



LIVE OAK

ASSOCIATES, INC.

**1049 RAILROAD AVENUE
TECHNICAL BIOLOGICAL REPORT
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA**

Prepared by

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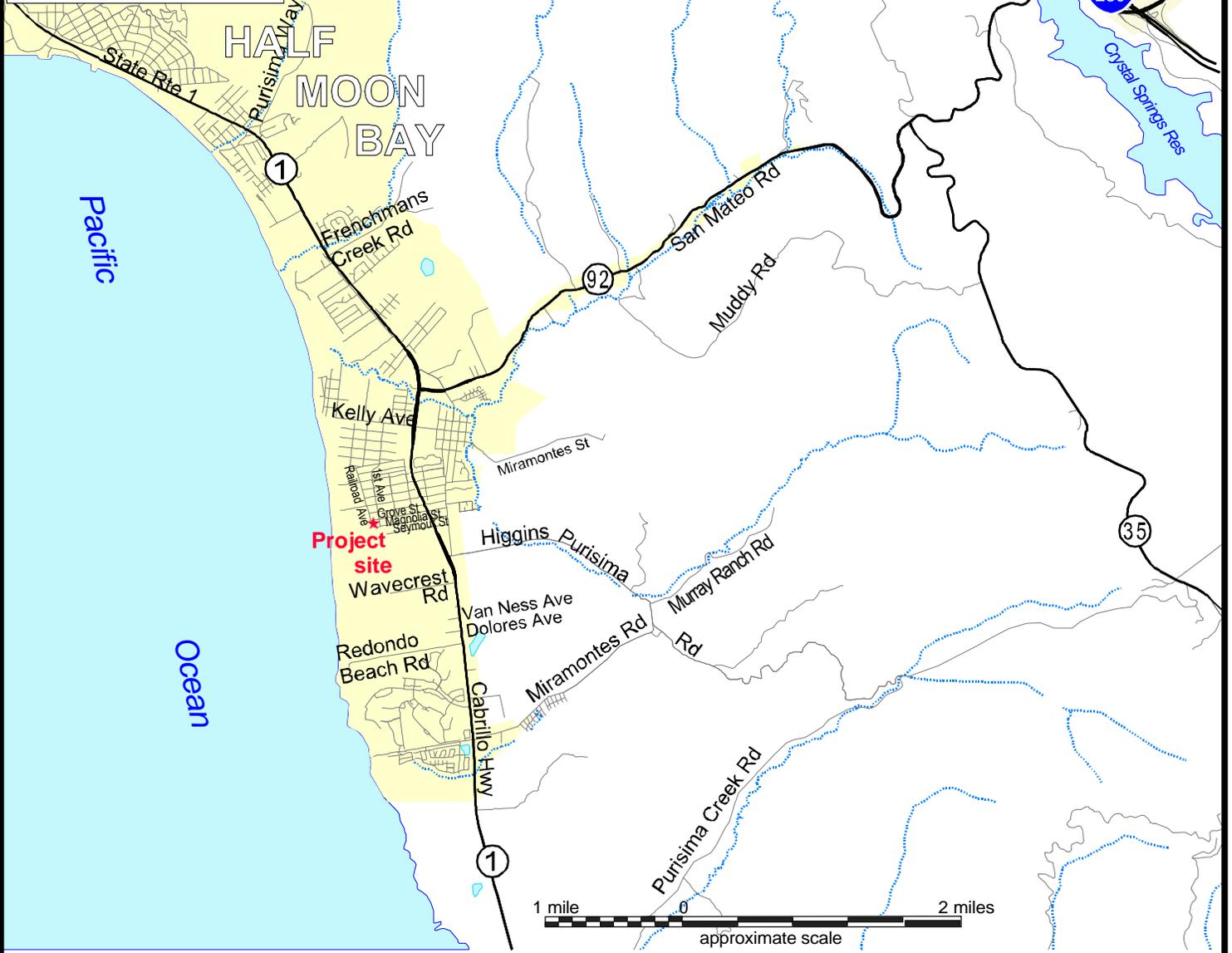
1 INTRODUCTION

This site was evaluated by Live Oak Associates, Inc. (LOA) to ascertain whether or not build-out of the proposed project would have a significant impact (as defined by CEQA) on the biological resources of the site and region. This report describes the biotic resources of the Property (APN 064-212-150), hereafter referred to as the “study area” or “site.” The site is located at 1049 Railroad Avenue and includes the adjacent future roadway footprint to the south in the City of Half Moon Bay, San Mateo County, California and . This report evaluates possible impacts to onsite biological resources resulting from the proposed land use changes upon these resources. The site is bordered by open space to the south with the beach along the Pacific Ocean approximately a quarter mile to the east of the site with residential development to the north, west, and south of the site, and is located in the City of Half Moon Bay, San Mateo County, California (Figure 1). The site can be found on the Half Moon Bay U.S.G.S. 7.5’ quadrangle in Section 32 of Township 5 South, Range 5 West. The site itself is primarily comprised of non-native grassland habitat.

In general, the development of parcels can damage or modify biotic habitats used by sensitive plant and wildlife species. In such cases, site development may be regulated by state or federal agencies, subject to provisions of the California Environmental Quality Act (CEQA), and/or covered by policies and ordinances of the City of Half Moon Bay. Therefore, this report addresses issues related to: 1) sensitive biotic resources occurring in the study area; 2) the federal, state, and local laws regulating such resources, 3) evaluates whether or not the project results in any significant impacts to these resources; and if so, 4) includes mitigation measures to reduce these impacts to less-than-significant (as defined by CEQA).

The analysis of impacts, as discussed in Section 3.0 of this report, was based on the known and potential biotic resources of the study area discussed in Section 2.0. Sources of information used in the preparation of this analysis included: 1) the *California Natural Diversity Data Base* (RareFind5, 2023); 2) the California Native Plant Society (CNPS) Inventory of Rare Plants (CNPS 2023); 3) manuals and references related to plants and animals of the San Mateo County region; 4) the local Coastal Program policies; and 5) the City of Half Moon Bay policies and ordinances.

