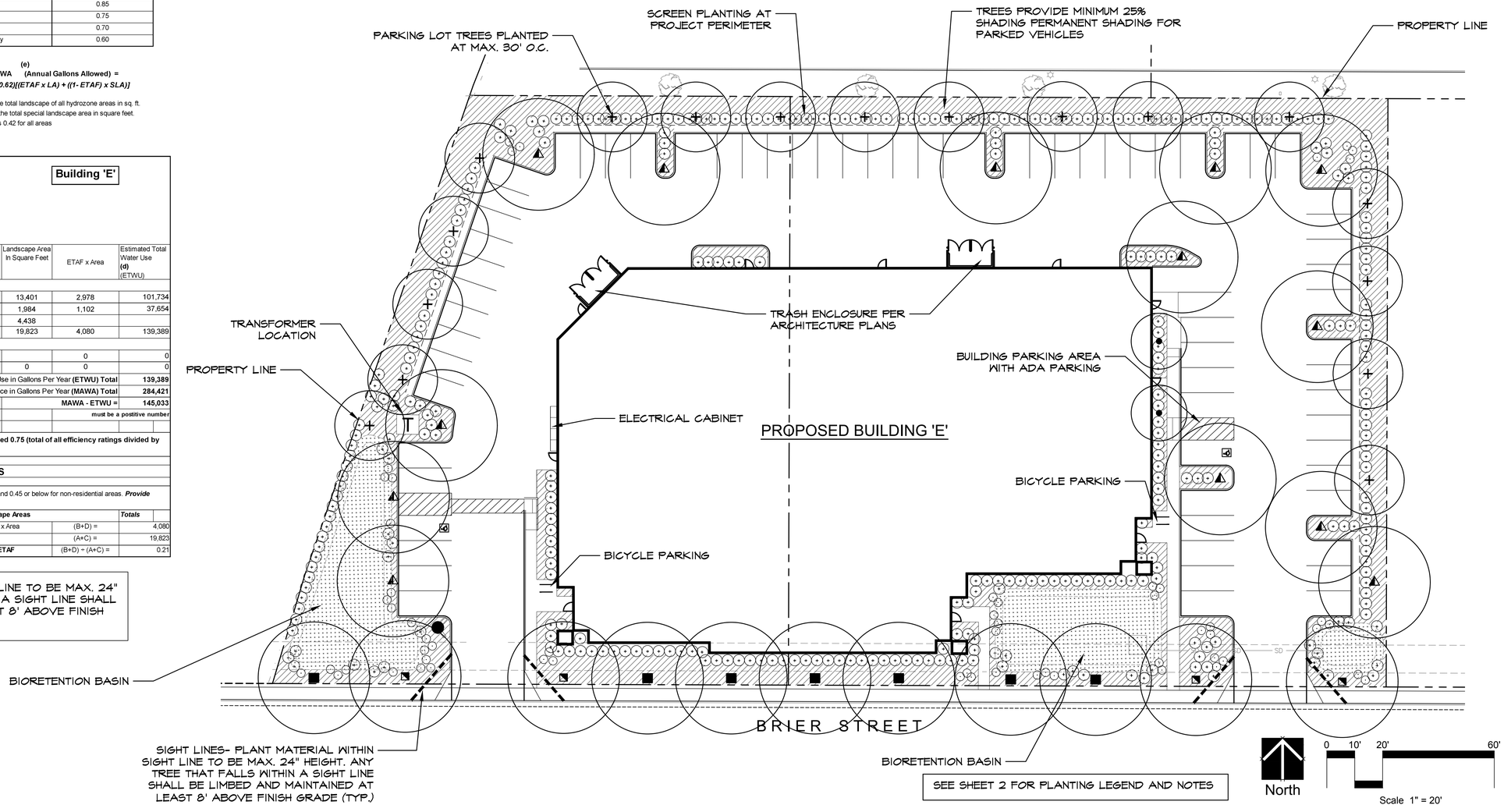
**Average Irrigation Efficiency for overall irrigation system shall meet or exceed 0.75 (total of all efficiency ratings divided by number of hydrozones).

ETAF CALCULATIONS

Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas and 0.45 or below for non-residential areas. ***Provide Totals based on information calculated in Worksheet above.***

Regular Landscape Areas		***Totals***	**All Landscape Areas**		***Totals***
Total ETAF x Area	(B) =	4,080	Total ETAF x Area	(B+D) =	4,080
Total Area	(A) =	19,823	Total Area	(A+C) =	19,823
Average ETAF	**(B) ÷ (A) =**	0.21	**Site wide ETAF**	(B+D) ÷ (A+C) =	0.21

NOTE: PLANT MATERIAL WITHIN SIGHT LINE TO BE MAX. 24" HEIGHT. ANY TREE THAT FALLS WITHIN A SIGHT LINE SHALL BE LIMBED AND MAINTAINED AT LEAST 8' ABOVE FINISH GRADE (TYP.)



SEE SHEET 2 FOR PLANTING LEGEND AND NOTES

Underground Service Alert
Call: TOLL FREE
1–800
422–4133
TWO WORKING DAYS BEFORE YOU DIG

rla 2681
HOWARD ASSOCIATES
landscape architecture
1951 Fourth avenue
Suite 302
san diego ca 92101 619 718 9660

MARK	REVISIONS	BY	APPR.	DATE

BENCH MARK:

APPROVED _____ 2007

SENIOR CIVIL ENGINEER _____
REGISTERED CIVIL ENGINEER NO. _____

DRAWN BY:
CHECKED BY:
RECOMMENDED BY:

CITY OF SAN BERNARDINO
DEVELOPMENT SERVICES~PUBLIC WORKS/ENGINEERING

Landscape Concept Plan for:
BUILDING 'E'
San Bernardino Business Park
HARDT ST TO E BRIER DR

FOR CITY USE ONLY: FILE NO. W.O. NO.

DRAWING NO. XXXX

SHEET 1 OF 2 SHEETS

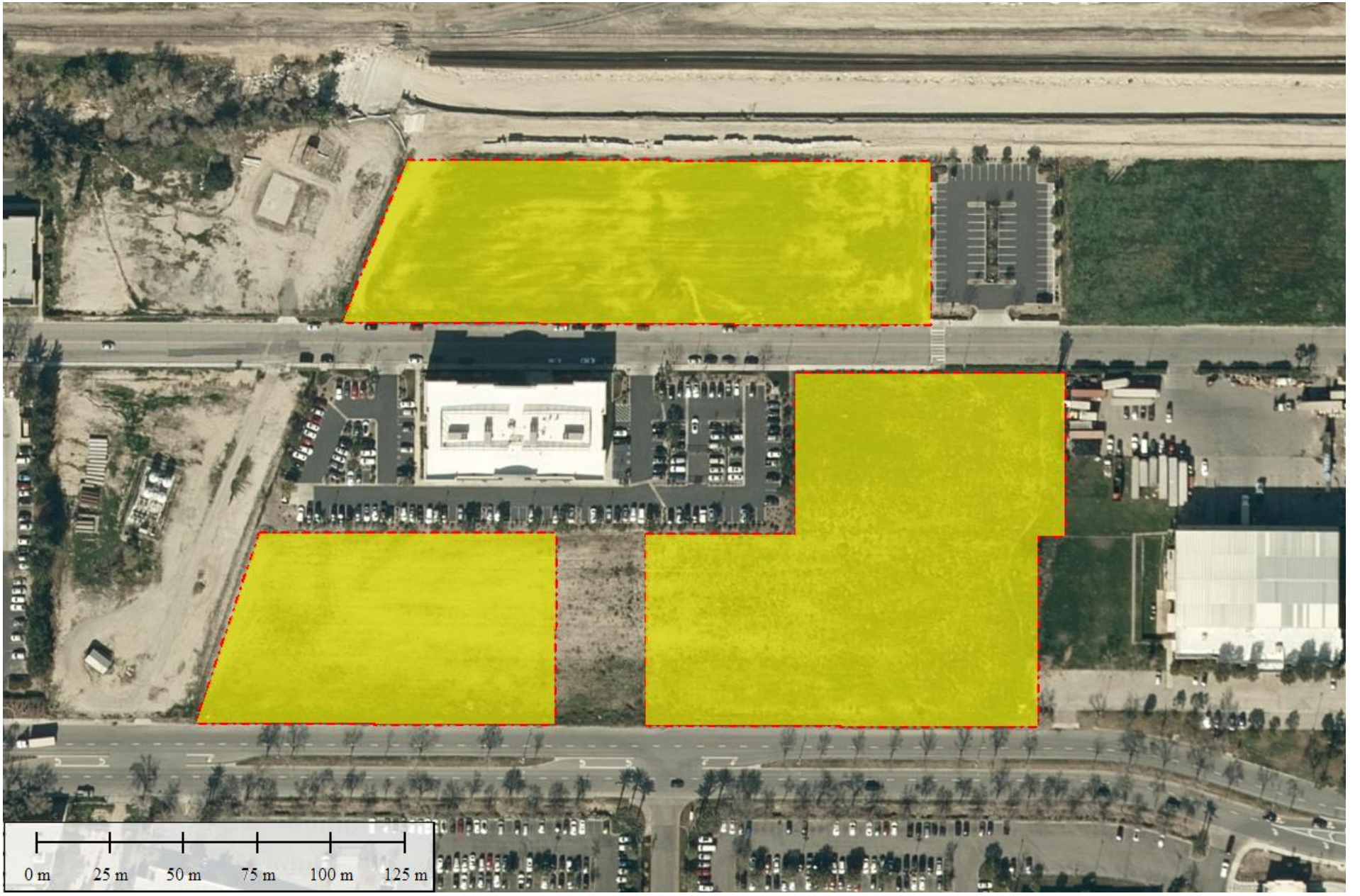


Figure 4
Habitat Map
Hardt & Brier
San Bernardino County, California

Legend

Project Site Boundary

Ruderal Habitat
(7.67 Acres)

N

Hernandez Environmental Services

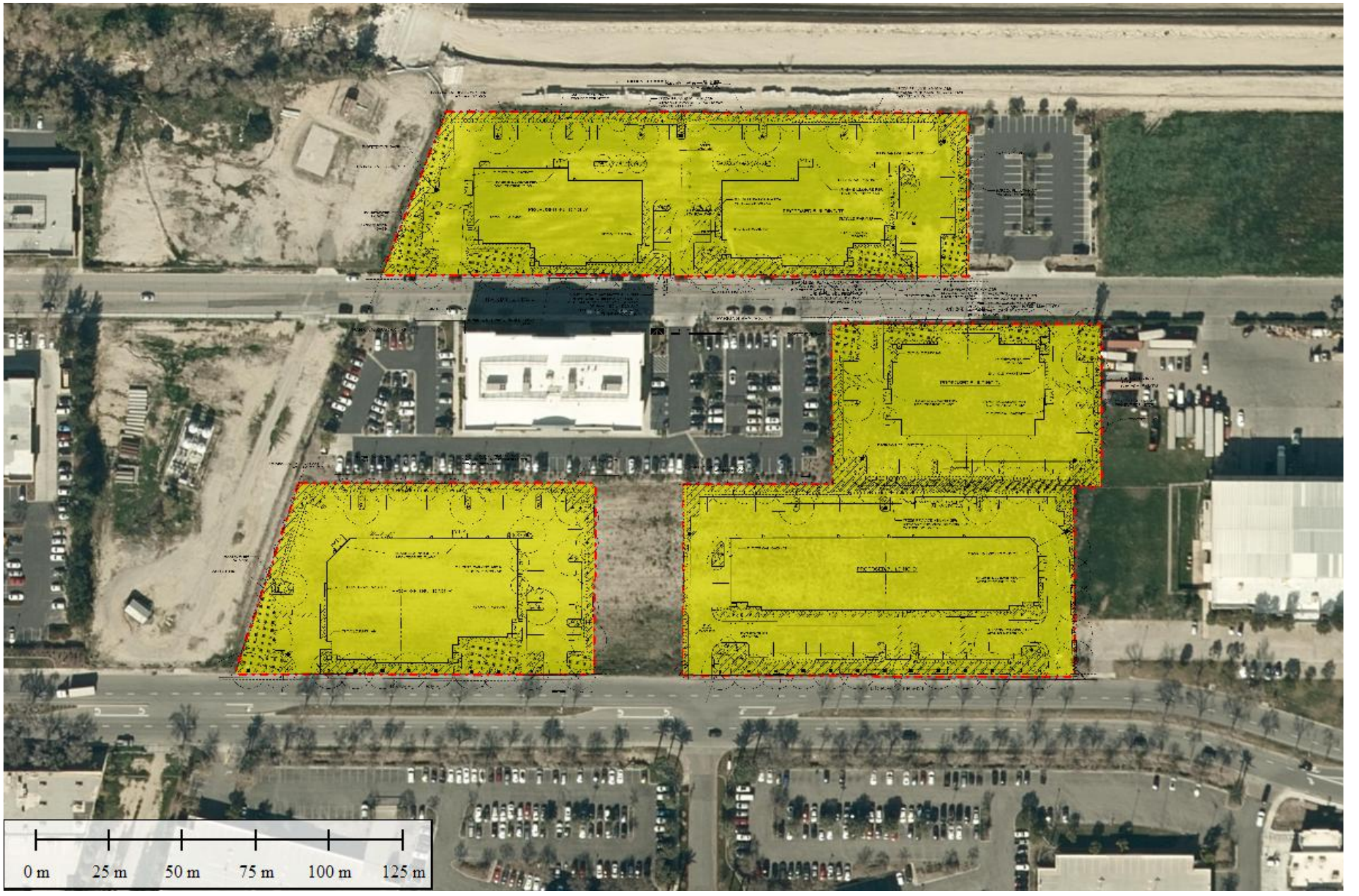


Figure 5
Impact Map
Hardt & Brier
San Bernardino County, California

Legend

Project Site Boundary

Impacts to Ruderal Habitat
(7.67 Acres)

N

Hernandez Environmental Services

APPENDIX A

Observed Species List

Plant List

Scientific Name	Common Name
Atriplex lantiformis	Big saltbush
Tamarix sp.	Tamarisk

Wildlife List

Scientific Name	Common Name
Columba livia	Rock pigeon
Melospiza melodia	Song sparrow