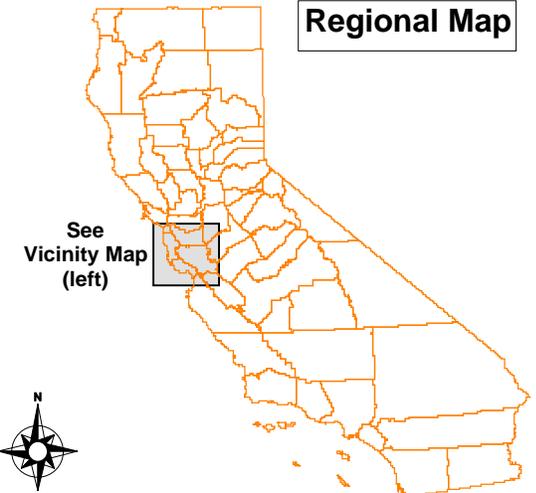
Site Location Map



Vicinity Map



Regional Map



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1049 Railroad Ave
Site / Vicinity

Date	Project #	Figure #
8/16/2023	2809-01	1



A field survey of the study area was conducted on August 21, 2023, by LOA plant and wetland ecologist Arren Allegretti.

1.1 PROJECT DESCRIPTION

The proposed development is expected to consist of a single residence, driveway, and related infrastructure. The construction of the street adjacent to the west of the project site is also expected to occur as a part of this project. For the purpose of this report, we have included the streets, infrastructure locations, and the proposed residential development as the project site.



2 EXISTING CONDITIONS

The project site located at 1049 Railroad Avenue (APN 064-212-1500) located in the City of Half Moon Bay, San Mateo County, California. The site can be found on the Half Moon Bay U.S.G.S. 7.5' quadrangle in Section 32 of Township 5 South, Range 5 West. The site itself is primarily comprised of non-native grassland. The site has a relatively flat topography at approximately 63 feet (19 meters) National Geodetic Vertical Datum (NGVD).

One soil type, Denison clay loam, nearly level, was identified onsite (NRCS 2023; Figure 2), which is considered to be a hydric soil, and consists of very deep, moderately well drained soil with slow to medium runoff and permeability. This soil does not support edaphic conditions.

2.1 BIOTIC HABITATS

One land cover type, non-native grassland, exists on the project site (Figure 3) and is described in greater detail below.

2.1.1 Non-native grassland

Introduced species such as Mediterranean rye grass (*Festuca perennis*) and bird's foot trefoil (*Lotus corniculatus*) occurred throughout small parcel of non-native/ruderal grassland. Other non-native species included the invasive bristly oxtongue (*Helminthotheca echioides*), slender wild oats (*Avena barbata*), and field bindweed (*Convolvulus arvensis*). Along the fence line adjacent to neighboring residences where run-off could occasionally accumulate, species such as California blackberry (*Rubus ursinus*), flat sedge (*Cyperus eragrostis*), and garden nasturtium (*Nasturtium officinale*) cover approximately less than 3% (absolute cover) of the vegetation on the site. A single juvenile Italian stone pine (*Pinus pinea*) occurred at the northwestern corner of the property.

Observed avian species included but are not limited to house finch (*Haemorhous mexicanus*), American crow (*Corvus brachyrhynchos*), California towhee (*Melospiza crissalis*), European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), dark eyed junco (*Junco hyemalis*), great blue heron (*Ardea herodias*), and a juvenile red-tailed hawk (*Buteo jamaicensis*) soaring over the site.

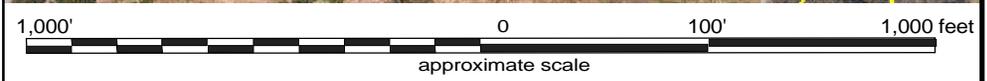


LEGEND

 Approximate Project site

 Soil Unit Boundaries

- Cf** Coastal Beaches
- DcA** Denison Clay Loam, Nearly Level
- Gw** Gullied Land
- Ta** Terrace Escarpment
- WaA** Watsonville Clay Loam, Nearly Level
- WmA** Watsonville Loam, Nearly Level



Aerial Photograph courtesy of Google Earth



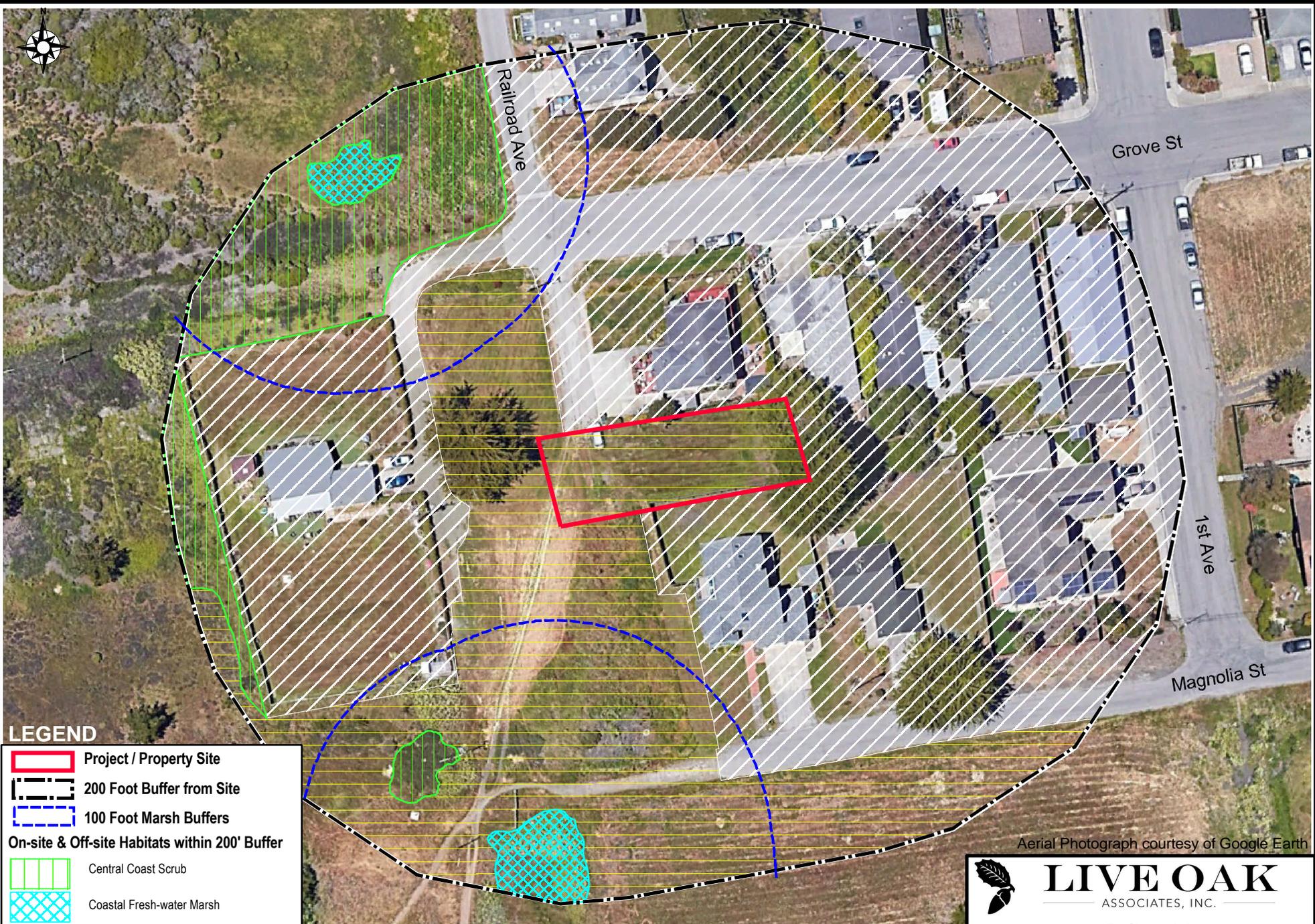
LIVE OAK
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1049 Railroad Ave
Soils

Date
8/16/2023

Project #
2809-01

Figure #
2



LEGEND

-  Project / Property Site
-  200 Foot Buffer from Site
-  100 Foot Marsh Buffers
- On-site & Off-site Habitats within 200' Buffer**
-  Central Coast Scrub
-  Coastal Fresh-water Marsh
-  Non-native Grassland
-  Urban

Aerial Photograph courtesy of Google Earth



LIVE OAK
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1049 Railroad Ave
Biotic Habitats / Land Cover

Date
10/02/2023

Project #
2809-01

Figure #
3





The site itself did not support wetlands or hydrological features that serve as aquatic habitat for amphibians, such as California red-legged frog. The ruderal nature of the site, including the run-off the site receives from adjacent residences and the sewer line with a surrounding 10-ft easement, influence the hydrology and vegetation present on the site. Further information about the absence of wetlands is described in Section 2.4.

2.1.2 Other off-site habitats

Off-site habitats within 200 feet of the site include urban, non-native grassland, central coast scrub, and coastal freshwater marsh. This habitat nomenclature is consistent with the City of Half Moon Bay's Land Use Plan (LUP) (2020). Moreover, habitat observed during the site visit generally aligned with mapped vegetation in the LUP. Below is a brief description of these off-site habitats.

Urban/Developed- This habitat encompassed most of the areas within 200 feet of the site. As mentioned previously, the property is surrounded by residences. Although this habitat may support nesting birds, it is unlikely for this habitat to support other special status species due to the high level of anthropogenic disturbances (LUP 2020).

Non-native grassland- This habitat covered a modest portion of the 200-ft buffer from the site. Considering the close proximity or adjacency of these grasslands to urban/developed areas, most plant species consisted of non-native and ornamental/landscaped plants. This habitat provides foraging and nesting habitat for wildlife species, including observed raptors such as red-tailed hawks and small mammals. These grasslands may serve as upland habitat for California red-legged frog. See section 2.1.1 for detailed description of species observed.

Central Coast Scrub- A small section of central coast scrub occurred in the northern and southern sections of the 200-foot buffer from the site. This habitat consisted of evergreen shrubs generally dominated by coyote bush (*Baccharis pilularis* ssp. *pilularis*). Other species, particularly in some grassy openings between the coyote bush included coast buckwheat (*Eriogonum latifolium*) and lupine (*Lupinus* ssp). This habitat serves as suitable upland habitat for the San Francisco garter snake and California red-legged frog.



Coastal Freshwater Marsh- This habitat consisted primarily of seasonal wetlands and occupied the least amount of area within 200 feet of the site. The property site occurs outside of the 100-ft buffers around these seasonal wetlands (Figure 3). Although no water was observed in this habitat at the time of the August site visit, some indicators wetland hydrology such as surface soil cracks were apparent in some areas. A mix of upland vegetation dominated by Harding grass (*Phalaris aquatica*) and wetland vegetation such as sedges (*Carex* sp.) and spike rush (*Eleocharis macrostachya*) also occurred in some areas, particularly in a ditch and a depression just south of Magnolia drive (Figure 3). The close proximity of this habitat to urban/developed areas lowers its value for wildlife. Nonetheless, this habitat provides forage and cover for wildlife, including but not limited to the California red-legged frog and San Francisco garter snake. Breeding habitat for the California red-legged frog may also be present, particularly in the southernmost section of the 200-foot buffer (Figure 3). Further information regarding special status species is detailed in Section 2.3.



2.2 MOVEMENT CORRIDORS

Habitat corridors are vital to terrestrial animals for connectivity between core habitat areas (i.e., larger intact habitat areas where species make their living). Connections between two or more core habitat areas help ensure that genetic diversity is maintained, thereby diminishing the probability of inbreeding depression and geographic extinctions.

Movement corridors in California are typically associated with valleys, rivers and creeks supporting riparian vegetation, and ridgelines. With increasing encroachment of humans on wildlife habitats, it has become important to establish and maintain linkages, or movement corridors, for animals to be able to access locations containing different biotic resources that are essential to maintaining their life cycles.

The project site does not support a designated wildlife corridor. Movements on and across the site consists of normal movements associated with an individual animal's home range or territory, or animals dispersing from their natal range.

2.3 SPECIAL STATUS PLANTS AND ANIMALS

Several species of plants and animals within the state of California have low populations, limited distributions, or both. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described more fully in Section 3.2, state and federal laws have provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally designated as threatened or endangered under state and federal endangered species legislation. Others have been designated as "candidates" for such a listing. Still others have been designated as "species of special concern" by the CDFW. The California Native Plant Society (CNPS) in collaboration with the CDFW, have developed the California Rare Plant Rank (CRPR) assigned to rare, threatened, or endangered plants which fall under Section 15380 of CEQA (CDFW, 2018). Collectively, these plants and animals are referred to as "special status species."