APPENDIX B

Scientific Name	Common Name	Taxon Group	Federal List	State List	Rare Plant Rank	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Allium howellii var. clokeyi	Mt. Pinos onion	Monocots	None	None	1B.3	Great Basin scrub | Meadow & seep | Pinon & juniper woodlands	Great Basin scrub, pinyon and juniper woodland, meadows and seeps (edges).	1385-1800 m.	No habitat for this species is present on the project site. **This species is not present.**
Ambrosia monogyra	singlewhorl burrobrush	Dicots	None	None	2B.2	Chaparral | Sonoran desert scrub	Chaparral, Sonoran desert scrub.	Sandy soils. 5-475 m.	No habitat for this species is present on the project site. **This species is not present.**
Ambrosia pumila	San Diego ambrosia	Dicots	Endangered	None	1B.1	Chaparral | Coastal scrub | Valley & foothill grassland	Chaparral, coastal scrub, valley and foothill grassland.	Sandy loam or clay soil; sometimes alkaline. In valleys; persists where disturbance has been superficial. Sometimes on margins or near vernal pools. 3-580 m.	No habitat for this species is present on the project site. **This species is not present.**
Arenaria paludicola	marsh sandwort	Dicots	Endangered	Endangered	1B.1	Freshwater marsh | Marsh & swamp | Wetland	Marshes and swamps.	Growing up through dense mats of Typha, Juncus, Scirpus, etc. in freshwater marsh. Sandy soil. 3-170 m.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Rare Plant Rank	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Astragalus hornii var. hornii	Horn's milk-vetch	Dicots	None	None	1B.1	Alkali playa | Meadow & seep | Wetland	Meadows and seeps, playas.	Lake margins, alkaline sites. 75-350 m.	No habitat for this species is present on the project site. **This species is not present.**
Berberis nevinii	Nevin's barberry	Dicots	Endangered	Endangered	1B.1	Chaparral | Cismontane woodland | Coastal scrub | Riparian scrub	Chaparral, cismontane woodland, coastal scrub, riparian scrub.	On steep, N-facing slopes or in low grade sandy washes. 90-1590 m.	No habitat for this species is present on the project site. **This species is not present.**
Brodiaea filifolia	thread-leaved brodiaea	Monocots	Threatened	Endangered	1B.1	Chaparral | Cismontane woodland | Coastal scrub | Valley & foothill grassland | Vernal pool | Wetland	Chaparral (openings), cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools.	Usually associated with annual grassland and vernal pools; often surrounded by shrubland habitats. Occurs in openings on clay soils. 15-1030 m.	No habitat for this species is present on the project site. **This species is not present.**
Calochortus palmeri var. palmeri	Palmer's mariposa-lily	Monocots	None	None	1B.2	Chaparral | Lower montane coniferous forest | Meadow & seep	Meadows and seeps, chaparral, lower montane coniferous forest.	Vernally moist places in yellow-pine forest, chaparral. 195-2530 m.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Rare Plant Rank	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Calochortus plummerae	Plummer's mariposa-lily	Monocots	None	None	4.2	Chaparral | Cismontane woodland | Coastal scrub | Lower montane coniferous forest | Valley & foothill grassland	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest.	Occurs on rocky and sandy sites, usually of granitic or alluvial material. Can be very common after fire. 60-2500 m.	No habitat for this species is present on the project site. **This species is not present.**
Carex comosa	bristly sedge	Monocots	None	None	2B.1	Coastal prairie | Freshwater marsh | Marsh & swamp | Valley & foothill grassland | Wetland	Marshes and swamps, coastal prairie, valley and foothill grassland.	Lake margins, wet places; site below sea level is on a Delta island. -5-1010 m.	No habitat for this species is present on the project site. **This species is not present.**
Castilleja lasiorhyncha	San Bernardino Mountains owl's-clover	Dicots	None	None	1B.2	Chaparral | Meadow & seep | Pavement plain | Riparian woodland | Upper montane coniferous forest | Wetland	Meadows and seeps, pebble plain, upper montane coniferous forest, chaparral, riparian woodland.	Mesic to drying soils in open areas of stream and meadow margins or in vernally wet areas. 1140-2320 m.	No habitat for this species is present on the project site. **This species is not present.**
Centromadia pungens ssp. laevis	smooth tarplant	Dicots	None	None	1B.1	Alkali playa | Chenopod scrub | Meadow & seep | Riparian woodland | Valley & foothill grassland | Wetland	Valley and foothill grassland, chenopod scrub, meadows and seeps, playas, riparian woodland.	Alkali meadow, alkali scrub; also in disturbed places. 5-1170 m.	Suitable habitat is present on the project site. CNDDB found historic data of species on site. **This species is present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Rare Plant Rank	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Chloropyron maritimum ssp. maritimum	salt marsh bird's-beak	Dicots	Endangered	Endangered	1B.2	Coastal dunes | Marsh & swamp | Salt marsh | Wetland	Marshes and swamps, coastal dunes.	Limited to the higher zones of salt marsh habitat. 0-10 m.	No habitat for this species is present on the project site. **This species is not present.**
Chorizanthe parryi var. parryi	Parry's spineflower	Dicots	None	None	1B.1	Chaparral | Cismontane woodland | Coastal scrub | Valley & foothill grassland	Coastal scrub, chaparral, cismontane woodland, valley and foothill grassland.	Dry slopes and flats; sometimes at interface of 2 vegetation types, such as chaparral and oak woodland. Dry, sandy soils. 90-1220 m.	No habitat for this species is present on the project site. **This species is not present.**
Chorizanthe xanti var. leucotheca	white-bracted spineflower	Dicots	None	None	1B.2	Coastal scrub | Mojavean desert scrub | Pinon & juniper woodlands	Mojavean desert scrub, pinyon and juniper woodland, coastal scrub (alluvial fans).	Sandy or gravelly places. 365-1830 m.	No habitat for this species is present on the project site. **This species is not present.**
Cuscuta obtusiflora var. glandulosa	Peruvian dodder	Dicots	None	None	2B.2	Marsh & swamp | Wetland	Marshes and swamps (freshwater).	Freshwater marsh. 15-280 m.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Rare Plant Rank	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Dodecahema leptoceras	slender-horned spineflower	Dicots	Endangered	Endangered	1B.1	Chaparral | Cismontane woodland | Coastal scrub	Chaparral, cismontane woodland, coastal scrub (alluvial fan sage scrub).	Flood deposited terraces and washes; associates include Encelia, Dalea, Lepidospartum, etc. Sandy soils. 200-765 m.	No habitat for this species is present on the project site. **This species is not present.**
Eriastrum densifolium ssp. sanctorum	Santa Ana River woollystar	Dicots	Endangered	Endangered	1B.1	Chaparral | Coastal scrub	Coastal scrub, chaparral.	In sandy soils on river floodplains or terraced fluvial deposits. 180-705 m.	No habitat for this species is present on the project site. **This species is not present.**
Fimbristylis thermalis	hot springs fimbristylis	Monocots	None	None	2B.2	Meadow & seep | Wetland	Meadows and seeps (alkaline).	Near hot springs. 115-1585 m.	No habitat for this species is present on the project site. **This species is not present.**
Galium californicum ssp. primum	Alvin Meadow bedstraw	Dicots	None	None	1B.2	Chaparral | Lower montane coniferous forest	Chaparral, lower montane coniferous forest.	Grows in shade of trees and shrubs at the lower edge of the pine belt, in pine forest-chaparral ecotone. Granitic, sandy soils. 1460-1830 m.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Rare Plant Rank	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Helianthus nuttallii ssp. parishii	Los Angeles sunflower	Dicots	None	None	1A	Freshwater marsh | Marsh & swamp | Salt marsh | Wetland	Marshes and swamps (coastal salt and freshwater).	35-1525 m.	No habitat for this species is present on the project site. **This species is not present.**
Heuchera parishii	Parish's alumroot	Dicots	None	None	1B.3	Alpine boulder & rock field | Limestone | Lower montane coniferous forest | Subalpine coniferous forest | Upper montane coniferous forest	Lower montane coniferous forest, subalpine coniferous forest, upper montane coniferous forest, alpine boulder and rock field.	Rocky places. Sometimes on carbonate. 1340-3505 m.	No habitat for this species is present on the project site. **This species is not present.**
Horkelia cuneata var. puberula	mesa horkelia	Dicots	None	None	1B.1	Chaparral | Cismontane woodland | Coastal scrub	Chaparral, cismontane woodland, coastal scrub.	Sandy or gravelly sites. 15-1645 m.	No habitat for this species is present on the project site. **This species is not present.**
Imperata brevifolia	California satintail	Monocots	None	None	2B.1	Chaparral | Coastal scrub | Meadow & seep | Mojavean desert scrub | Riparian scrub | Wetland	Coastal scrub, chaparral, riparian scrub, mojavean desert scrub, meadows and seeps (alkali), riparian scrub.	Mesic sites, alkali seeps, riparian areas. 3-1495 m.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Rare Plant Rank	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Ivesia argyrocoma var. argyrocoma	silver-haired ivesia	Dicots	None	None	1B.2	Meadow & seep | Pavement plain | Upper montane coniferous forest	Meadows and seeps, pebble plains, upper montane coniferous forest.	In pebble plains and meadows with other rare plants. 1490-2960 m.	No habitat for this species is present on the project site. **This species is not present.**
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	Dicots	None	None	1B.1	Alkali playa | Marsh & swamp | Salt marsh | Vernal pool | Wetland	Coastal salt marshes, playas, vernal pools.	Usually found on alkaline soils in playas, sinks, and grasslands. 1-1375 m.	No habitat for this species is present on the project site. **This species is not present.**
Lepidium virginicum var. robinsonii	Robinson's pepper-grass	Dicots	None	None	4.3	Chaparral | Coastal scrub	Chaparral, coastal scrub.	Dry soils, shrubland. 4-1435 m.	No habitat for this species is present on the project site. **This species is not present.**
Lilium parryi	lemon lily	Monocots	None	None	1B.2	Lower montane coniferous forest | Meadow & seep | Riparian forest | Upper montane coniferous forest | Wetland	Lower montane coniferous forest, meadows and seeps, riparian forest, upper montane coniferous forest.	Wet, mountainous terrain; generally in forested areas; on shady edges of streams, in open boggy meadows and seeps. 625-2930 m.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Rare Plant Rank	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Lycium parishii	Parish's desert-thorn	Dicots	None	None	2B.3	Coastal scrub | Sonoran desert scrub	Coastal scrub, Sonoran desert scrub.	-3-570 m.	No habitat for this species is present on the project site. **This species is not present.**
Malacothamnus parishii	Parish's bush-mallow	Dicots	None	None	1A	Chaparral | Coastal scrub	Chaparral, coastal sage scrub.	In a wash. 305-455 m.	No habitat for this species is present on the project site. **This species is not present.**
Monardella macrantha ssp. hallii	Hall's monardella	Dicots	None	None	1B.3	Broadleaved upland forest | Chaparral | Cismontane woodland | Lower montane coniferous forest | Valley & foothill grassland	Broadleafed upland forest, chaparral, lower montane coniferous forest, cismontane woodland, valley and foothill grassland.	Dry slopes and ridges in openings. 700-1800 m.	No habitat for this species is present on the project site. **This species is not present.**
Monardella pringlei	Pringle's monardella	Dicots	None	None	1A	Coastal scrub	Coastal scrub.	Sandy hills. 300-400 m.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Rare Plant Rank	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Nasturtium gambelii	Gambel's water cress	Dicots	Endangered	Threatened	1B.1	Brackish marsh | Freshwater marsh | Marsh & swamp | Wetland	Marshes and swamps.	Freshwater and brackish marshes at the margins of lakes and along streams, in or just above the water level. 5-305 m.	No habitat for this species is present on the project site. **This species is not present.**
Neolarra alba	white cuckoo bee	Insects	None	None			Known only from localities in Southern California.	Cleptoparasitic in the nests of perdita bees.	No habitat for this species is present on the project site. **This species is not present.**
Opuntia basilaris var. brachyclada	short-joint beavertail	Dicots	None	None	1B.2	Chaparral | Joshua tree woodland | Mojavean desert scrub | Pinon & juniper woodlands	Chaparral, Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland.	Sandy soil or coarse, granitic loam. 425-2015 m.	No habitat for this species is present on the project site. **This species is not present.**
Perideridia parishii ssp. parishii	Parish's yampah	Dicots	None	None	2B.2	Lower montane coniferous forest | Meadow & seep | Upper montane coniferous forest	Lower montane coniferous forest, meadows and seeps, upper montane coniferous forest.	Damp meadows or along streambeds-prefers an open pine canopy. 1470-2530 m.	No habitat for this species is present on the project site. **This species is not present.**
Phacelia stellaris	Brand's star phacelia	Dicots	None	None	1B.1	Coastal dunes | Coastal scrub	Coastal scrub, coastal dunes.	Open areas. 3-370 m.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Rare Plant Rank	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Ribes divaricatum var. parishii	Parish's gooseberry	Dicots	None	None	1A	Riparian woodland	Riparian woodland.	Salix swales in riparian habitats. 65-300 m.	No habitat for this species is present on the project site. **This species is not present.**
Riversidian Alluvial Fan Sage Scrub	Riversidian Alluvial Fan Sage Scrub	Scrub	None	None		Coastal scrub			Not present.
Schoenus nigricans	black bog-rush	Monocots	None	None	2B.2	Marsh & swamp | Wetland	Marshes and swamps.	Often in alkaline marshes. 120-1525 m.	No habitat for this species is present on the project site. **This species is not present.**
Senecio aphanactis	chaparral ragwort	Dicots	None	None	2B.2	Chaparral | Cismontane woodland | Coastal scrub	Chaparral, cismontane woodland, coastal scrub.	Drying alkaline flats. 20-1020 m.	No habitat for this species is present on the project site. **This species is not present.**
Sidalcea malviflora ssp. dolosa	Bear Valley checkerbloom	Dicots	None	None	1B.2	Lower montane coniferous forest | Meadow & seep | Riparian woodland | Upper montane coniferous forest | Wetland	Meadows and seeps, riparian woodland, lower montane coniferous forest, upper montane coniferous forest.	Known from wet areas within forested habitats. Affected by hydrological changes. 1575-2590 m.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Rare Plant Rank	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Sidalcea neomexicana	salt spring checkerbloom	Dicots	None	None	2B.2	Alkali playa | Chaparral | Coastal scrub | Lower montane coniferous forest | Mojavean desert scrub | Wetland	Playas, chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub.	Alkali springs and marshes. 3-2380 m.	No habitat for this species is present on the project site. **This species is not present.**
Southern California Arroyo Chub/Santa Ana Sucker Stream	Southern California Arroyo Chub/Santa Ana Sucker Stream	Inland Waters	None	None					Not present.
Southern Coast Live Oak Riparian Forest	Southern Coast Live Oak Riparian Forest	Riparian	None	None		Riparian forest			Not present.
Southern Cottonwood Willow Riparian Forest	Southern Cottonwood Willow Riparian Forest	Riparian	None	None		Riparian forest			Not present.
Southern Mixed Riparian Forest	Southern Mixed Riparian Forest	Riparian	None	None		Riparian forest			Not present.
Southern Riparian Forest	Southern Riparian Forest	Riparian	None	None		Riparian forest			Not present.

Scientific Name	Common Name	Taxon Group	Federal List	State List	Rare Plant Rank	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Southern Riparian Scrub	Southern Riparian Scrub	Riparian	None	None		Riparian scrub			Not present.
Southern Sycamore Alder Riparian Woodland	Southern Sycamore Alder Riparian Woodland	Riparian	None	None		Riparian woodland			Not present.
Southern Willow Scrub	Southern Willow Scrub	Riparian	None	None		Riparian scrub			Not present.
Sphenopholis obtusata	prairie wedge grass	Monocots	None	None	2B.2	Cismontane woodland | Meadow & seep | Wetland	Cismontane woodland, meadows and seeps.	Open moist sites, along rivers and springs, alkaline desert seeps. 15-2625 m.	No habitat for this species is present on the project site. **This species is not present.**
Streptanthus bernardinus	Laguna Mountains jewelflower	Dicots	None	None	4.3	Chaparral | Lower montane coniferous forest | Upper montane coniferous forest	Chaparral, lower montane coniferous forest.	Clay or decomposed granite soils; sometimes in disturbed areas such as streamsides or roadcuts. 1440-2500 m.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Rare Plant Rank	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Streptanthus campestris	southern jewelflower	Dicots	None	None	1B.3	Chaparral | Lower montane coniferous forest | Pinon & juniper woodlands	Chaparral, lower montane coniferous forest, pinyon and juniper woodland.	Open, rocky areas. 605-2590 m.	No habitat for this species is present on the project site. **This species is not present.**
Symphyotrichum defoliatum	San Bernardino aster	Dicots	None	None	1B.2	Cismontane woodland | Coastal scrub | Lower montane coniferous forest | Marsh & swamp | Meadow & seep | Valley & foothill grassland	Meadows and seeps, cismontane woodland, coastal scrub, lower montane coniferous forest, marshes and swamps, valley and foothill grassland.	Vernally mesic grassland or near ditches, streams and springs; disturbed areas. 3-2045 m.	No habitat for this species is present on the project site. **This species is not present.**
Thelypteris puberula var. sonorensis	Sonoran maiden fern	Ferns	None	None	2B.2	Meadow & seep | Wetland	Meadows and seeps.	Along streams, seepage areas. 60-930 m.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Accipiter cooperii	Cooper's hawk	Birds	None	None	CDFW_WL-Watch List | IUCN_LC-Least Concern	Cismontane woodland | Riparian forest | Riparian woodland | Upper montane coniferous forest	Woodland, chiefly of open, interrupted or marginal type.	Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	No habitat for this species is present on the project site. **This species is not present.**
Agelaius tricolor	tricolored blackbird	Birds	None	Threatened	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_EN-Endangered | NABCI_RWL-Red Watch List | USFWS_BCC-Birds of Conservation Concern	Freshwater marsh | Marsh & swamp | Swamp | Wetland	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California.	Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	No habitat for this species is present on the project site. **This species is not present.**
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	Birds	None	None	CDFW_WL-Watch List	Chaparral | Coastal scrub	Resident in Southern California coastal sage scrub and sparse mixed chaparral.	Frequents relatively steep, often rocky hillsides with grass and forb patches.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Anniella stebbinsi	Southern California legless lizard	Reptiles	None	None	CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	Broadleaved upland forest | Chaparral | Coastal dunes | Coastal scrub	Generally south of the Transverse Range, extending to northwestern Baja California. Occurs in sandy or loose loamy soils under sparse vegetation. Disjunct populations in the Tehachapi and Piute Mountains in Kern County.	Variety of habitats; generally in moist, loose soil. They prefer soils with a high moisture content.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Antrozous pallidus	pallid bat	Mammals	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive | WBWG_H-High Priority	Chaparral | Coastal scrub | Desert wash | Great Basin grassland | Great Basin scrub | Mojavean desert scrub | Riparian woodland | Sonoran desert scrub | Upper montane coniferous forest | Valley & foothill grassland	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting.	Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	No habitat for this species is present on the project site. **This species is not present.**
Arizona elegans occidentalis	California glossy snake	Reptiles	None	None	CDFW_SSC-Species of Special Concern		Patchily distributed from the eastern portion of San Francisco Bay, southern San Joaquin Valley, and the Coast, Transverse, and Peninsular ranges, south to Baja California.	Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Artemisiospiza belli belli	Bell's sage sparrow	Birds	None	None	CDFW_WL-Watch List | USFWS_BCC-Birds of Conservation Concern	Chaparral | Coastal scrub	Nests in chaparral dominated by fairly dense stands of chamise. Found in coastal sage scrub in south of range.	Nest located on the ground beneath a shrub or in a shrub 6-18 inches above ground. Territories about 50 yds apart.	No habitat for this species is present on the project site. **This species is not present.**
Aspidoscelis hyperythra	orange-throated whiptail	Reptiles	None	None	CDFW_WL-Watch List | IUCN_LC-Least Concern | USFS_S-Sensitive	Chaparral | Cismontane woodland | Coastal scrub	Inhabits low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats.	Prefers washes and other sandy areas with patches of brush and rocks. Perennial plants necessary for its major food: termites.	No habitat for this species is present on the project site. **This species is not present.**
Aspidoscelis tigris stejnegeri	coastal whiptail	Reptiles	None	None	CDFW_SSC-Species of Special Concern		Found in deserts and semi-arid areas with sparse vegetation and open areas. Also found in woodland and riparian areas.	Ground may be firm soil, sandy, or rocky.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Athene cunicularia	burrowing owl	Birds	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Coastal prairie | Coastal scrub | Great Basin grassland | Great Basin scrub | Mojavean desert scrub | Sonoran desert scrub | Valley & foothill grassland	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation.	Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	No burrows or suitable habitat was found to exist on site. **This species is not present.**
Batrachoseps gabrieli	San Gabriel slender salamander	Amphibians	None	None	IUCN_DD-Data Deficient | USFS_S-Sensitive	Talus slope	Known only from the San Gabriel Mtns. Found under rocks, wood, and fern fronds, and on soil at the base of talus slopes.	Most active on the surface in winter and early spring.	No habitat for this species is present on the project site. **This species is not present.**
Bombus crotchii	Crotch bumble bee	Insects	None	None			Coastal California east to the Sierra-Cascade crest and south into Mexico.	Food plant genera include Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Bombus morrisoni	Morrison bumble bee	Insects	None	None	IUCN_VU-Vulnerable		From the Sierra-Cascade ranges eastward across the intermountain west.	Food plant genera include Cirsium, Cleome, Helianthus, Lupinus, Chrysothamnus, and Melilotus.	No habitat for this species is present on the project site. **This species is not present.**
Buteo regalis	ferruginous hawk	Birds	None	None	CDFW_WL-Watch List | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Great Basin grassland | Great Basin scrub | Pinon & juniper woodlands | Valley & foothill grassland	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats.	Eats mostly lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	No habitat for this species is present on the project site. **This species is not present.**
Buteo swainsoni	Swainson's hawk	Birds	None	Threatened	BLM_S-Sensitive | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Great Basin grassland | Riparian forest | Riparian woodland | Valley & foothill grassland	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees.	Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Catostomus santaanae	Santa Ana sucker	Fish	Threatened	None	AFS_TH-Threatened | IUCN_VU-Vulnerable	Aquatic | South coast flowing waters	Endemic to Los Angeles Basin south coastal streams.	Habitat generalists, but prefer sand-rubble-boulder bottoms, cool, clear water, and algae.	No habitat for this species is present on the project site. **This species is not present.**
Ceratochrysis longimala	Desert cuckoo wasp	Insects	None	None					No habitat for this species is present on the project site. **This species is not present.**
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	Mammals	None	None	CDFW_SSC-Species of Special Concern	Chaparral | Coastal scrub	Coastal scrub, chaparral, grasslands, sagebrush, etc. in western San Diego County.	Sandy, herbaceous areas, usually in association with rocks or coarse gravel.	No habitat for this species is present on the project site. **This species is not present.**
Chaetodipus fallax pallidus	pallid San Diego pocket mouse	Mammals	None	None	CDFW_SSC-Species of Special Concern	Desert wash | Pinon & juniper woodlands | Sonoran desert scrub	Desert border areas in eastern San Diego County in desert wash, desert scrub, desert succulent scrub, pinyon-juniper, etc.	Sandy, herbaceous areas, usually in association with rocks or coarse gravel.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Charina umbratica	southern rubber boa	Reptiles	None	Threatened	USFS_S-Sensitive	Meadow & seep | Riparian forest | Riparian woodland | Upper montane coniferous forest | Wetland	Known from the San Bernardino and San Jacinto mtns; found in a variety of montane forest habitats. Snakes resembling C. umbratica reported from Mt. Pinos and Tehachapi mtns group with C. bottae based on mtDNA. Further research needed.	Found in vicinity of streams or wet meadows; requires loose, moist soil for burrowing; seeks cover in rotting logs, rock outcrops, and under surface litter.	No habitat for this species is present on the project site. **This species is not present.**
Cicindela tranquebarica viridissima	greenest tiger beetle	Insects	None	None		Riparian woodland	Inhabits the woodlands adjacent to the Santa Ana River basin.	Usually found in open spots between trees.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Birds	Threatened	Endangered	BLM_S-Sensitive | NABCI_RWL-Red Watch List | USFS_S-Sensitive | USFWS_BCC-Birds of Conservation Concern	Riparian forest	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems.	Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	No habitat for this species is present on the project site. **This species is not present.**
Coleonyx variegatus abbotti	San Diego banded gecko	Reptiles	None	None	CDFW_SSC-Species of Special Concern	Chaparral | Coastal scrub	Coastal and cismontane Southern California.	Found in granite or rocky outcrops in coastal scrub and chaparral habitats.	No habitat for this species is present on the project site. **This species is not present.**
Coturnicops noveboracensis	yellow rail	Birds	None	None	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | NABCI_RWL-Red Watch List | USFS_S-Sensitive | USFWS_BCC-Birds of Conservation Concern	Freshwater marsh | Meadow & seep	Summer resident in eastern Sierra Nevada in Mono County.	Freshwater marshlands.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Crotalus ruber	red-diamond rattlesnake	Reptiles	None	None	CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	Chaparral | Mojavean desert scrub | Sonoran desert scrub	Chaparral, woodland, grassland, and desert areas from coastal San Diego County to the eastern slopes of the mountains.	Occurs in rocky areas and dense vegetation. Needs rodent burrows, cracks in rocks or surface cover objects.	No habitat for this species is present on the project site. **This species is not present.**
Diadophis punctatus modestus	San Bernardino ringneck snake	Reptiles	None	None	USFS_S-Sensitive		Most common in open, relatively rocky areas. Often in somewhat moist microhabitats near intermittent streams.	Avoids moving through open or barren areas by restricting movements to areas of surface litter or herbaceous veg.	No habitat for this species is present on the project site. **This species is not present.**
Dipodomys merriami parvus	San Bernardino kangaroo rat	Mammals	Endangered	Candidate Endangered	CDFW_SSC-Species of Special Concern	Coastal scrub	Alluvial scrub vegetation on sandy loam substrates characteristic of alluvial fans and flood plains.	Needs early to intermediate seral stages.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Dipodomys stephensi	Stephens' kangaroo rat	Mammals	Endangered	Threatened	IUCN_EN-Endangered	Coastal scrub | Valley & foothill grassland	Primarily annual and perennial grasslands, but also occurs in coastal scrub and sagebrush with sparse canopy cover.	Prefers buckwheat, chamise, brome grass and filaree. Will burrow into firm soil.	No habitat for this species is present on the project site. **This species is not present.**
Empidonax traillii extimus	southwestern willow flycatcher	Birds	Endangered	Endangered	NABCI_RWL-Red Watch List	Riparian woodland	Riparian woodlands in Southern California.		No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Emys marmorata	western pond turtle	Reptiles	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable | USFS_S-Sensitive	Aquatic | Artificial flowing waters | Klamath/North coast flowing waters | Klamath/North coast standing waters | Marsh & swamp | Sacramento/San Joaquin flowing waters | Sacramento/San Joaquin standing waters | South coast flowing waters | South coast stan	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation.	Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	No habitat for this species is present on the project site. **This species is not present.**
Eremophila alpestris actia	California horned lark	Birds	None	None	CDFW_WL-Watch List | IUCN_LC-Least Concern	Marine intertidal & splash zone communities | Meadow & seep	Coastal regions, chiefly from Sonoma County to San Diego County. Also main part of San Joaquin Valley and east to foothills.	Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Euchloe hyantis andrewsi	Andrew's marble butterfly	Insects	None	None		Lower montane coniferous forest	Inhabits yellow pine forest near Lake Arrowhead and Big Bear Lake, San Bernardino Mtns, San Bernardino Co, 5000-6000 ft.	Hostplants are Streptanthus bernardinus and Arabis holboellii var pinetorum; larval foodplant is Descurainia richardsonii.	No habitat for this species is present on the project site. **This species is not present.**
Eugnosta busckana	Busck's gallmoth	Insects	None	None		Coastal dunes | Coastal scrub			No habitat for this species is present on the project site. **This species is not present.**
Eumops perotis californicus	western mastiff bat	Mammals	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | WBWG_H-High Priority	Chaparral | Cismontane woodland | Coastal scrub | Valley & foothill grassland	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc.	Roosts in crevices in cliff faces, high buildings, trees and tunnels.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Euphydryas editha quino	quino checkerspot butterfly	Insects	Endangered	None		Chaparral | Coastal scrub	Sunny openings within chaparral and coastal sage shrublands in parts of Riverside and San Diego counties.	Hills and mesas near the coast. Need high densities of food plants Plantago erecta, P. insularis, and Orthocarpus purpurescens.	No habitat for this species is present on the project site. **This species is not present.**
Falco columbarius	merlin	Birds	None	None	CDFW_WL-Watch List | IUCN_LC-Least Concern	Estuary | Great Basin grassland | Valley & foothill grassland	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands and deserts, farms and ranches.	Clumps of trees or windbreaks are required for roosting in open country.	No habitat for this species is present on the project site. **This species is not present.**
Gila orcuttii	arroyo chub	Fish	None	None	AFS_VU-Vulnerable | CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	Aquatic | South coast flowing waters	Native to streams from Malibu Creek to San Luis Rey River basin. Introduced into streams in Santa Clara, Ventura, Santa Ynez, Mojave and San Diego river basins.	Slow water stream sections with mud or sand bottoms. Feeds heavily on aquatic vegetation and associated invertebrates.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Glaucomys oregonensis californicus	San Bernardino flying squirrel	Mammals	None	None	CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	Broadleaved upland forest | Lower montane coniferous forest	Known from black oak or white fir dominated woodlands between 5200 - 8500 ft in the San Bernardino and San Jacinto ranges. May be extirpated from San Jacinto range.	Needs cavities in trees/snags for nests and cover. Needs nearby water.	No habitat for this species is present on the project site. **This species is not present.**
Haliaeetus leucocephalus	bald eagle	Birds	Delisted	Endangered	BLM_S-Sensitive | CDF_S-Sensitive | CDFW_FP-Fully Protected | IUCN_LC-Least Concern | USFS_S-Sensitive | USFWS_BCC-Birds of Conservation Concern	Lower montane coniferous forest | Oldgrowth	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water.	Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Icteria virens	yellow-breasted chat	Birds	None	None	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Riparian forest | Riparian scrub | Riparian woodland	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses.	Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	No habitat for this species is present on the project site. **This species is not present.**
Lanius ludovicianus	loggerhead shrike	Birds	None	None	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Broadleaved upland forest | Desert wash | Joshua tree woodland | Mojavean desert scrub | Pinon & juniper woodlands | Riparian woodland | Sonoran desert scrub	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes.	Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	No habitat for this species is present on the project site. **This species is not present.**
Lasiurus xanthinus	western yellow bat	Mammals	None	None	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | WBWG_H-High Priority	Desert wash	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats.	Roosts in trees, particularly palms. Forages over water and among trees.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Laterallus jamaicensis coturniculus	California black rail	Birds	None	Threatened	BLM_S-Sensitive | CDFW_FP-Fully Protected | IUCN_NT-Near Threatened | NABCI_RWL-Red Watch List | USFWS_BCC-Birds of Conservation Concern	Brackish marsh | Freshwater marsh | Marsh & swamp | Salt marsh | Wetland	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays.	Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	No habitat for this species is present on the project site. **This species is not present.**
Lepus californicus bennettii	San Diego black-tailed jackrabbit	Mammals	None	None	CDFW_SSC-Species of Special Concern	Coastal scrub	Intermediate canopy stages of shrub habitats and open shrub / herbaceous and tree / herbaceous edges.	Coastal sage scrub habitats in Southern California.	No habitat for this species is present on the project site. **This species is not present.**
Neolarra alba	white cuckoo bee	Insects	None	None			Known only from localities in Southern California.	Cleptoparasitic in the nests of perdita bees.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Neotoma lepida intermedia	San Diego desert woodrat	Mammals	None	None	CDFW_SSC-Species of Special Concern	Coastal scrub	Coastal scrub of Southern California from San Diego County to San Luis Obispo County.	Moderate to dense canopies preferred. They are particularly abundant in rock outcrops, rocky cliffs, and slopes.	No habitat for this species is present on the project site. **This species is not present.**
Nyctinomops femorosaccus	pocketed free-tailed bat	Mammals	None	None	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | WBWG_M-Medium Priority	Joshua tree woodland | Pinon & juniper woodlands | Riparian scrub | Sonoran desert scrub	Variety of arid areas in Southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc.	Rocky areas with high cliffs.	No habitat for this species is present on the project site. **This species is not present.**
Oncorhynchus mykiss irideus pop. 10	steelhead - southern California DPS	Fish	Endangered	None	AFS_EN-Endangered	Aquatic | South coast flowing waters	Federal listing refers to populations from Santa Maria River south to southern extent of range (San Mateo Creek in San Diego County).	Southern steelhead likely have greater physiological tolerances to warmer water and more variable conditions.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Onychomys torridus ramona	southern grasshopper mouse	Mammals	None	None	CDFW_SSC-Species of Special Concern	Chenopod scrub	Desert areas, especially scrub habitats with friable soils for digging. Prefers low to moderate shrub cover.	Feeds almost exclusively on arthropods, especially scorpions and orthopteran insects.	No habitat for this species is present on the project site. **This species is not present.**
Perognathus alticola alticola	white-eared pocket mouse	Mammals	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_EN-Endangered | USFS_S-Sensitive	Lower montane coniferous forest | Mojavean desert scrub | Pinon & juniper woodlands	Ponderosa and Jeffrey pine habitats; also in mixed chaparral and sagebrush habitats in the San Bernardino Mountains.	Burrows are constructed in loose soil.	No habitat for this species is present on the project site. **This species is not present.**
Perognathus longimembris brevinasus	Los Angeles pocket mouse	Mammals	None	None	CDFW_SSC-Species of Special Concern	Coastal scrub	Lower elevation grasslands and coastal sage communities in and around the Los Angeles Basin.	Open ground with fine, sandy soils. May not dig extensive burrows, hiding under weeds and dead leaves instead.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Phrynosoma blainvillii	coast horned lizard	Reptiles	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Chaparral | Cismontane woodland | Coastal bluff scrub | Coastal scrub | Desert wash | Pinon & juniper woodlands | Riparian scrub | Riparian woodland | Valley & foothill grassland	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes.	Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	No habitat for this species is present on the project site. **This species is not present.**
Polioptila californica californica	coastal California gnatcatcher	Birds	Threatened	None	CDFW_SSC-Species of Special Concern | NABCI_YWL-Yellow Watch List	Coastal bluff scrub | Coastal scrub	Obligate, permanent resident of coastal sage scrub below 2500 ft in Southern California.	Low, coastal sage scrub in arid washes, on mesas and slopes. Not all areas classified as coastal sage scrub are occupied.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Rana draytonii	California red-legged frog	Amphibians	Threatened	None	CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable	Aquatic | Artificial flowing waters | Artificial standing waters | Freshwater marsh | Marsh & swamp | Riparian forest | Riparian scrub | Riparian woodland | Sacramento/San Joaquin flowing waters | Sacramento/San Joaquin standing waters | South coast flowi	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Rana muscosa	southern mountain yellow-legged frog	Amphibians	Endangered	Endangered	CDFW_WL-Watch List | IUCN_EN-Endangered | USFS_S-Sensitive	Aquatic	Disjunct populations known from southern Sierras (northern DPS) and San Gabriel, San Bernardino, and San Jacinto Mtns (southern DPS). Found at 1,000 to 12,000 ft in lakes and creeks that stem from springs and snowmelt. May overwinter under frozen lakes.	Often encountered within a few feet of water. Tadpoles may require 2 - 4 yrs to complete their aquatic development.	No habitat for this species is present on the project site. **This species is not present.**
Rhaphiomidas terminatus abdominalis	Delhi Sands flower-loving fly	Insects	Endangered	None		Interior dunes	Found only in areas of the Delhi Sands formation in southwestern San Bernardino and northwestern Riverside counties.	Requires fine, sandy soils, often with wholly or partly consolidated dunes and sparse vegetation. Oviposition req. shade.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Rhinichthys osculus ssp. 8	Santa Ana speckled dace	Fish	None	None	AFS_TH-Threatened | CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	Aquatic | South coast flowing waters	Headwaters of the Santa Ana and San Gabriel rivers. May be extirpated from the Los Angeles River system.	Requires permanent flowing streams with summer water temps of 17-20 C. Usually inhabits shallow cobble and gravel riffles.	No habitat for this species is present on the project site. **This species is not present.**
Salvadora hexalepis virgultea	coast patch-nosed snake	Reptiles	None	None	CDFW_SSC-Species of Special Concern	Coastal scrub	Brushy or shrubby vegetation in coastal Southern California.	Require small mammal burrows for refuge and overwintering sites.	No habitat for this species is present on the project site. **This species is not present.**
Setophaga petechia	yellow warbler	Birds	None	None	CDFW_SSC-Species of Special Concern | USFWS_BCC-Birds of Conservation Concern	Riparian forest | Riparian scrub | Riparian woodland	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada.	Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Spea hammondii	western spadefoot	Amphibians	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened	Cismontane woodland | Coastal scrub | Valley & foothill grassland | Vernal pool | Wetland	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands.	Vernal pools are essential for breeding and egg-laying.	No habitat for this species is present on the project site. **This species is not present.**
Spinus lawrencei	Lawrence's goldfinch	Birds	None	None	IUCN_LC-Least Concern | NABCI_YWL-Yellow Watch List | USFWS_BCC-Birds of Conservation Concern	Broadleaved upland forest | Chaparral | Pinon & juniper woodlands | Riparian woodland	Nests in open oak or other arid woodland and chaparral, near water. Nearby herbaceous habitats used for feeding.	Closely associated with oaks.	No habitat for this species is present on the project site. **This species is not present.**
Streptocephalus woottoni	Riverside fairy shrimp	Crustaceans	Endangered	None	IUCN_EN-Endangered	Coastal scrub | Valley & foothill grassland | Vernal pool | Wetland	Endemic to Western Riverside, Orange, and San Diego counties in areas of tectonic swales/earth slump basins in grassland and coastal sage scrub.	Inhabit seasonally astatic pools filled by winter/spring rains. Hatch in warm water later in the season.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Taxidea taxus	American badger	Mammals	None	None	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Alkali marsh | Alkali playa | Alpine | Alpine dwarf scrub | Bog & fen | Brackish marsh | Broadleaved upland forest | Chaparral | Chenopod scrub | Cismontane woodland | Closed-cone coniferous forest | Coastal bluff scrub | Coastal dunes | Coastal prairie |	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	No habitat for this species is present on the project site. **This species is not present.**
Thamnophis hammondii	two-striped gartersnake	Reptiles	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive	Marsh & swamp | Riparian scrub | Riparian woodland | Wetland	Coastal California from vicinity of Salinas to northwest Baja California. From sea to about 7,000 ft elevation.	Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	No habitat for this species is present on the project site. **This species is not present.**