A number of special status plants and animals occur in the vicinity of the study area. These species, and their potential to occur in the study area, are listed in Table 1. Sources of information for this table included *California Natural Diversity Data Base* (CDFW 2023), *Listed Plants* and *Listed Animals* (USFWS 2023), *State and Federally Listed Endangered and Threatened Animals of California* (CDFW 2023), *The California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2023), *California Bird Species of Special Concern* (Shuford and Gardall 2008), and *California Amphibian and Reptile Species of Special Concern* (Thompson et al. 2016). This information was used to evaluate the potential for special status plant and animal species that occur on the site.

A search of published accounts for all of the relevant special status plant and animal species was conducted for the Half Moon Bay USGS 7.5-minute quadrangle in which the project site occurs, and for the five surrounding quadrangles (Montara Mountain, San Mateo, Woodside, La Honda, and San Gregorio) using the California Natural Diversity Data Base (CNDDDB) Rarefind 5. All species listed as occurring in these quadrangles on CNPS Lists 1A, 1B, 2, or 4 were also reviewed.

Serpentine soils are absent from the site and consequently, habitat for species uniquely adapted to serpentine conditions in the project's vicinity is considered absent from the site. Species adapted to serpentine habitats include the Bay checkerspot butterfly (*Euphydryas editha bayensis*), Franciscan onion (*Allium peninsulare* var. *franciscanum*), San Mateo thornmint (*Acanthomintha duttonii*), Franciscan thistle *Cirsium andrewsii*, fountain thistle (*Cirsium fontinale* var. *fontinale*), San Francisco Collinsia (*Collinsia multicolor*), San Mateo woolly sunflower (*Eriophyllum latilobum*), Marin western flax (*Hesperolinon congestum*), Crystal Springs lessingia (*Lessingia arachnoidea*), white-rayed pentachaeta (*Pentachaeta bellidiflora*), San Francisco collinsia (*Collinsia multicolor*), Hillsborough chocolate lily (*Fritillaria biflora* var. *ineziana*), fragrant fritillary (*Fritillaria liliacea*), woodland woollythreads (*Monolopia gracilens*), and San Francisco owl's-clover (*Triphysaria floribunda*).

Several other special status plant species have been ruled out on the site as they occur in habitats not present in the study area (e.g. oak woodland, chaparral, redwoods, marsh, aquatic



habitats, riparian woodland, etc.) or at elevations significantly below or above elevations of the site (approximately 19 meters NGVD) and, therefore, are also considered absent from the site. These species include the Anderson's manzanita (*Arctostaphylos andersonii*), Montara manzanita (*Arctostaphylos montaraensis*), Kings Mountain manzanita (*Arctostaphylos regismontana*), Robbin's broomrape (*Apyllon robinsii*), Point Reyes salty birds-beak (*Chloropyron maritimum* spp. *palustre*), western leatherwood (*Dirca occidentalis*), minute pocket moss (*Fissidens pauperculus*), island tube lichen (*Hypogymnia schizidiata*), rose leptosiphon (*Leptosiphon rosaceus*), Ornduff's meadowfoam (*Limnanthes douglasii* spp. *ornduffii*), arcuate bush-mallow (*Malacothamnus arcuatus*), chaparral ragwort (*Senecio aphanactis*), and all fish species.

Other species having potential to occur on the project site or immediate vicinity because potentially suitable habitats are present are discussed further below.



TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

PLANTS (adapted from CDFW 2023 and CNPS 2023)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status*	Habitat	Habitat Occurrence
Coast yellow leptosiphon <i>Leptosiphon croceus</i>	CE, CRPR 1B	Habitat: Coastal bluff scrub, Coastal prairie. Elevation: 10-150 m Blooms: April–June. Life form: Annual herb.	Absent. Potentially suitable habitat for this species is absent from the site.
Hickman’s cinquefoil <i>Potentilla hickmanii</i>	FE, CE, CRPR 1B	Habitats: Coastal bluff scrub, closed-cone coniferous forest, vernal mesic meadows and seeps, and freshwater marshes and swamps. Elevation: 10-149 m Blooms: April-August. Life form: Perennial herb.	Absent. Potentially suitable habitat for this species is absent from the site.

*Explanation of Occurrence Designations and Status Codes

- Present: Species observed on the site at time of field surveys or during recent past.
- Likely: Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.
- Possible: Species not observed on the site, but it could occur there from time to time.
- Unlikely: Species not observed on the site, and would not be expected to occur there except as a transient.
- Absent: Species not observed on the site and precluded from occurring there because habitat requirements are not met.

*STATUS CODES

- | | | | |
|------|---|-----|---|
| FE | Federally Endangered | CE | California Endangered |
| FT | Federally Threatened | CT | California Threatened |
| FPE | Federally Endangered (Proposed) | CR | California Rare |
| FC | Federal Candidate | CSC | California Species of Special Concern |
| CFP | California Fully Protected | | |
| CRPR | California Rare Plant Rank Listing | | |
| 1A | Plants Presumed Extinct in California | 3 | Plants about which we need more information – a review list |
| 1B | Plants Rare, Threatened, or Endangered in California and elsewhere | 4 | Plants of limited distribution – a watch |
| 2 | Plants Rare, Threatened, or Endangered in California, but more common elsewhere | | |



TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

PLANTS (adapted from CDFW 2023 and CNPS 2023)