Scientific Name	Common Name	Taxon Group	Federal List	State List	Other Status	Habitats	General Habitat	Micro Habitat	Presence/ Absence
Vireo bellii pusillus	least Bell's vireo	Birds	Endangered	Endangered	IUCN_NT-Near Threatened | NABCI_YWL-Yellow Watch List	Riparian forest | Riparian scrub | Riparian woodland	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft.	Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	No habitat for this species is present on the project site. **This species is not present.**

APPENDIX C

View of ruderal habitat on northern portion of the project site from the east facing west.

View of ruderal habitat on southern portion of the project site facing southeast. Evidence of recent weed abatement activities.

View of ruderal habitat on northwest portion of the project site.

Hernandez Environmental Services

View of ruderal habitat on southern portion of the project site from the western border facing east.

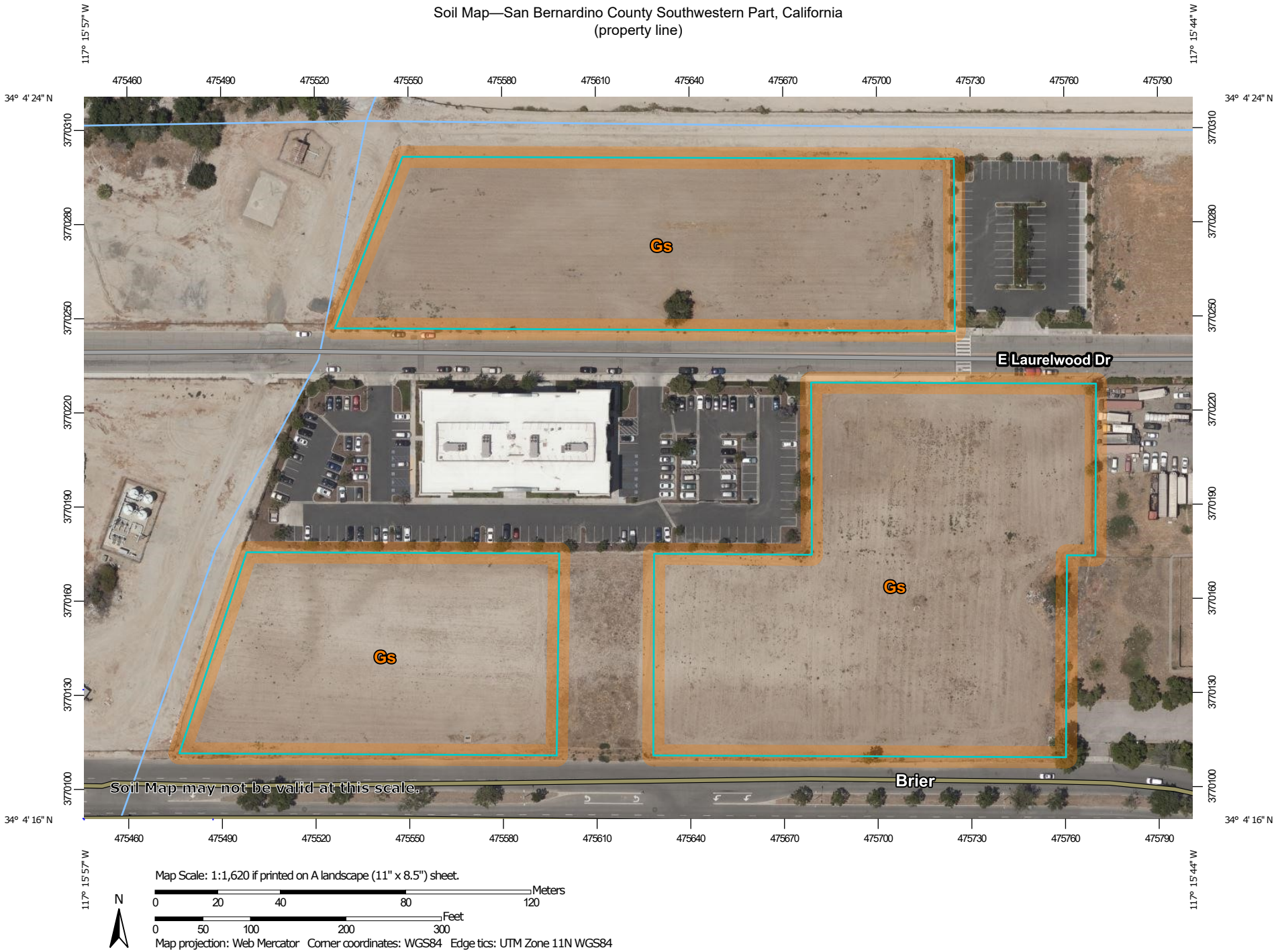
View of ruderal habitat along East Brier Drive on southern portion of the project site.

View of ruderal habitat on southeast portion of project site.

Hernandez Environmental Services

APPENDIX D

Soil Map—San Bernardino County Southwestern Part, California
(property line)



Map Scale: 1:1,620 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 20 40 80 120

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Bernardino County Southwestern Part, California
Survey Area Data: Version 13, Sep 13, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 1, 2018—Jun 30, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Gs	Grangeville fine sandy loam, saline-alkali	7.7	100.0%
Totals for Area of Interest		**7.7**	**100.0%**

APPENDIX E

Huffman
Environmental

RARE PLANT REPORT

HARDT AND BRIER PROJECT

-2023-

Prepared for:

Hernandez Environmental

17037 Lakeshore Drive
Lake Elsinore, CA 92530
Office: (951) 579-1652

Table of Contents

List of Figures

List of Tables

List of Appendices

1. INTRODUCTION

Hernandez Environmental Services (HES) and Huffman Environmental, LLC were retained to conduct rare plant surveys that support residential project permitting for the Hardt and Brier Project (herein Project) in San Bernardino, San Bernardino County, California. The three Project parcels consisting of approximately 7.76 acres is located within the San Bernardino South USGS 7.5-minute Quadrangle.

Surveys were conducted and completed on May 20th 2023, and results documented one rare plant species, known as the smooth tarplant (*Centromadia pungens ssp. laevis*) (CNPS ranking 4.2). No other rare plants species were recorded on site.

1.1 Property Description

1.1.1 Geographic Setting

The Project is between the I-10 San Bernardino Freeway and Santa Ana River. The Project consists of three parcels, two of them located between East Hardt Street and East Brier Drive with the remaining one north of those between East Hardt Street and the Metrolink. All three of the project boundaries are adjacent to the U.S. Citizenship and Immigration Services building at 995 Hardt Street, San Bernardino, CA, 92408 (Figure 1).. The parcel is undeveloped and topographically flat with disturbed soil from annual dozer ripping.

1.1.2 Adjacent Lands

The Project is situated in the southwestern portion of San Bernardino County and within a commercial neighborhood district consisting of development and ornamental landscape. Few similar, undeveloped parcels remain in proximity to the Project. The Santa Ana River is 0.5 miles north of the Project running east and west.

1.1.3 Geology, Hydrology, Soils and Climate

The relationship between rare plants and environmental factors is intricate. Geology influences soil composition and availability of specific minerals, while hydrology affects water availability and distribution. Soils provide physical support, nutrients, and water to plants, and climate determines the overall suitability of a habitat. The combination of these factors shapes the unique

ecological niches and adaptations of rare plant species, making them sensitive to changes in their environment.

The land formation history within the San Bernardino South quadrangle is shaped by a complex interplay of geological processes that have occurred over millions of years.

The San Bernardino area is primarily influenced by two major faults: the San Andreas Fault and the San Jacinto Fault. These faults are part of the larger tectonic boundary known as the San Andreas Fault system, which extends for approximately 800 miles through California. The San Andreas Fault is located to the north of the San Bernardino area, primarily running through the San Bernardino Mountains and the Mojave Desert. The San Jacinto fault runs parallel to this east of the San Bernardino area, traversing the San Jacinto Mountains and Coachella Valley. Both fault systems are characterized by right-lateral strike-slip motions.

The region's basement rocks, which underlie the surface formations, are primarily composed of metamorphic and igneous rocks from the Pre-Cenozoic Era. During the Cenozoic Era, which began approximately 66 million years ago, is particularly significant for understanding the land formation in the San Bernardino South quadrangle. Tectonic forces, primarily related to the San Andreas Fault system, has been responsible for horizontal displacement and the formation of mountain ranges. Volcanic activity occurring during this time, resulted in the formation of volcanic rocks, including basalt, and volcanic land-forms such as cinder cones and lava flows. These volcanic processes contributed to the shaping of the landscape. Sedementary processes consisting of erosion, transport, and deposition of sediments played a large role in also shaping the region. This erosion along with water flowing from nearby mountain ranges, created alluvial fans and floodplains that spread out among flatter terrain. During the Quaternary Period, the most recent geological period beginning approximately 2.6 millions years ago to present day, land-forms and sedimentation patterns from glacial and interglacial periods were formed. These glacial melts and alluvial processes played a role in the deposition of sediments and certain land formation.

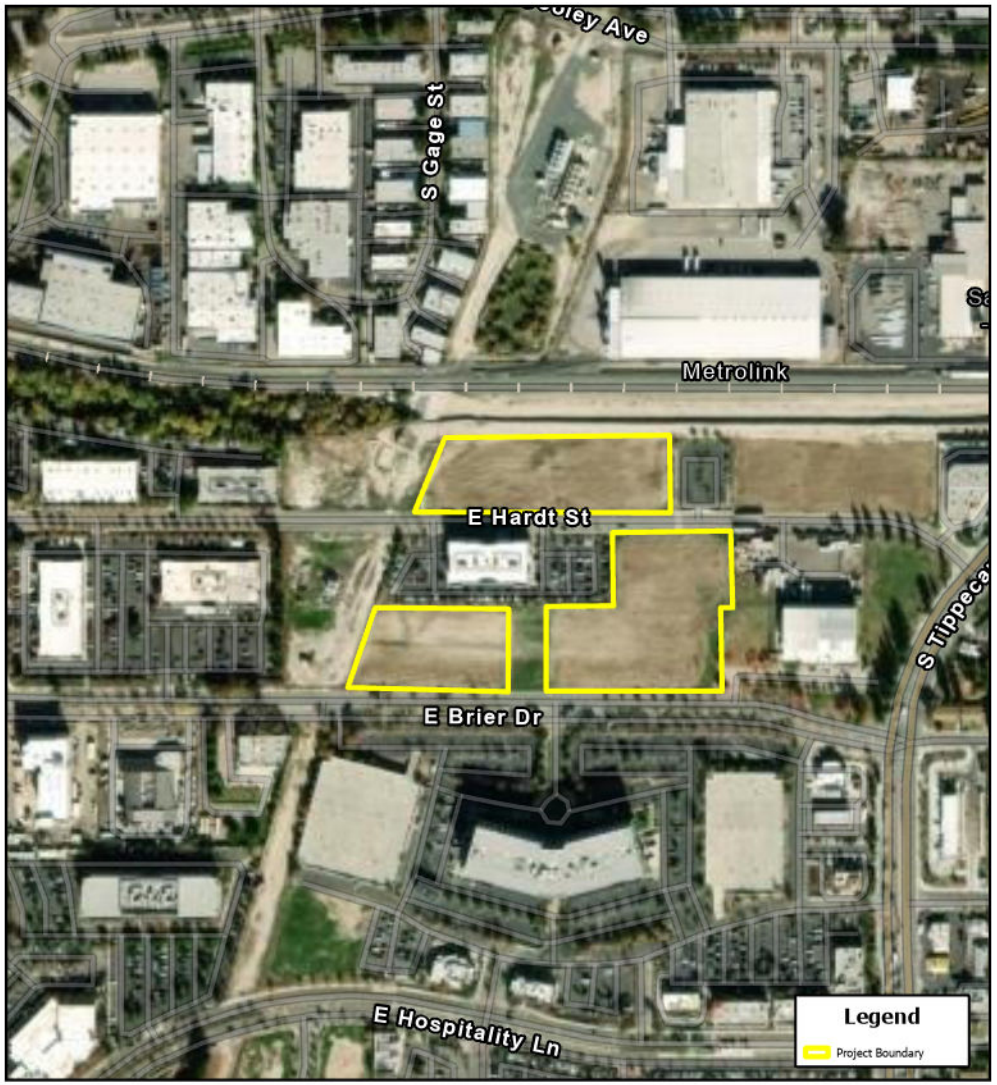
North of the project site by 0.5 miles lies the Santa Ana River running east to west, influencing the local soil composition. All three parcels are characterized by the Grangeville series that consists of very deep, somewhat poorly drained soils that formed in moderate coarse textured alluvium dominantly from granitic rock sources. Grangeville soils are on alluvial fans and

floodplains and have slopes ranging from 0 to 2 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 63 degrees F. Areas made up of Grangeville soils are used intensively for growing alfalfa, grapes, cotton, truck crops and irrigated pastures while some areas are being urbanized. Vegetation in uncultivated areas is annual grasses and forbs with native alkali-tolerant plants.

Table 1. Soil Composition

Soil Acronym	Soils Map Unit	Acres in Project	Percent of Project
Gr	Grangeville Series: Alluvial fans; Slopes 0 to 2%	7.76	100%

Source: University of California: Agriculture and Natural Resources (UofC) (2023a)



Huffman ENVIRONMENTAL

Figure 1: Project Vicinity and Location

Hardt and Brier Project: Rare Plant Surveys

2023

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere

N

0 0.07 0.15 Mi

0 0.13 0.25 Km

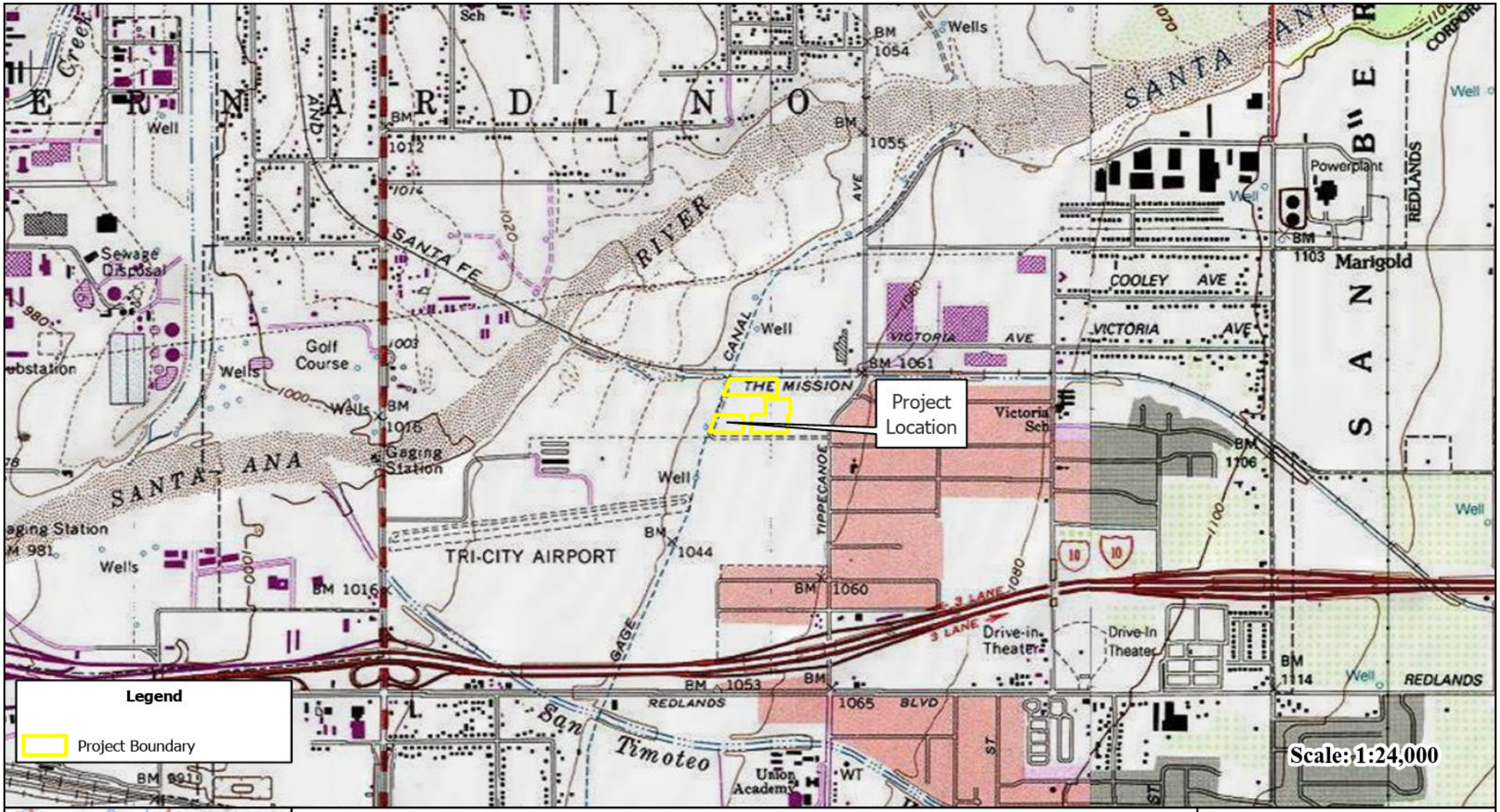


Figure 2: USGS Project Location Map

Hardt and Brier Project: Rare Plant Surveys

2023

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere

N

0 0.25 0.5 Mi

0 0.47 0.95 Km

2. METHODS

2.1 Background Analysis

Various sources were consulted and reviewed for regional plant records prior to undertaking field surveys. The analysis included a review of records from the following sources:

- Documented rare plant occurrences in a 9-Quad search compiled from the California Natural Diversity Data Base (CNDDB) by the California Department of Fish and Wildlife, 2023
- A review of documented occurrences of common and rare plants for California at the online website Calflora, 2023
- Species descriptions from the Jepson Online Interchange via the Jepson Herbarium, 2023
- Documented rare plant occurrences in a 9-Quad search compiled in the Inventory of Rare Plants by the California Native Plant Society (CNPS), 2023
- Aerial photographs from Google Earth and ESRI basemaps, 2023

The background analysis yielded data was compiled in a Geographic Information System (GIS) system using ArcGIS Pro and ArcGIS Online (AGOL)software programs. Data was converted and uploaded to AGOL and subsequently onto ArGIS Field Maps (mobile GIS software) to use in the field as a reference and for collecting field data.

Site precipitation levels were assessed and compiled in Table 1 and compared with the combined list of potential rare plant species observed in the region to determine site visit timing. Levels are also compared with past precipitation recordings in 2021 and 2022 .

Tale 2: Precipitation Levels in San Bernardino (recorded in inches)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2021	0.13	0.02	0.05	0.00	0.00	0.00	0.01	0.00	T	0.03	0.00	0.35	0.05
2022	0.00	0.01	0.03	0.10	0.01	0.11	M	T	0.10	0.10	0.69	0.22	0.12
2023	0.57	0.47	0.61	0.04	0.09	0.00	M	M	M	M	M	M	0.30
Mean	0.24	0.17	0.23	0.04	0.03	0.04	0.01	0.00	0.05	0.06	0.35	0.29	0.16
Max	0.57 2023	0.47 2023	0.61 2023	0.10 2022	0.09 2023	0.11 2022	0.01 2021	0.00 2021	0.10 2022	0.10 2022	0.69 2022	0.35 2021	0.30
Min	0.00 2022	0.01 2022	0.03 2022	0.00 2021	0.00 2021	0.00 2021	0.01 2021	T 2022	T 2021	0.03 2021	0.00 202	0.22 202	0.05

Source: National Oceanic and atmospheric Administration National Weather Service (NOAA (2023). M &T: missing data.

2.2 Field Surveys

Huffman Environmental botanist, Ryan Meszaros, conducted a rare plant survey on May 20th, 2023 within all Project parcels. The surveyors noted environmental conditions and documented all plant species observed.. Plants not readily identified in the field were collected and pressed for subsequent identification.

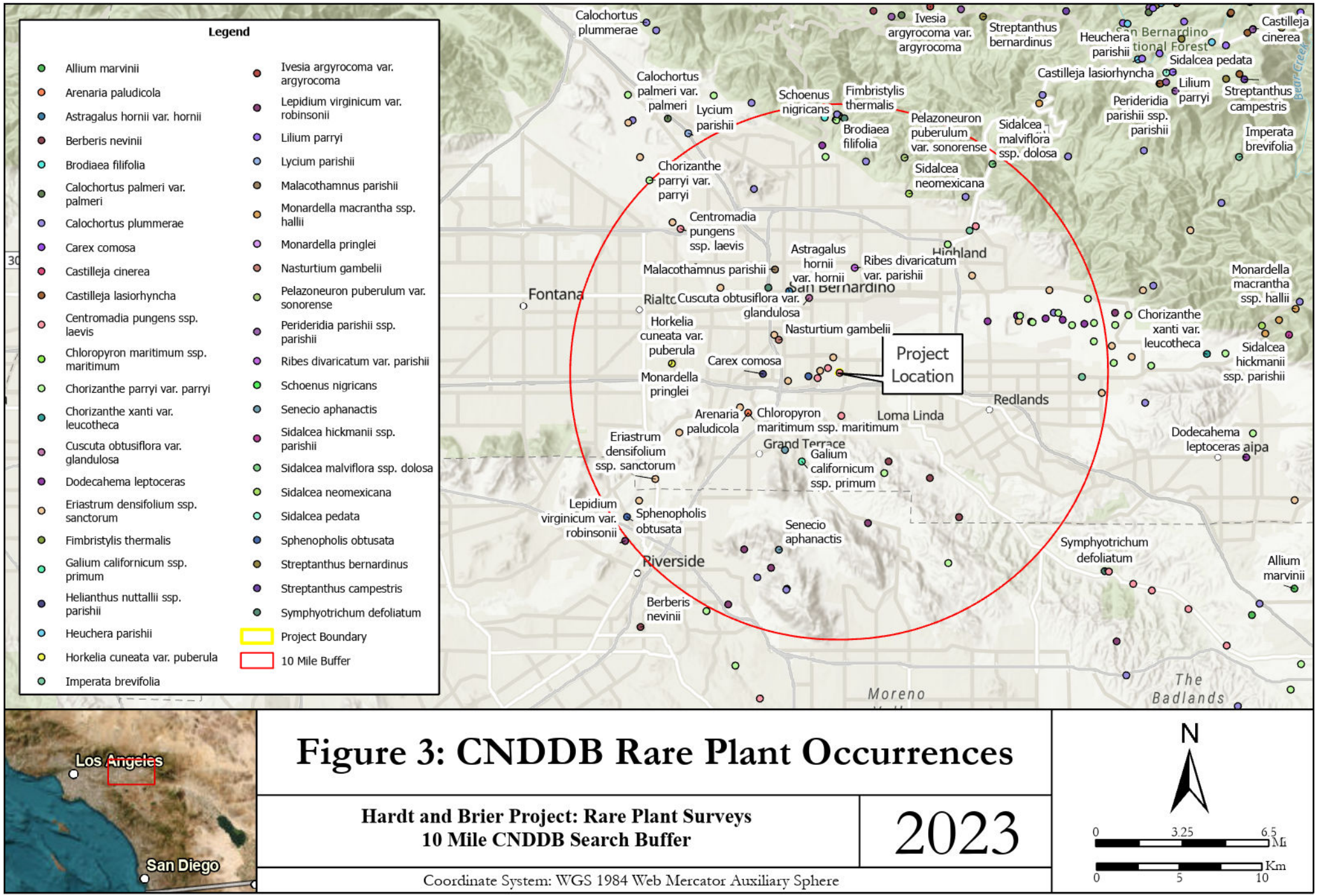
The property was systematically surveyed by walking all accessible portions ensuring that all habitats were afforded sufficient coverage to be defensible and properly inventoried. Roughly parallel transects were spaced approximately 10 to 12 meters since the open habitat of the site were dominated by invasive grasses and weedy forbs allowing for greater visibility. Greater focus was prioritized in areas likely to support the list of CNNDB and CNPS target species.

A complete list of plants observed is included as Appendix A of this report. All plant nomenclature in this report follows the Jepson Manual.

3 RESULTS

3.1 Preliminary Analysis

The preliminary analysis of known and documented occurrences of the rare plant species evaluated in the study revealed populations of several sensitive plants near the property, with one species located within the Project (Figure 3). Numerous species from the CNDDB and CNPS 9-Quad queries were identified as unlikely to occur due to the Project not meeting the minimum habitat requirements for occurrence. If any species habitat requirements were met, they were identified as potentially able to occur onsite. One species, the smooth tarplant (*Centromadia pungens ssp. laevis*) was documented in the CNDDB at the southeast parcel of the Project in 2003. The following are descriptions of plants compiled from the CNDDB and CNPS query that met distribution and biological factors and used to evaluate the potential presence of the species within a 10-mile radius.


Legend
Allium marvinii
Arenaria paludicola
Astragalus hornii var. hornii
Berberis nevinii
Brodiaea filifolia
Calochortus palmeri var. palmeri
Calochortus plummerae
Carex comosa
Castilleja cinerea
Castilleja lasiorhyncha
Centromadia pungens ssp. laevis
Chloropyron maritimum ssp. maritimum
Chorizanthe parryi var. parryi
Chorizanthe xanti var. leucotheca
Cuscuta obtusiflora var. glandulosa
Dodecahema leptoceras
Eriastrum densifolium ssp. sanctorum
Fimbristylis thermalis
Galium californicum ssp. primum
Helianthus nuttallii ssp. parishii
Heuchera parishii
Horkelia cuneata var. puberula
Imperata brevifolia
Ivesia argyrocoma var. argyrocoma
Lepidium virginicum var. robinsonii
Lilium parryi
Lycium parishii
Malacothamnus parishii
Monardella macrantha ssp. hallii
Monardella pringlei
Nasturtium gambelii
Pelazoneuron puberulum var. sonorense
Perideridia parishii ssp. parishii
Ribes divaricatum var. parishii
Schoenus nigricans
Senecio aphanactis
Sidalcea hickmanii ssp. parishii
Sidalcea malviflora ssp. dolosa
Sidalcea neomexicana
Sidalcea pedata
Sphenopholis obtusata
Streptanthus bernardinus
Streptanthus campestris
Symphyotrichum defoliatum
Project Boundary
10 Mile Buffer
Calochortus plummerae
Ivesia argyrocoma var. argyrocoma
Streptanthus bernardinus
Heuchera parishii
Castilleja cinerea
Sidalcea pedata
Castilleja lasiorhyncha
Lilium parryi
Streptanthus campestris
Calochortus palmeri var. palmeri
Lycium parishii
Schoenus nigricans
Fimbristylis thermalis
Perideridia parishii ssp. parishii
Brodiaea filifolia
Pelazoneuron puberulum var. sonorense
Sidalcea malviflora ssp. dolosa
Imperata brevifolia
Chorizanthe parryi var. parryi
Sidalcea neomexicana
Centromadia pungens ssp. laevis
Astragalus hornii var. hornii
Ribes divaricatum var. parishii
Malacothamnus parishii
Highland
Monardella macrantha ssp. hallii
Fontana
Rialto
Cuscuta obtusiflora var. glandulosa
San Bernardino
Chorizanthe xanti var. leucotheca
Horkelia cuneata var. puberula
Nasturtium gambelii
Project Location
Sidalcea hickmanii ssp. parishii
Carex comosa
Monardella pringlei
Redlands
Arenaria paludicola
Chloropyron maritimum ssp. maritimum
Loma Linda
Dodecahema leptoceras
Eriastrum densifolium ssp. sanctorum
Grand Terrace
Galium californicum ssp. primum
Lepidium virginicum var. robinsonii
Sphenopholis obtusata
Senecio aphanactis
Symphyotrichum defoliatum
Riverside
Allium marvinii
Berberis nevinii
Moreno
The Badlands
Los Angeles
San Diego
Figure 3: CNDDB Rare Plant Occurrences
Hardt and Brier Project: Rare Plant Surveys
10 Mile CNDDB Search Buffer
2023
Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
N
0
3.25
6.5
Mi
0
5
10
Km

Thread-leaved Brodiaea

Thread-leaved Brodiaea (*Brodiaea filifolia*) is a perennial herbaceous plant with slender and erect stems that can reach heights of about 8 to 20 inches (20 to 50 cm). The stems are typically unbranched and leafless, except for a few small bracts at the base. As the common name suggests, the distinguishing feature of this plant is its thread-like leaves. The leaves are extremely narrow and filamentous, giving the plant a delicate and graceful appearance. The leaves are typically shorter than the flowering stem and can be up to 12 inches (30 cm) long. The flowers are borne in compact clusters at the top of the stem. Each cluster contains several tubular-shaped flowers with six distinct tepals (petal-like structures). The flower color can vary but is often shades of blue or purple, occasionally white. The flowers bloom in late spring or early summer. This species is listed both state and federally as Threatened and is ranked by CNPS as 1B.1.