Other Special Status Plants with California Rare Plant Status

Species	Status*	Habitat	Habitat Occurrence
Blasdale's bent grass <i>Agrostis blasdalei</i>	CRPR 1B	<u>Habitat</u> : Coastal bluff scrub, coastal dunes, coastal prairie. <u>Elevation</u> : 0-150 m <u>Blooms</u> : May-July. <u>Life form</u> : Perennial rhizomatous herb.	Absent. The onsite non-native grassland does not serve as suitable habitat for this species.
Bent-flowered fiddleneck <i>Amsinckia lunaris</i>	CRPR 1B	<u>Habitat</u> : Coastal bluff scrub, cismontane woodland, and valley and foothill grasslands. <u>Elevation</u> : 3-500 m <u>Blooms</u> : March-June. <u>Life form</u> : Annual herb.	Unlikely. Grasslands of the site are ruderal in nature and would be considered, at best, marginal habitat for this species.
Coastal marsh milk-vetch <i>Astragalus pycnostachyus</i> <i>var. pycnostachyus</i>	CRPR 1B	<u>Habitats</u> : Mesic coastal dunes, coastal scrub, marshes, and swamps. <u>Elevation</u> : 0-30 m <u>Blooms</u> : April-October. <u>Life form</u> : Perennial herb.	Absent. Habitat for this species is absent from the site.
Pappose tarplant <i>Centromadia parryi</i> ssp. <i>parryi</i>	CRPR 1B	<u>Habitats</u> : Often alkaline soils within chaparral, coastal prairie, meadows, seeps, marshes, swamps, and mesic valley and foothill grasslands. <u>Elevation</u> : 0-420 m <u>Blooms</u> : May-November. <u>Life form</u> : Annual herb.	Absent. Habitat, including alkaline soils to support this species is absent from the site. This species was not observed during the August site visit that occurred during the species blooming season.
San Francisco Bay spineflower <i>Chorizanthe cuspidata</i> var. <i>cuspidata</i>	CRPR 1B	<u>Habitats</u> : Sandy soils of coastal bluff scrub, coastal dunes, coastal prairie, and coastal scrub. <u>Elevation</u> : 3-215 meters. <u>Blooms</u> : April-August. <u>Life form</u> : Annual herb.	Absent. Habitat for this species is absent from the site. No species within the <i>Chorizanthe</i> genus was observed during the August site visit.
San Francisco gumplant <i>Grindelia hirsutula</i> var. <i>maritima</i>	CRPR 3	<u>Habitats</u> : Found in sandy or serpentine soils of coastal bluff scrub, coastal scrub, and valley and foothill grasslands. <u>Elevation</u> : 15-400 m <u>Blooms</u> : June-September. <u>Life form</u> : Perennial herb.	Absent. Serpentine soils are absent from the site. Grasslands of the site are ruderal in nature and would be not serve as habitat for this species.
Short-leaved evax <i>Hesper-evax sparsiflora</i> var. <i>brevifolia</i>	CRPR 1B	<u>Habitats</u> : Found in sandy soils of coastal bluff scrub and coastal dunes. <u>Elevation</u> : 0-215 m. <u>Blooms</u> : March-June. <u>Life form</u> : Annual herb.	Absent. Suitable habitat for this species is absent from the site.
Kellogg's horkelia <i>Horkelia cuneata</i> var. <i>sericea</i>	CRPR 1B	<u>Habitat</u> : Occurs in closed-cone coniferous forest, chaparral, coastal dunes, coastal scrub in sandy or gravelly openings.	Absent. Suitable habitat for this species is absent from the site.



Species	Status*	Habitat	Habitat Occurrence
		<u>Elevation:</u> 10-200 m <u>Blooms:</u> April–September. <u>Life form:</u> Perennial herb.	
Point Reyes horkelia <i>Horkelia marinensis</i>	CRPR 1B	<u>Habitats:</u> Found in sandy soils of coastal dunes, coastal prairie, and coastal scrub. <u>Elevation:</u> 5-755 m <u>Blooms:</u> May-September. <u>Life form:</u> Perennial herb.	Absent. Suitable habitat for this species is absent from the site.
Perennial goldfields <i>Lasthenia californica</i> ssp. <i>macrantha</i>	CRPR 1B	<u>Habitat:</u> Coastal bluff scrub, Coastal dunes, and Coastal prairie. <u>Elevation:</u> 5-520 m <u>Blooms:</u> Jan–November. <u>Life form:</u> Perennial herb.	Unlikely. The onsite non-native grassland does not serve as high quality habitat for this species. No species within the genus of <i>Lasthenia</i> was observed during the August 2023 site visit that occurred during this species blooming season. This species is typically restricted to bluffs along the coastline and, therefore, is unlikely to occur on the site.
Marsh microseris <i>Microseris paludosa</i>	CRPR 1B	<u>Habitat:</u> Closed-cone coniferous forest, Cismontane woodland, Coastal scrub, and Valley and foothill grassland. <u>Elevation:</u> 5-355 meters. <u>Blooms:</u> April-June (July). <u>Life form:</u> Perennial herb.	Unlikely. Grasslands of the site are ruderal in nature and would be considered, at best, marginal habitat for this species.
Choris' popcorn-flower <i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i>	CNPS 1B	<u>Habitat:</u> Mesic areas within chaparral, coastal prairie, and coastal scrub. <u>Elevation:</u> 15-160 meters. <u>Life form:</u> Annual herb. <u>Blooms:</u> March-June.	Unlikely. Although the upland and ruderal nature of the site make it unlikely for the site to serve as habitat for this species, a rare plant survey during the species blooming season would be needed to ascertain presence/absence of this species. This species often occurs on mesic undeveloped coastal prairie such as the population located approximately 0.4 mile south of the site (CDFW 2023).
Oregon polemonium <i>Polemonium carneum</i>	CRPR 2B	<u>Habitat:</u> Coastal prairie and scrub and lower montane coniferous forests. <u>Elevation:</u> 0-1,830 meters. <u>Blooms:</u> April-September.	Absent. Suitable habitat for this species is absent from the site. The last documented occurrence of this species in the region is from 1916.
Scouler's catchfly <i>Silene scouleri</i> ssp. <i>scouleri</i>	CRPR 2B	<u>Habitat:</u> Coastal bluff scrub, coastal prairie, and valley and foothill grassland. <u>Elevation:</u> 0-600 meters. <u>Blooms:</u> (March-May) June-August (September). <u>Life form:</u> Perennial herb.	Unlikely. Grasslands of the site are ruderal in nature and would be considered, at best, marginal habitat for this species. There are no documented occurrences of this species within a three-mile radius of the site (CNDDDB 2023).
San Francisco campion <i>Silene verecunda</i> ssp. <i>verecunda</i>	CRPR 2B	<u>Habitat:</u> Coastal bluff scrub, chaparral, coastal prairie, coastal scrub, and valley and	Unlikely. Grasslands of the site are ruderal in nature and would be considered, at best, marginal



Species	Status*	Habitat	Habitat Occurrence
		foothill grasslands. Often occurs in mudstone and shale. <u>Elevation</u> : 30-645 meters. <u>Blooms</u> : Perennial herb; March–June. <u>Life form</u> : Perennial herb.	habitat for this species. There are no documented occurrences of this species within a three-mile radius of the site (CNDDDB 2023).
Saline clover <i>Trifolium hydrophilum</i>	CNPS 2B	<u>Habitat</u> : Marshes and swamps, mesic and alkaline areas of valley and foothill grasslands, and vernal pools. <u>Elevation</u> : 0-300 meters. <u>Blooms</u> : April-June. <u>Life form</u> : Annual herb.	Unlikely. Alkaline soils are absent from the site. Grasslands of the site are ruderal in nature and would be considered, at best, marginal habitat for this species. There are no documented occurrences of this species within a three-mile radius of the site (CNDDDB 2023).