Smooth Tarplant

Smooth tarplant (*Centromadia pungens ssp. laevis*), is an annual herb with an erect or spreading growth habit. It typically grows to a height of about 8 to 24 inches (20 to 60 cm). The stems are usually green or reddish in color and can be smooth or slightly hairy. The leaves are linear to lanceolate in shape and arranged alternately along the stems. They are typically smooth, lacking hairs or with minimal hairiness. The leaves can range in color from green to grayish-green.The flowers are small and arranged in compact clusters or heads at the tips of the stems. Each flower head contains multiple yellow disc florets surrounded by yellow to orange ray florets. The flower heads can form attractive displays when in bloom.This species was detected and documented in two of the three Project parcels. (Figure 4) It is not state or federally listed as Threatened or Endangered, but is CNPS ranked 1B.1

Parry's Spineflower

Parry's spineflower (*Chorizanthe parryi var. parryi*) is a low-growing perennial herb that forms dense mats on the ground. It has multiple prostrate or ascending stems that can reach lengths of about 4 to 16 inches (10 to 40 cm). The stems are often reddish or purplish in color.The flowers of Parry's spineflower are small and inconspicuous. They are densely clustered together in compact spike-like structures called inflorescences. The flower color can vary from greenish-white to pinkish or reddish. Each individual flower has five petal-like lobes and is surrounded by spiny bracts. It is not state or federally listed as Threatened or Endangered, but is CNPS ranked

1B.1

Plummer’s Mariposa Lily

Plummer's mariposa lily (*Calochortus plummerae*) is a species of flowering plant in the family Liliaceae. It is a perennial herbaceous plant that grows from a bulb. It produces a single erect stem that ca reach heights of up to60 centimeters (24 inches). The stem is slender and leafy, with lance-shaped leaves arranged in whorls or alternate patterns along its length. Plummer's mariposa lily is known for its ecological specialization, as it typically grows in specific habitats such as coastal sage scrub, chaparral, and oak woodlands. It prefers well-drained soils and can withstand dry and arid conditions. The plant is adapted to the Mediterranean climate of California, with hot and dry summers and mild, wet winters.

Bristly Sedge

Bristly sedge, (*Carex comosa*) is a clump-forming sedge that typically grows in wetland habitats such as marshes, swamps, and streambanks. It is characterized by its dense, tufted growth habit ad long, slender leaves. The leave are typically green and have a grass-like appearance, with rough or bristly edges that give the plant its common name. During the flowering season, bristly sedge produces inconspicuous, small flowers. The flowers are typically brownish-green and arranged in spikelets that are held above the foliage on slender stems. These spikelets can be either male or female, with the female spikelets developing into small, seed-bearing fruits.It is not state or federally listed as Threatened or Endangered, but is CNPS ranked 2B.1

Slender-horned Spineflower

Slender-horne spinefower (*Dodecahema leptoceras*) is an annual herb with a distinctive appearance. It typically grows in open, sandy or gravelly soils in coastal dunes, coastal scrub, and grasslands. Te plant has a branching stem that can reach up to 60 centimeters (24 inches) in height. The leaves are narrow, linear, and often covered with fine hairs.The most notable feature of the slender-horned spineflower is its unique flower structure. The flowers are small and inconspicuous, with white or pinkish petals. This plant is distinctive by its three prominent, slender, horn-like bracts that surround the flowers. These bracts give the plant its common name, as they resemble spines or horns. Slender-horned spineflower typically blooms in the spring.This species is listed both state and federally as Endangered and is ranked by CNPS as 1B.1.

Santa Ana River Woollystar

Santa Ana River woollystar (*Eriastrum densifolium ssp. sanctorum*) is a perennial herbaceous plant that typically grows in grasslands, meadows, and open areas. It has a compact and bushy growth habit with densely arranged leaves along its stems. The leaves are narrow and elongated, often covered in fine hairs. During the flowering season, which typically occurs in the spring and summer, it produces clusters of vibrant and showy flowers. The flowers are typically shades of blue or purple, although variations in color may occur. Each flower consists of five petals fused at the base to form a tube-like structure, with the petals spreading outwards into a star-like shape.This species is listed both state and federally as Endangered and is ranked by CNPS as 1B.1.

California Satintail

California satintail (*Imperata brevifolia*) is a warm-season grass with a clumping growth habit. It typically forms dense tufts or patches of grass, reaching heights of about 30 to 60 centimeters (12 to 24 inches). The grass blads are narrow, linear, and typically green or bluish-green in color. One distinguishing feature is the presence of fine hairs along the leaf blades, which give them a silky or satiny appearance. This grass species is adapted to arid and semi-arid environments and is often found in desert scrub, grasslands, and rocky slopes. It has the ability to tolerate drought and high temperatures. Satintail is a perennial plant, meaning it lives for multiple years and regrows from its base each growing season. During the flowering period, Imperata brevifolia produces flowering stems or spikes that rise above the foliage. The spike-like inflorescences are typically reddish or purplish in color and bear small flowers. The flowers are wind-pollinated, and after pollination, they develop into small, grain-like fruits.It is not state or federally listed as Threatened or Endangered, but is CNPS ranked 2B.1.

Robinson's Pepper-grass

Ronbinso’s pepper-grass (*Lepidium virginicum var. robinsoni*) is a variety of Lepidium virginicum, commonly known as Virginia pepperweed or peppergrass. It is a flowering plant in the mustard family, Brasicaceae. Lepidium virgiicum var. robinsonii is a herbaceous annual or biennial plant that grows in a rosette form. It has lobed or toothed leaves that are green and elongated. The plant produces slender, erect flowering stems that can reach heights of up to 60 centimeters (24 inches). The stems are typically covered in fine hairs.During the flowering

season it bears clusters of small, white flowers on the terminal ends of the stems. The flowers have four petals and a distinctive arrangement, forming a cross shape, which is a characteristic of the Brassicaceae family. After pollination, the plant produces small, round fruits. It is often found in disturbed habitats, including roadsides, fields, and open areas. It is adaptable to a variety of soil types and can tolerate both wet and dry conditions. As with other varieties, this plant has a pungent and peppery taste, hence its common name "pepperweed." It is not state or federally listed as Threatened or Endangered, but is CNPS ranked 4.3.

Chaparral Ragwort

Chaparral ragwort (*Senecio aphanactis*) is a species of flowering plant in the family Asteraceae. It is also commonly known as rayless ragwort or threadleaf groundsel. The plant is native to western North America and can be found in various habitats such as meadows, grasslands, and open woodlands. It is a perennial herbaceous plant with a slender and delicate appearance. It typically grows in clumps and has long, thread-like leaves that give it the common name "threadleaf." The leaves are usually gray-green in color and may have fine hairs or a woolly texture. During the blooming season, it produces small flower heads that are typically yellow or yellowish-green in color. The flower heads lack ray florets, which are the strap-like petals typically seen in many members of the Asteraceae family. Instead, the flower heads consist only of disc florets, which are tubular in shape and clustered together.It is not state or federally listed as Threatened or Endangered, but is CNPS ranked 2B.2.

Salt Spring Checkerbloom

The salt spring checkerbloom (*Sidalcea neomexicana*) is a species of flowering plant in the mallow family, Malvaceae. It is a herbaceous perennial plant that typically grows in moist habitats such as meaows, stream banks, and muntain slopes. It forms a basal rosette of leaves and sends up erect flowering stems that can reach heights of about 30 to 90 centimeters (12 to 35 inches). The leaves are palmately lobed or divided, giving them a distinctive shape. During the blooming season, which typically occurs in the spring and summer, it produces clusters of showy, pink to purple flowers. The flowers are cup-shaped and have five petals, which may have a darker throat or center. They are arranged in terminal spikes or racemes atop the stems. It is not state or federally listed as Threatened or Endangered, but is CNPS ranked 1B.2.

San Bernardino Aster

San Bernardino aster (*Symphyotrichum defoliatum*) is a species of flowering plant in the Asteraceae family. It is a perennial herbaceous plant that typically grows in dry, open habitats such as meadows, prairies, and roadsides. It reaches heights of about 30 to 90 centimeters (12 to 35 inches) and has erect stems with narrow, lance-shaped leaves. The leaves are usually smooth or slightly hairy, and their edges may be toothed or smooth. During the blooming season, which usually occurs in late summer to early fall, it produces numerous small flowers in clusters at the tips of the stems. The flowers have daisy-like appearance with purple, pink, or white ray florets surrounding a yellow center of disc florets. It is not state or federally listed as Threatened or Endangered, but is CNPS ranked 1B.2.

Parry's Spineflower

Parry's spineflower (*Chorizanthe parryi* var. *parryi*) is a tiny annual herb that grows in openings within chaparral and coastal sage scrub. It has been collected at elevations from 900 to 3,600 feet in dry sandy soils. It has a prostrate growth spreading habit and typically reaches a height of about 4 to 8 inches (10 to 20 cm). The flowers of Parry's spineflower are small, usually measuring less than 0.5 inches (1 cm) in diameter. They are arranged in dense clusters or spikes at the ends of the stems. The flower color can vary from greenish-white to pink or reddish. Each individual flower is tubular and has five petal-like lobes.The stems are reddish or purplish in color and covered in small hairs.It typically grows in coastal scrub, chaparral, and coastal sage scrub habitats, often in sandy or rocky soils. It is not state or federally listed as Threatened or Endangered, but is CNPS ranked 1B.1.

Long-spined Spineflower

Long-spined Spineflower (*Chorizanthe polygonoides* var. *longispina*) occurs in chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, and vernal pools. It is often associated with claysoil from 100 to 5,000 feet. The long-spined spineflower is a perennial herb with a prostrate or spreading growth habit. It typically forms low mats or patches on the ground. The stems are slender, reddish or greenish, and covered in small hairs. The plant can reach a height of about 4 to 10 inches (10 to 25 cm). The flowers of the long-spined spineflower are small and arranged in dense clusters or spikes at the ends of the stems. Each flower is tubular with five petal-like lobes. The color of the flowers can vary from greenish-white to pinkish. As

the name suggests, the plant is characterized by its long, sharp spines that arise from the base of each flower. These spines can be up to 0.4 inches (1 cm) in length. It is not state or federally listed as Threatened or Endangered, but is CNPS ranked 1B.2.

Palmer's Grappling Hook

Palmer's grappling hook (*Harpagonella palmeri*) is an annual herb with a low-growing and spreading growth habit. It typically reaches a height of about 4 to 12 inches (10 to 30 cm). The stems are slender, often reddish in color, and covered in fine hairs.The flowers of Palmer's combseed are small and inconspicuous. They are typically white to pale yellow in color and arranged in dense clusters or spikes at the tips of the stems. The individual flowers have a tubular shape with five lobes. This diminutive plant is distinguished from similar looking plants in the Borage Family by the fruit that resembles "grappling" hooks. It is not state or federally listed as Threatened or Endangered, but is CNPS ranked 4.2.

Table 3. CNDDB and CNPS Rare Plant Results (within a 10 mile radius of Project)

Species (Scientific Name)	Species (Common Name)	Likelihood of Occurrence
Arenaria paludicola	Marsh Sandwort	Unlikely to Occur
Astragalus hornii var. hornii	Horn's Milk-Vetch	Unlikely to Occur
Berberis nevinii	Nevin's Barberry	Unlikely to Occur
Brodiaea filifolia	Thread-Leaved Brodiaea	Suitable Conditions for Occurrence
Calochortus plummerae	Plummer's Mariposa-Lily	Marginally Suitable Conditions for Occurrence
Carex comosa	Bristly Sedge	Marginally Suitable Conditions for Occurrence
Centromadia pungens ssp. laevis	smooth tarplant	Suitable Conditions for

Species (Scientific Name)	Species (Common Name)	Likelihood of Occurrence
		Occurrence
Chloropyron maritimum ssp. maritimum	Salt Marsh Bird's-beak	Unlikely to Occur
Chorizanthe parryi var. parryi	Parry's Spineflower	Marginally Suitable Conditions for Occurrence
Cuscuta obtusiflora var. glandulosa	Peruvian Dodder	Unlikely to Occur
Dodecahema leptoceras	Slender-horned Spineflower	Marginally Suitable Conditions for Occurrence
Eriastrum densifolium ssp. sanctorum	Santa Ana River woollystar	Marginally Suitable Conditions for Occurrence
Fimbristylis thermalis	Hot Springs Fimbristylis	Unlikely to Occur
Galium californicum ssp. primum	Alvin Meadow Bedstraw	Unlikely to Occur
Helianthus nuttallii ssp. parishii	Los Angeles Sunflower	Unlikely to Occur
Horkelia cuneata var. puberula	Mesa Horkelia	Unlikely to Occur
Imperata brevifolia	California Satintail	Marginally Suitable Conditions for Occurrence
Lepidium virginicum var. robinsonii	Robinson's Pepper-grass	Marginally Suitable Conditions for Occurrence
Malacothamnus parishii	Parish's Bush-mallow	Unlikely to Occur
Monardella pringlei	Pringle's Monardella	Unlikely to Occur
Nasturtium gambelii	Gambel's Water cress	Unlikely to Occur

Species (Scientific Name)	Species (Common Name)	Likelihood of Occurrence
Pelazoneuron puberulum var. sonorense	Sonoran Maiden fern	Unlikely to Occur
Ribes divaricatum var. parishii	Parish's Gooseberry	Unlikely to Occur
Schoenus nigricans	Black Bog-rush	Unlikely to Occur
Senecio aphanactis	Chaparral Ragwort	Marginally Suitable Conditions for Occurrence
Sidalcea malviflora ssp. dolosa	Bear Valley Checkerbloom	Unlikely to Occur
Sidalcea neomexicana	Salt Spring Checkerbloom	Marginally Suitable Conditions for Occurrence
Sphenopholis obtusata	Prairie Wedge Grass	Unlikely to Occur
Symphyotrichum defoliatum	San Bernardino Aster	Marginally Suitable Conditions for Occurrence

3.2 Field Surveys

3.2.1 Vegetation

Vegetation community on the Project is considered to be non-native grassland. Evidence of construction impacts are visible in the form of dozer ripping and tilled soil. Dominant species consist of *Avena* spp., *Bromus* spp., *Hordeum murinum* and *Erodim*s spp. Adjacent areas have been disturbed and developed in the form of roads and buildings, with ornamental landscaping where vegetation occurs.

3.2.2 Rare Plants

Only one species of rare plant was observed and documented on the site, thee smooth tarplant (*Centromadia pungens ssp. laevis*). This species occurrence was anticipated due to previous

reports of an observation reported on CNDDB in year 2003. The smooth tarplant population is more expansive than previously documented with approximately 300 individuals detected, with the majority concentrated n the northern of the three parcels. The results of the documented smooth tarplant population can be viewed on Figure 4. Smooth tarplant is not state or federally listed as Threatened or Endangered, but is CNPS ranked 1.B1. No other rare plants were observed onsite and a comprehensive list of encountered species can viewed in Appendix A.

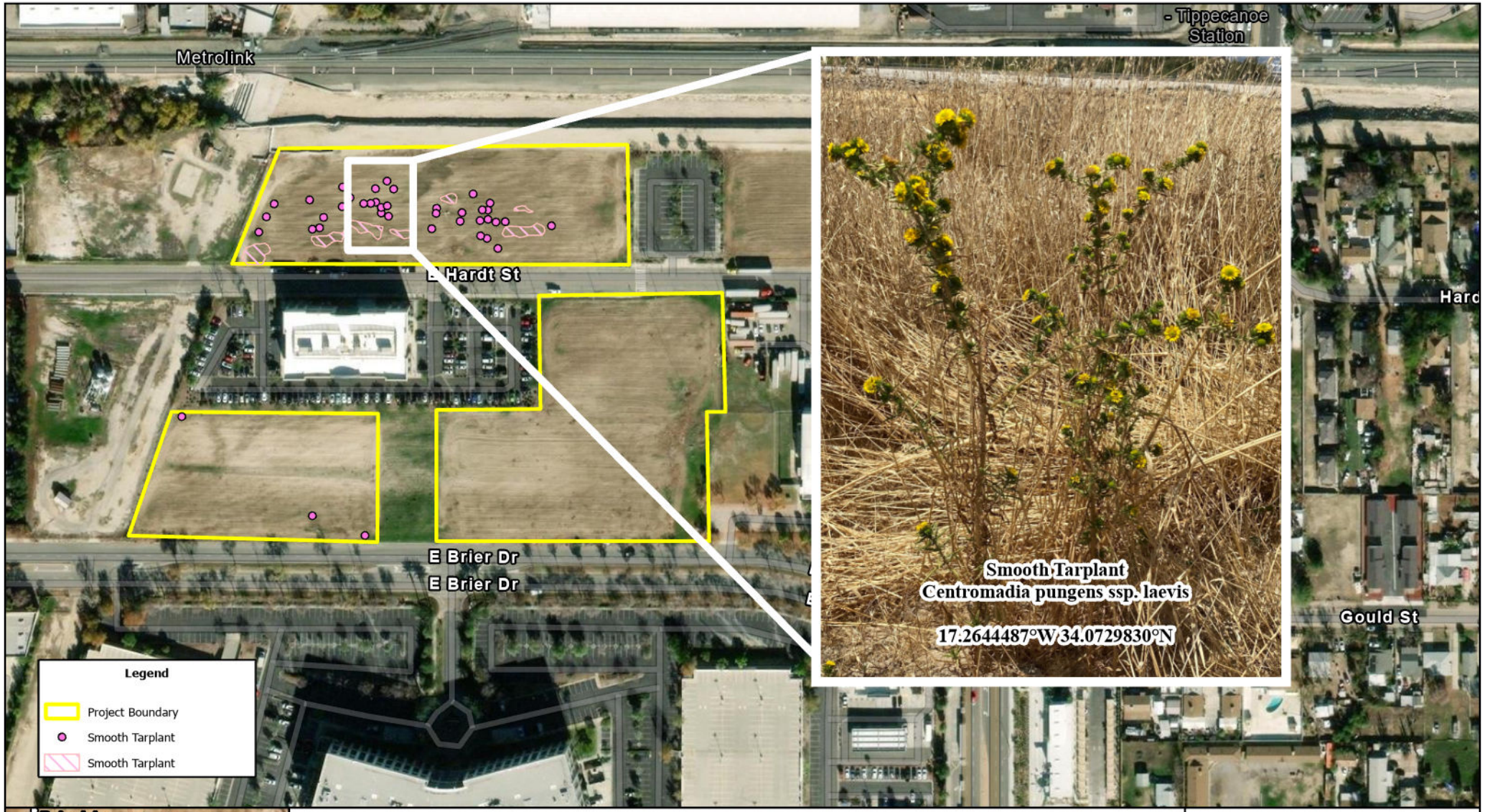


Figure 4: Rare Plant Survey Results

Hardt and Brier Project: Rare Plant Surveys

2023

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere

4.0 CERTIFICATION

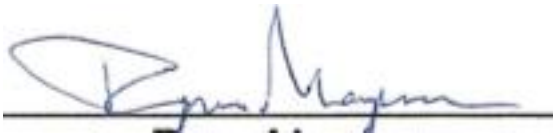
All biologists working under Huffman Environmental for the 2023 Hardt and Brier Rare Plant Surveys were qualified to survey for all sensitive plant species.

Their certification states that all information in this report and attached figures completely and accurately represent the work of each individual.

Please feel free to contact me at garrett@huffmanenvironmental.com if you have any questions regarding the contents of this report.

Cordially,

Garrett Huffman
Principal Biologist
Huffman Environmental, LLC
(623) 238-1545
garrett@huffmanenvironmental.com



Ryan Meszaros
Principal Botanist

5.0 REFERENCES

Baldwin, B.G., D.H. Goldman, and L.A. Vorobik. 2012. The Jepson Manual: Vascular Plants of California. University of California Press, Berkeley.

California Department of Fish and Wildlife. 2023.California Natural Diversity DataBase (Rarefind). Data available by subscription.

California NativePlant Society (CNPS). 2001. CNPS Botanical Survey Guidelines.

California Native Plant Society, Rare Plant Program. 2023. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Webste http://www.rareplants.cnps.org Accessed July 2023.

Calflora: Information on California plants for education, research and conservation. [web application]. 2022. Berkeley, California: The Calflora Database [a non-profit organization]. Available online at:

https://www.calflora.org/search.html. Accessed on July 1, 2023

Kennedy, M.P., and D.M. Morton.2003 Preiminary Geologic Map of the Murrieta 7.5 Quadrangle, Riverside County, California. U.S. Geological Survey Open-File Report 03-189. Washington, D.C.

Morton, Douglas M., and Kennedy, Michael P., 2003, Geologic Map of the Bachelor Mountain 7.5' Quadrangle, Riverside County, California: U.S. Geological Survey Open-File Report 03-103, U.S. Geological Survey, Menlo Park, Califoria.

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A manual of California vegetation. Second edition. Calif. Native Plant Society Press, in collaboration with Calif. Fish and Game. Sacramento.

Soil Survey Staff, Natural Resorces Conservation Service, United States Department of Agriculture [a]. Soil Survey Geographic (SSURGO) Database for [French Valley, California]. Available online at:
www.arcgis.com/apps/OePane/basicviewer/index.html?appid=a23eb436f6ec4ad6982000dbaddea5ea. Accessed: July, 2023.

APPENDIX A

FLORA OBSERVED

Flora Observed

Family	Species	Common Name
Amaranthacea	*Amaranthus albus*	White Tumbleweed
Apiaceae	*Cyclospermum leptophyllum*	Marsh-Parsley
Arecaceae	*Washingtonia robusta*	Mexican Fan Palm
Asteraceae	*Ambrosia acanthicarpa*	Annual Bur-Sage
Asteraceae	*Centromadia pungens* subsp. *laevis*	Smooth Tarplant
Asteraceae	*Deinandra fasciculata*	Fascicled Tarweed
Asteraceae	*Erigeron bonariensis*	Flax-Leaf Fleabane
Asteraceae	*Erigeron canadensis*	Horseweed
Asteraceae	*Helianthus annuus*	Western Sunflower
Asteraceae	*Heterotheca grandiflora*	Telegraph Weed
Asteraceae	*Lactuca serriola*	Prickly Lettuce
Asteraceae	*Oncosiphon piluliferum*	Stinknet
Asteraceae	*Pseudognaphalium luteoalbum*	Fragrant Everlasting Cudweed
Asteraceae	*Sonchus oleraceus*	Common Sow-Thistle
Asteraceae	*Stephanomeria sp.*	Wreath-Plant
Boraginaceae	*Amsinckia intermedia*	Rancher's Fiddleneck
Boraginaceae	*Amsinckia menziesii*	Rigid Fiddleneck
Brassicaceae	*Brassica tournefortii*	Sahara Mustard
Brassicaceae	*Sisymbrium irio*	London Rocket
Caryophyllacea	*Polycarpon tetraphyllum* subsp.	Four-Leaf Allseed
Caryophyllacea	*Silene gallica*	Common Catchfly
Caryophyllacea	*Spergularia bocconi*	Boccone's Sand-Spurrey
Chenopodiacea	*Atriplex argentea* var. *expansa*	Mojave Silverscale
Chenopodiacea	*Bassia hyssopifolia*	Five-Hook Bassia
Chenopodiacea	*Chenopodium album*	Lamb's Quarters
Chenopodiacea	*Chenopodium missouriense*	Missouri Lambsquarters
Chenopodiacea	*Chenopodium murale*	Nettle-Leaf Goosefoot
Chenopodiacea	*Salsola tragus*	Prickly Russian-Thistle, Tumbleweed
Cyperaceae	*Cyperus eragrostis*	Tall Flatsedge
Euphorbiaceae	*Euphorbia maculata*	Spotted Spurge
Euphorbiaceae	*Ricinus communis*	Castor Bean
Fabaceae	*Medicago polymorpha*	California Burclover

Fabaceae	*Melilotus indicus*	Indian Sweetclover
Geraniaceae	*Erodium botrys*	Long-Beak Filaree/Storksbill
Geraniaceae	*Erodium cicutarium*	Red-Stem Filaree/Storksbill
Heliotropiacea	*Heliotropium curassavicum* var. *oculatum*	Salt Heliotrope
Juncaceae	*Juncus bufonius* var. *congestus*	Clustered Toad Rush
Lamiaceae	*Marrubium vulgare*	Horehound
Malvaceae	*Malva parviflora*	Cheeseweed
Myrsinaceae	*Lysmachia arvensis*	Scarlet Pimpernel, Poor Man's
Poaceae	*Avena fatua*	Wild Oat
Poaceae	*Bromus catharticus* var. *catharticus*	Rescue Grass
Poaceae	*Bromus diandrus*	Ripgut Grass
Poaceae	*Bromus rubens*	Foxtail Chess, Red Brome
Poaceae	*Cenchrus clandestinus*	Kikuyu Grass
Poaceae	*Cenchrus setaceus*	African Fountain Grass
Poaceae	*Cynodon dactylon*	Bermuda Grass
Poaceae	*Echinochloa colona*	Jungle-Rice
Poaceae	*Hordeum murinum*	Foxtail
Poaceae	*Phalaris minor*	Little-Seed Canary Grass
Poaceae	*Polypogon monspeliensis*	Annual Beard Grass
Poaceae	*Polypogon viridis*	Water Beardgrass
Poaceae	*Schismus barbatus*	Mediterranean Schismus
Polygonaceae	*Polygonum aviculare*	Prostrate Knotweed
Portulacaceae	*Portulaca oleracea*	Common Purslane
Rubiaceae	*Galium aparine*	Common Bedstraw, Goose Grass
Salicaceae	*Salix gooddingii*	Goodding's Black Willow
Solanaceae	*Datura wrightii*	Western Jimson Weed
Solanaceae	*Solanum nigrum*	Black Nightshade
Zygophyllaceae	*Tribulus terrestris*	Puncture Vine

APPENDIX B

SITE PHOTOS

APPENDIX B

Site Photographs

Photograph 1. Photo of CNPS ranked 4.2, smooth tarplant (*Centromadia pungens ssp. laevis*)

Photograph 2. Photo of distinguishing features of smooth tarplant (*Centromadia pungens ssp. laevis*) documented onsite.

Photograph 3. Photo of smooth tarplant (*Centromadia pungens ssp. laevis*) flower petals.

Photograph 4. Photo from northern parcel looking east over the survey area.

Photograph 5. Photo from northern parcel looking north over survey area.

APPENDIX C

CNDDB 9-QUAD

SEARCH RESULTS

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Redlands (3411712) OR Harrison Mtn. (3411722) OR San Bernardino North (3411723) OR Sunnymead (3311782) OR Riverside East (3311783) OR Riverside West (3311784) OR Fontana (3411714) OR Devore (3411724))
 AND Taxonomic Group IS (Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes)

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Allium howellii var. clokeyi Mt. Pinos onion	G4T2 S2	None None	Rare Plant Rank - 1B.3 SB_SBBG-Santa Barbara Botanic Garden USFS_S-Sensitive	5,100 5,100	25 S:1	0	0	0	0	0	1	1	0	1	0	0
Ambrosia monogyra singlewhorl burrobrush	G5 S2	None None	Rare Plant Rank - 2B.2 SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	1,550 1,550	30 S:1	0	0	0	0	0	1	1	0	1	0	0
Ambrosia pumila San Diego ambrosia	G1 S1	Endangered None	Rare Plant Rank - 1B.1 SB_CRES-San Diego Zoo CRES Native Gene Seed Bank		61 S:1	0	0	0	0	1	0	1	0	0	0	1
Arenaria paludicola marsh sandwort	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_SBBG-Santa Barbara Botanic Garden	1,000 1,000	19 S:1	0	0	0	0	1	0	1	0	0	0	1
Berberis nevinii Nevin's barberry	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden	1,020 5,200	32 S:5	0	0	0	2	1	2	4	1	4	0	1
Brodiaea filifolia thread-leaved brodiaea	G2 S2	Threatened Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	1,900 1,900	141 S:2	0	0	1	0	0	1	1	1	2	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Calochortus palmeri var. palmeri Palmer's mariposa-lily	G3T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden USFS_S-Sensitive	1,700 6,000	111 S:2	0	0	0	0	0	2	2	0	2	0	0
Calochortus plummerae Plummer's mariposa-lily	G4 S4	None None	Rare Plant Rank - 4.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	900 5,000	230 S:28	0	3	1	1	0	23	11	17	28	0	0
Castilleja lasiorhyncha San Bernardino Mountains owl's-clover	G2? S2?	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive		46 S:2	0	0	0	0	0	2	2	0	2	0	0
Centromadia pungens ssp. laevis smooth tarplant	G3G4T2 S2	None None	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	1,000 1,520	137 S:6	1	0	1	0	0	4	5	1	6	0	0
Chloropyron maritimum ssp. maritimum salt marsh bird's-beak	G4?T1 S1	Endangered Endangered	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank SB_SBBG-Santa Barbara Botanic Garden	1,000 1,000	26 S:1	0	0	0	0	1	0	1	0	0	1	0
Chorizanthe parryi var. parryi Parry's spineflower	G3T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	900 2,500	150 S:26	0	3	1	0	2	20	16	10	24	2	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Chorizanthe xanti var. leucotheca white-bracted spineflower	G4T3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture USFS_S-Sensitive	2,100 2,700	59 S:4	0	0	0	0	0	4	1	3	4	0	0
Cuscuta obtusiflora var. glandulosa Peruvian dodder	G5T4? SH	None None	Rare Plant Rank - 2B.2		6 S:1	0	0	0	0	1	0	1	0	0	0	1
Dodecahema leptoceras slender-horned spineflower	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	1,280 2,400	42 S:11	0	2	1	0	3	5	9	2	8	2	1
Eriastrum densifolium ssp. sanctorum Santa Ana River woollystar	G4T1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	790 2,000	31 S:13	2	2	5	0	3	1	5	8	10	1	2
Fimbristylis thermalis hot springs fimbristylis	G4 S1S2	None None	Rare Plant Rank - 2B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	1,900 1,900	19 S:1	0	0	0	1	0	0	0	1	1	0	0
Heuchera parishii Parish's alumroot	G3 S3	None None	Rare Plant Rank - 1B.3 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive		70 S:1	0	0	0	0	0	1	1	0	1	0	0
Horkelia cuneata var. puberula mesa horkelia	G4T1 S1	None None	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	1,300 1,400	103 S:4	0	0	0	0	2	2	4	0	2	2	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Imperata brevifolia California satintail	G3 S3	None None	Rare Plant Rank - 2B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden USFS_S-Sensitive	1,480 1,950	32 S:3	0	0	0	1	0	2	2	1	3	0	0
Ivesia argyrocoma var. argyrocoma silver-haired ivesia	G2T2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	5,620 5,620	41 S:1	0	0	0	1	0	0	0	1	1	0	0
Lasthenia glabrata ssp. coulteri Coulter's goldfields	G4T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden	1,200 1,450	111 S:2	0	0	0	0	0	2	2	0	2	0	0
Lepidium virginicum var. robinsonii Robinson's pepper-grass	G5T3 S3	None None	Rare Plant Rank - 4.3	850 1,800	142 S:7	0	0	0	0	0	7	6	1	7	0	0
Lilium parryi lemon lily	G3 S3	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank USFS_S-Sensitive	4,700 4,700	160 S:1	0	0	0	0	0	1	1	0	1	0	0
Lycium parishii Parish's desert-thorn	G4 S1	None None	Rare Plant Rank - 2B.3 SB_CRES-San Diego Zoo CRES Native Gene Seed Bank		21 S:1	0	0	0	0	1	0	1	0	0	0	1
Malacothamnus parishii Parish's bush-mallow	GXQ SX	None None	Rare Plant Rank - 1A	1,250 1,250	1 S:1	0	0	0	0	1	0	1	0	0	0	1