*Explanation of Occurrence Designations and Status Codes

Present: Species observed on the site at time of field surveys or during recent past.

Likely: Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.

Possible: Species not observed on the site, but it could occur there from time to time.

Unlikely: Species not observed on the site, and would not be expected to occur there except as a transient.

Absent: Species not observed on the site and precluded from occurring there because habitat requirements not met.

*STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FPE	Federally Endangered (Proposed)	CR	California Rare
FC	Federal Candidate	CSCC	California Species of Special Concern
CFP	California Fully Protected		
CRPR	California Rare Plant Rank Listing		
1A	Plants Presumed Extinct in California	3	Plants about which we need more information – a review list
1B	Plants Rare, Threatened, or Endangered in California and elsewhere	4	Plants of limited distribution – a watch
2	Plants Rare, Threatened, or Endangered in California, but more common elsewhere		



TABLE 3. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (adapted from CDFW 2023 and USFWS 2023)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitat	Occurrence in the Study Area
Western bumble bee <i>Bombus occidentalis</i>	CCE	In California, mainly occurring within the coastal and Sierra Nevada ranges within meadows and grasslands and some natural areas within urban environments. Indication of recent population potentially being restricted to high elevation and coastal areas. Historically occurred from the Channel Islands to the northern California border. Flight period is February to late November, peaking in late June and late September. Tends to construct nest underground in animal burrows on west and south-west facing slopes. Overwintering sites are likely in friable soils or in debris or leaf litter.	Possible. The site supports potentially suitable habitat, including nectar sources, however, this site does not support adequate burrows for this species. Therefore, while they may forage on the site, it is unlikely they would overwinter on the site. The nearest documented record is a proximity polygon in which the site sits (CDFW 2020).
San Bruno elfin butterfly <i>Callophrys mossii bayensis</i>	FE	Eggs are laid on the host plant broadleaf stonecrop (<i>Sedum spathulifolium</i>) in coastal grassland and low scrub habitat within the fog belt at elevations from 275 to 325 meters.	Absent. Suitable habitat for this species is absent from the site. The host plant does not occur onsite. Additionally, the closest recorded observation of this species is more than three miles from the site (CDFW 2020).
Myrtle's silverspot butterfly <i>Speyeria zerene myrtleae</i>	FE	Occurs near Point Reyes, Marin County, and Sonoma County, CA in coastal dunes, coastal scrub, and coastal prairie habitats less than 300 meters in elevation and up to 5 km inland. Also historically found in San Mateo County, CA.	Absent. Suitable habitat for this species is absent from the site. Additionally, this species is only known historically in San Mateo County (CDFW 2023).
Monarch butterfly <i>Danaus plexippus</i>	CCT	Overwinter on the California coast in conifers such as Monterey pine trees or eucalyptus trees. Host plant is the milkweed.	Possible. Although overwintering habitat is absent from the site, monarch butterfly overwintering sites are less than a quarter mile to the south of the site (Half Moon Bay LUP, 2020). Thus, they may rarely to occasionally forage on the site.
California tiger salamander <i>Ambystoma californiense</i>	FT, CT	Breeds in vernal pools and stock ponds of central California; adults estivate in grassland habitats adjacent to the breeding sites.	Absent. Suitable breeding habitat for this species in the form of stagnant pools with continuous inundation for a minimum of three months is



Species	Status	Habitat	Occurrence in the Study Area
			absent from the site and the immediate vicinity. The nearest recorded observation of CTS is more than three miles from the site (CDFW 2023).
Foothill yellow-legged frog <i>Rana boylei</i>	CSC CCT	Occurs in swiftly flowing streams and rivers with rocky substrate with open, sunny banks in forest, chaparral, and woodland habitats, and can sometimes be found in isolated pools.	Absent. Suitable habitat for this species in the form of streams and rivers is absent from the site. Additionally, the closest recorded observation of this species more than three miles from the site (CDFW 2023).
California red-legged frog (CRLF) <i>Rana aurora draytonii</i>	FT, CSC	Rivers, creeks and stock ponds of the Sierra foothills and Bay Area, preferring pools with overhanging vegetation.	Possible. Suitable breeding habitat for this species is absent from the site. While not supporting breeding habitat, the proximity of some CRLF occurrences may result in this species using the site as upland dispersal habitat on rare to occasional occurrences. The nearest recorded observation of CRLF is an accuracy polygon within a tenth of a mile of the project site (2020; LUP). Therefore, the site has some potential to support upland and dispersal habitat for CRLF.
San Francisco garter snake (SFGS) <i>Thamnophis sirtalis terataenia</i>	FE, CE, CP	Occur in and around standing water such as ponds on the San Francisco Peninsula south to Ano Nuevo Point, San Mateo County, CA.	Possible. Suitable breeding habitat for this species is absent from the site. The CNDDDB (CDFW 2023) shows undisclosed records in the quadrangle in which the site exists, and the LUP identifies “potential San Francisco Garter Snake Habitat and/or California red-legged frog Upland, Foraging, and Dispersal Habitat” just south of the project site, therefore, we cannot completely discount the possibility for this species to occur onsite.
White-tailed Kite <i>Elanus leucurus</i>	CP	Open grasslands and agricultural areas throughout central California.	Possible. Suitable breeding habitat exists just off-site for this species in the form of a few trees and foraging habitat is available in the open grassland of the project site. The nearest recorded record of a white-tailed kite is approximately a half-mile southeast of the site (LUD 2020).
Western snowy plover <i>Charadrius alexandrinus nivosus</i>	FT, CSC	Uses man-made agricultural wastewater ponds and reservoir margins. Breeds on barren to sparsely vegetated	Absent. This species is locally known to breed and forage along the beach and adjacent to the beach where USFWS has



Species	Status	Habitat	Occurrence in the Study Area
		ground at alkaline or saline lakes, reservoirs, ponds, and riverine sand bar.	designated Critical Habitat approximately one mile to the northwest of the site (LUD 2020).
Bank swallow (nesting) <i>Riparia riparia</i>	CT	Occurs in open areas near flowing water, nests in steep banks along inland water or coast. State-wide.	Absent. Suitable habitat is absent from the site. The nearest recorded observation is more than three miles from the site (CDFW 2023).

ANIMALS (adapted from CDFW 2023 and USFWS 2023)

State Species of Special Concern and Protected Species

Species	Status	Habitat	Occurrence in the Study Area
Santa Cruz black salamander (SCBS) <i>Aneides niger</i>	CSC	Occurs in deciduous woodland, coniferous forests, and coastal grasslands around the Santa Cruz Mountains and foothills. This species is also known to occur on the developed flats in pockets within older developments. They can be found under rocks near streams, in talus, under damp logs, rotting wood, and other objects.	Absent. The habitat onsite is only not suitable for the SCBS, as it does not support debris or rocks for them to seek refuge under. Additionally, the nearest recorded observation is more than three miles from the site (CDFW 2023).
California giant salamander <i>Dicamptodon ensatus</i>	SCC	Occurs in or adjacent to cold clear permanent to semi-permanent streams and seeps.	Absent. Habitat required by this species is absent from the site. The nearest recorded observation of this species is more than three miles from the site (CDFW 2023).
Western pond turtle (WPT) <i>Actinemys marmorata</i>	CSC	Intermittent and permanent waterways including streams, marshes, rivers, ponds and lakes. Open slow-moving water of rivers and creeks of central California with rocks and logs for basking.	Absent. Suitable pools and ponds are absent from the site and vicinity of the site, therefore, WPT is not expected to occur onsite. The nearest recorded observation of this species is more than three miles from the site (CDFW 2023).
Burrowing owl (BUOW) <i>Athene cunicularia</i>	CSC	Found in open, dry grasslands, deserts and ruderal areas. Requires suitable burrows. This species is often associated with California ground squirrels.	Absent. Suitable habitat for BUOW is generally absent from the site, as burrows are absent from the site. Additionally, burrowing owls are not known from this area of Half Moon Bay. The nearest documented occurrence of BUOW is more than three miles from the site (CDFW 2023).



Species	Status	Habitat	Occurrence in the Study Area
San Francisco Common Yellowthroat/Saltmarsh Common Yellowthroat <i>Geothlypis trichas sinuosa</i>	CSC	Breeds in herbaceous wetlands and salt marshes of the San Francisco Bay area, can also be found in non-breeding along the California Coast. Nests in thick herbaceous vegetation up to one meter above the ground or over water	Possible. Breeding habitat is absent from the site, however, this species is known to occur within the local vicinity of the site, with the closest recorded occurrence being within approximately 0.5 miles to the south of the site (LUD 2020). Therefore, this species can be expected to forage on and move through and onto the site, especially during migration.
Alameda song sparrow <i>Melospiza melodia pusillula</i>	CSC	Found in tidal salt marsh habitat with exposed ground for foraging with no more than 2-5 cm between bases of plants. Current range is generally only along the San Francisco Bay.	Absent. The site is outside of this specie’s range. The nearest recorded observation of this species is more than three miles from the site along the San Francisco Bay (CDFW 2023).
Grasshopper sparrow <i>Ammodramus savannarum</i>	CSC	Occurs in California during spring and summer in open grasslands with scattered shrubs.	Possible. The site is within an area identified as a “documented nesting area” for grasshopper sparrows (LUD 2020).
Bryant’s savannah sparrow <i>Passerculus sandwichensis alaudinus</i>	CSC	Occurs in tidally influenced habitat and adjacent habitat within the fog belt, including within marsh and moist grasslands along the northern California coast south to Monterey Bay with a few small areas further south.	Possible. The site is within an area identified as a “documented nesting area” for Bryant’s savannah sparrows (LUD 2020).
Townsend’s big-eared bat <i>Corynorhinus townsendii</i>	CSC	Primarily a cave-dwelling bat that may also roost in buildings, bridges, rock crevices, and hollow trees. Occurs in a variety of habitats.	Possible. Although suitable roosting habitat is absent from the site, Townsend’s big-eared bats may forage over the site. The nearest record is more than three miles from the site (CDFW 2023).
Pallid bat <i>Antrozous pallidus</i>	CSC	Occurs in grasslands, chaparral, woodlands, and forests; most common in dry rocky open areas providing roosting opportunities. Roost sites include caves, mines, rock crevices, and large cavities of trees.	Possible. Although suitable roosting habitat is absent from the site, pallid bats may forage over the site. The nearest record is more than three miles from the site (CDFW 2023).
Big free-tailed bat <i>Nyctinomops macrotis</i>	CSC	Migrant bats using elevations from 0-2600 meters. Roosts in rock crevices cliffs as well as in buildings, caves, and tree cavities.	Possible. Although suitable roosting habitat is absent from the site, big free-tailed bats may forage over the site. The nearest record is more than three miles from the site (CDFW 2023).



Species	Status	Habitat	Occurrence in the Study Area
San Francisco dusky-footed woodrat (woodrat) <i>Neotoma fuscipes annectens</i>	CSC	Found in hardwood forests, oak riparian and shrub habitats.	Absent. Woodrat nests were not observed onsite during the 2023 survey. Additionally, adjacent habitat is not suitable for this species. The nearest record is more than three miles from the site (CDFW 2023).
American badger <i>Taxidea taxus</i>	CSC	Found in drier open stages of most shrub, forest and herbaceous habitats with friable soils, specifically grassland environments. Natal dens occur on slopes.	Possible. Although no burrows were observed on the site during 2023 survey, badgers potentially traverse the site. The nearest documented observation of this species is more than three miles from the site (CDFW 2023).

***Explanation of Occurrence Designations and Status Codes**

- Present: Species observed on the sites at time of field surveys or during recent past.
- Likely: Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.
- Possible: Species not observed on the sites, but it could occur there from time to time.
- Unlikely: Species not observed on the sites, and would not be expected to occur there except, perhaps, as a transient.
- Absent: Species not observed on the sites and precluded from occurring there because habitat requirements not met.