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Monardella macrantha ssp. hallii Hall's monardella	G5T3 S3	None None	Rare Plant Rank - 1B.3 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	4,600 4,600	41 S:1	0	1	0	0	0	0	0	1	1	0	0
Monardella pringlei Pringle's monardella	GX SX	None None	Rare Plant Rank - 1A	1,000 1,000	2 S:1	0	0	0	0	1	0	1	0	0	1	0
Opuntia basilaris var. brachyclada short-joint beavertail	G5T3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	3,000 3,000	199 S:1	0	0	0	0	0	1	1	0	1	0	0
Pelazoneuron puberulum var. sonorense Sonoran maiden fern	G5T3 S2	None None	Rare Plant Rank - 2B.2 USFS_S-Sensitive	2,000 2,000	27 S:1	0	0	1	0	0	0	0	1	1	0	0
Perideridia parishii ssp. parishii Parish's yampah	G4T3T4 S2	None None	Rare Plant Rank - 2B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	5,600 6,000	37 S:2	0	0	0	0	0	2	2	0	2	0	0
Phacelia stellaris Brand's star phacelia	G1 S1	None None	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	750 750	15 S:1	0	0	0	0	0	1	1	0	1	0	0
Ribes divaricatum var. parishii Parish's gooseberry	G5TX SX	None None	Rare Plant Rank - 1A	1,080 1,080	5 S:1	0	0	0	0	1	0	1	0	0	1	0
Schoenus nigricans black bog-rush	G4 S2	None None	Rare Plant Rank - 2B.2 IUCN_LC-Least Concern USFS_S-Sensitive	1,950 1,950	13 S:1	0	0	0	0	0	1	0	1	1	0	0
Senecio aphanactis chaparral ragwort	G3 S2	None None	Rare Plant Rank - 2B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	2,300 2,300	98 S:2	0	0	0	0	0	2	1	1	2	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Sidalcea malviflora ssp. dolosa Bear Valley checkerbloom	G5T2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive		18 S:1	0	0	0	0	0	1	1	0	1	0	0
Sidalcea neomexicana salt spring checkerbloom	G4 S2	None None	Rare Plant Rank - 2B.2 USFS_S-Sensitive	1,500 1,500	30 S:1	0	0	0	0	0	1	1	0	1	0	0
Sphenopholis obtusata prairie wedge grass	G5 S2	None None	Rare Plant Rank - 2B.2	800 800	19 S:1	0	0	0	0	0	1	1	0	1	0	0
Streptanthus bernardinus Laguna Mountains jewelflower	G3G4 S3S4	None None	Rare Plant Rank - 4.3 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	5,400 5,990	22 S:2	0	2	0	0	0	0	2	0	2	0	0
Streptanthus campestris southern jewelflower	G3 S3	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive SB_CRES-San Diego Zoo CRES Native Gene Seed Bank USFS_S-Sensitive	4,489 6,200	73 S:2	0	0	0	1	0	1	1	1	2	0	0
Symphyotrichum defoliatum San Bernardino aster	G2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_CRES-San Diego Zoo CRES Native Gene Seed Bank USFS_S-Sensitive	1,000 2,000	102 S:3	0	0	0	0	0	3	3	0	3	0	0

APPENDIX D

CNPS 9-QUAD

SEARCH RESULTS

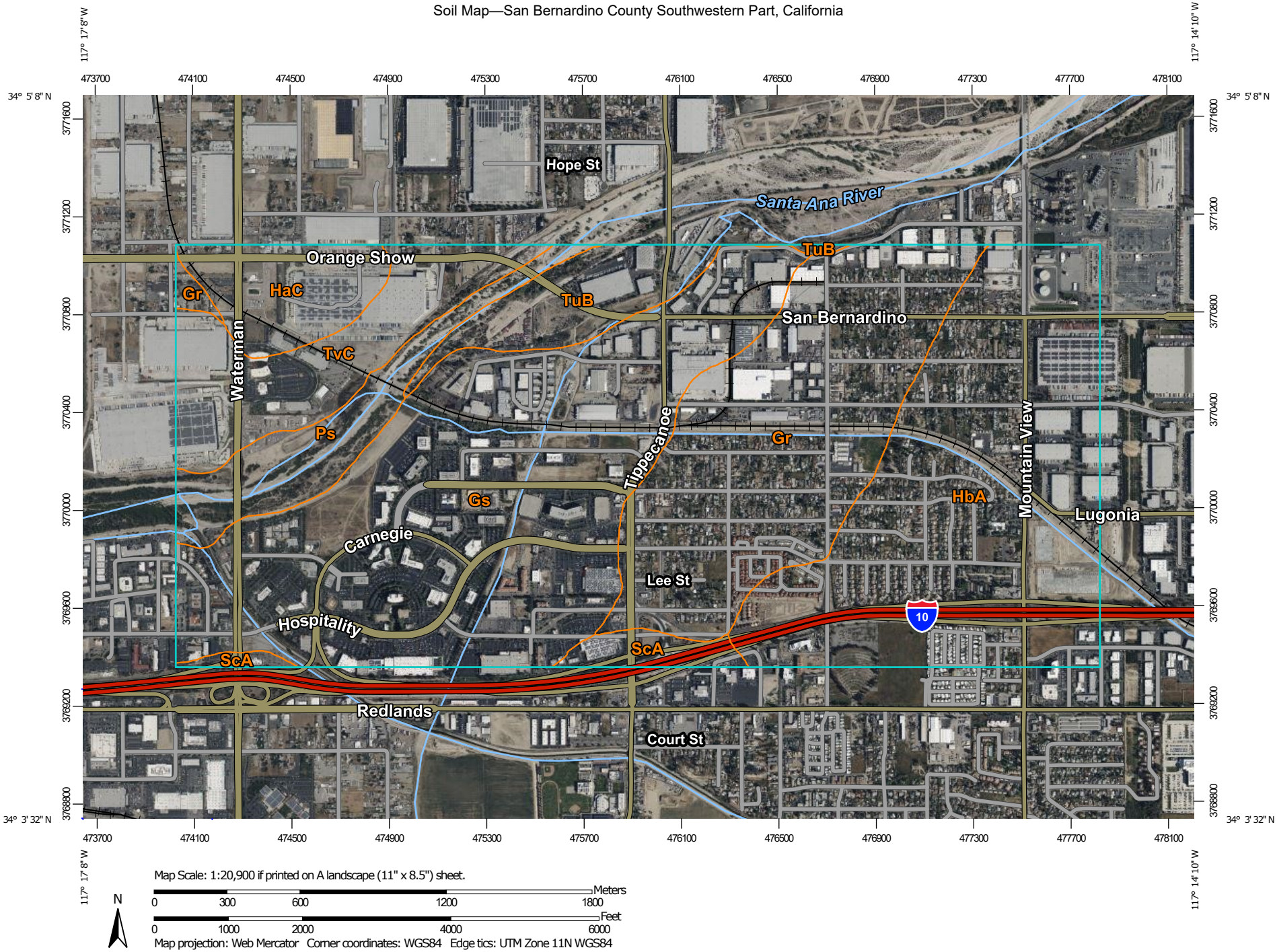
ScientificName	CommonName	Family	CRPR
Abronia villosa var. aurita	chaparral sand-verbena	Nyctaginaceae	1B.1
Acanthoscyphus parishii var. parishii	Parish's oxytheca	Polygonaceae	4.2
Allium howellii var. clokeyi	Mt. Pinos onion	Alliaceae	1B.3
Ambrosia monogyra	singlewhorl burrobrush	Asteraceae	2B.2
Ambrosia pumila	San Diego ambrosia	Asteraceae	1B.1
Arenaria paludicola	marsh sandwort	Caryophyllaceae	1B.1
Artemisia palmeri	San Diego sagewort	Asteraceae	4.2
Asplenium vespertinum	western spleenwort	Aspleniaceae	4.2
Astragalus hornii var. hornii	Horn's milk-vetch	Fabaceae	1B.1
Berberis nevinii	Nevin's barberry	Berberidaceae	1B.1
Brodiaea filifolia	thread-leaved brodiaea	Themidaceae	1B.1
Calochortus catalinae	Catalina mariposa lily	Liliaceae	4.2
Calochortus palmeri var. palmeri	Palmer's mariposa-lily	Liliaceae	1B.2
Calochortus plummerae	Plummer's mariposa-lily	Liliaceae	4.2
Calochortus simulans	La Panza mariposa-lily	Liliaceae	1B.3
Carex comosa	bristly sedge	Cyperaceae	2B.1
Castilleja lasiorhyncha	San Bernardino Mountains owl's-clover	Orobanchaceae	1B.2
Caulanthus simulans	Payson's jewelflower	Brassicaceae	4.2
Centromadia pungens ssp. laevis	smooth tarplant	Asteraceae	1B.1
Chloropyron maritimum ssp. maritimun	salt marsh bird's-beak	Orobanchaceae	1B.2
Chorizanthe leptotheca	Peninsular spineflower	Polygonaceae	4.2
Chorizanthe parryi var. parryi	Parry's spineflower	Polygonaceae	1B.1
Chorizanthe xanti var. leucotheca	white-bracted spineflower	Polygonaceae	1B.2
Convolvulus simulans	small-flowered morning-glory	Convolvulaceae	4.2
Cryptantha incana	Tulare cryptantha	Boraginaceae	1B.3
Cuscuta obtusiflora var. glandulosa	Peruvian dodder	Convolvulaceae	2B.2
Deinandra paniculata	paniculate tarplant	Asteraceae	4.2
Dodecahema leptoceras	slender-horned spineflower	Polygonaceae	1B.1
Eriastrum densifolium ssp. sanctorum	Santa Ana River woollystar	Polemoniaceae	1B.1
Eriophyllum lanatum var. obovatum	southern Sierra woolly sunflower	Asteraceae	4.3
Fimbristylis thermalis	hot springs fimbristylis	Cyperaceae	2B.2

Frasera neglecta	pine green-gentian	Gentianaceae	4.3
Fritillaria pinetorum	pine fritillary	Liliaceae	4.3
Galium californicum ssp. primum	Alvin Meadow bedstraw	Rubiaceae	1B.2
Galium jepsonii	Jepson's bedstraw	Rubiaceae	4.3
Galium johnstonii	Johnston's bedstraw	Rubiaceae	4.3
Helianthus nuttallii ssp. parishii	Los Angeles sunflower	Asteraceae	1A
Heuchera caespitosa	urn-flowered alumroot	Saxifragaceae	4.3
Heuchera parishii	Parish's alumroot	Saxifragaceae	1B.3
Hordeum intercedens	vernal barley	Poaceae	3.2
Horkelia cuneata var. puberula	mesa horkelia	Rosaceae	1B.1
Hulsea vestita ssp. parryi	Parry's sunflower	Asteraceae	4.3
Imperata brevifolia	California satintail	Poaceae	2B.1
Ivesia argyrocoma var. argyrocoma	silver-haired ivesia	Rosaceae	1B.2
Juglans californica	Southern California black walnut	Juglandaceae	4.2
Juncus duranii	Duran's rush	Juncaceae	4.3
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	Asteraceae	1B.1
Lepidium virginicum var. robinsonii	Robinson's pepper-grass	Brassicaceae	4.3
Lilium humboldtii ssp. ocellatum	ocellated Humboldt lily	Liliaceae	4.2
Lilium parryi	lemon lily	Liliaceae	1B.2
Lycium parishii	Parish's desert-thorn	Solanaceae	2B.3
Malacothamnus parishii	Parish's bush-mallow	Malvaceae	1A
Monardella macrantha ssp. hallii	Hall's monardella	Lamiaceae	1B.3
Monardella pringlei	Pringle's monardella	Lamiaceae	1A
Monardella saxicola	rock monardella	Lamiaceae	4.2
Muhlenbergia californica	California muhly	Poaceae	4.3
Nasturtium gambelii	Gambel's water cress	Brassicaceae	1B.1
Opuntia basilaris var. brachyclada	short-joint beavertail	Cactaceae	1B.2
Pelazoneuron puberulum var. sonorens	Sonoran maiden fern	Thelypteridaceae	2B.2
Perideridia parishii ssp. parishii	Parish's yampah	Apiaceae	2B.2
Phacelia mohavensis	Mojave phacelia	Hydrophyllaceae	4.3
Phacelia stellaris	Brand's star phacelia	Hydrophyllaceae	1B.1
Piperia leptopetala	narrow-petaled rein orchid	Orchidaceae	4.3

Quercus durata var. gabrielensis	San Gabriel oak	Fagaceae	4.2
Ribes divaricatum var. parishii	Parish's gooseberry	Grossulariaceae	1A
Romneya coulteri	Coulter's matilija poppy	Papaveraceae	4.2
Schoenus nigricans	black bog-rush	Cyperaceae	2B.2
Senecio aphanactis	chaparral ragwort	Asteraceae	2B.2
Senecio astephanus	San Gabriel ragwort	Asteraceae	4.3
Sidalcea malviflora ssp. dolosa	Bear Valley checkerbloom	Malvaceae	1B.2
Sidalcea neomexicana	salt spring checkerbloom	Malvaceae	2B.2
Sidotheca caryophylloides	chickweed oxytheca	Polygonaceae	4.3
Sphenopholis obtusata	prairie wedge grass	Poaceae	2B.2
Streptanthus bernardinus	Laguna Mountains jewelflower	Brassicaceae	4.3
Streptanthus campestris	southern jewelflower	Brassicaceae	1B.3
Symphyotrichum defoliatum	San Bernardino aster	Asteraceae	1B.2
Yucca brevifolia			CBR

APPENDIX E

SOILS MAP


117° 17' 8" W
117° 14' 10" W
34° 5' 8" N
34° 3' 32" N
473700
474100
474500
474900
475300
475700
476100
476500
476900
477300
477700
478100
3771600
3771200
3770800
3770400
3770000
3769600
3769200
3768800
Hope St
Santa Ana River
Orange Show
TuB
Gr
HaC
TuB
San Bernardino
Waterman
TvC
Ps
Gr
Tippecanoe
Mountain View
Gs
HbA
Lugonia
Carnegie
Lee St
Hospitality
10
ScA
ScA
Redlands
Court St
Map Scale: 1:20,900 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 300 600 1200 1800
Feet
0 1000 2000 4000 6000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Bernardino County Southwestern Part, California
Survey Area Data: Version 14, Sep 6, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 17, 2022—Jun 12, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Gr	Grangeville fine sandy loam, warm MAAT, MLRA 19	315.9	19.4%
Gs	Grangeville fine sandy loam, saline-alkali	515.8	31.7%
HaC	Hanford coarse sandy loam, 2 to 9 percent slopes	70.5	4.3%
HbA	Hanford sandy loam, 0 to 2 percent slopes	412.9	25.4%
Ps	Psamments, Fluvents and Frequently flooded soils	84.5	5.2%
ScA	San Emigdio fine sandy loam, 0 to 2 percent slopes	28.2	1.7%
TuB	Tujunga loamy sand, 0 to 5 percent slopes	72.2	4.4%
TvC	Tujunga gravelly loamy sand, 0 to 9 percent slopes	126.1	7.8%
Totals for Area of Interest		**1,626.1**	**100.0%**