STATUS CODES

- | | | | |
|------|---|-----|---|
| FE | Federally Endangered | CE | California Endangered |
| FT | Federally Threatened | CT | California Threatened |
| FPE | Federally Endangered (Proposed) | CR | California Rare |
| FC | Federal Candidate | CP | California Protected |
| CSC | California Species of Special Concern | CCE | California Candidate Endangered |
| | | CCT | California Candidate Threatened |
| CNPS | California Native Plant Society Listing | | |
| 1A | Plants Presumed Extinct in California | 3 | Plants about which we need more information – a review list |
| 1B | Plants Rare, Threatened, or Endangered in California and elsewhere | 4 | Plants of limited distribution – a watch list |
| 2 | Plants Rare, Threatened, or Endangered in California, but more common elsewhere | | |

2.5 JURISDICTIONAL WATERS

Jurisdictional waters include rivers, creeks, and drainages that have a defined bed and bank and which, at the very least, carry ephemeral flows. Jurisdictional waters also include lakes, ponds, reservoirs, and wetlands. Such waters may be subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), the California Regional Water Quality Control Board (RWQCB) and the California Coastal Commission. See Section 3.2.5 of this report for additional information.

Wetlands and other aquatic features serving as potential jurisdictional waters are absent from the site. Additionally, no other onsite features are contiguous with a previously determined jurisdictional water. A wetland delineation was conducted where vegetation, soils, and hydrology were examined for meeting criteria of wetlands. This information was entered in



USACE wetland determination forms (Appendix A) that details the vegetation species and lack of hydric soils, and hydrology characteristics of wetland. Although facultative hydrophytic vegetation existed such as introduced Mediterranean rye grass and bird's foot trefoil, these species that are equally likely to occur in uplands and wetlands were likely influenced by the run-off received by adjacent residences. Additionally, the presence and cover of numerous non-wetland species such as field bindweed, California brome (*Bromus carinatus*), and Persian clover (*Trifolium resupinatum*) indicated non-wetland conditions and hydrology. The ruderal nature of the site, including the sewer line that runs through the property and run-off from adjacent residences may also influence the hydrology of the site. Similarly, no indicators of hydric soils, such as the presence of redoximorphic features, were evident. In sum, the site did not support wetland conditions and consequently did not meet any of the criteria of a wetland.



3 IMPACTS AND MITIGATIONS

3.1 SIGNIFICANCE CRITERIA

General plans, area plans, and specific projects are subject to the provisions of the California Environmental Quality Act. The purpose of CEQA is to assess the impacts of proposed projects on the environment before they are constructed. For example, site development may require the removal of some or all existing vegetation. Animals associated with this vegetation could be destroyed or displaced. Animals adapted to humans, roads, buildings, pets, etc., may replace those species formerly occurring on a site. Plants and animals that are state and/or federally listed as threatened or endangered may be destroyed or displaced. Sensitive habitats such as wetlands and riparian woodlands may be altered or destroyed. These impacts may be considered significant. According to *2023 CEQA Status and Guidelines (2023)*, “Significant effect on the environment” means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest. Specific project impacts to biological resources may be considered “significant” if they will:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;



- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and

Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

3.2 RELEVANT GOALS, POLICIES, AND LAWS

3.2.1 Threatened and Endangered Species

State and federal “endangered species” legislation has provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting plant and animal species of limited distribution and/or low or declining populations. Species listed as threatened or endangered under provisions of the state and federal Endangered Species Acts, candidate species for such listing, state species of special concern, and some plants listed as endangered by the California Native Plant Society are collectively referred to as “species of special status.” Permits may be required from both the CDFW and USFWS if activities associated with a proposed project will result in the take of a listed species. To “take” a listed species, as defined by the state of California, is “to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill” said species (California Fish and Game Code, Section 86). “Take” is more broadly defined by the federal Endangered Species Act to include “harm” of a listed species (16 USC, Section 1532(19), 50 CFR, Section 17.3). Furthermore, the CDFW and the USFWS are responding agencies under the California Environmental Quality Act (CEQA). Both agencies review CEQA documents in order to determine the adequacy of their treatment of endangered species issues and to make project-specific recommendations for their conservation.

3.2.2 Migratory Birds

State and federal laws also protect most bird species. The State of California signed Assembly Bill 454 into law in 2019, which clarifies native bird protection and increases protections where California law previously deferred to Federal law. The Federal Migratory Bird Treaty Act (FMBTA: 16 U.S.C., scc. 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs.



3.2.3 Birds of Prey

Birds of prey are protected in California under provisions of the State Fish and Game Code, Section 3503.5, which states that it is “unlawful to take, possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto”. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered “taking” by the CDFW.

Additionally, the Bald and Golden Eagle Protection Act (16 U.S.C., scc. 668-668c) prohibits anyone from taking bald or golden eagles, including their parts, nests, or eggs, unless authorized under a federal permit. The act prohibits any disturbance that directly affects an eagle or an active eagle nest as well as any disturbance caused by humans around a previously used nest site during a time when eagles are not present such that it agitates or bothers an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.

3.2.4 Bats

Section 2000 and 4150 of the California Fish and Game Code states that it is unlawful to take or possess a number of species, including bats, without a license or permit, as required by Section 3007. Additionally, Title 14 of the California Code of Regulations states it is unlawful to harass, herd, or drive a number of species, including bats. To harass is defined as “an intentional act which disrupts an animal's normal behavior patterns, which includes, but is not limited to, breeding, feeding or sheltering.” For these reasons, bat colonies in particular are considered to be sensitive and therefore, disturbances that cause harm to bat colonies are unlawful.

3.2.5 Wetlands and Other “Jurisdictional Waters”

Section 404 of the federal Clean Water Act (CWA) regulates the discharge of dredged or fill material into “navigable waters” (33 U.S.C. §1344), defined in the CWA as “the waters of the United States, including the territorial seas” (33 U.S.C. §1362(7)). The CWA does not supply a definition for waters of the U.S., and that has been the subject of considerable debate since the CWA’s passage in 1972. A variety of regulatory definitions have been promulgated by the two



federal agencies responsible for implementing the CWA, the Environmental Protection Agency (EPA) and USACE. These definitions have been interpreted, and in some cases, invalidated, by federal courts.

Waters of the U.S. are presently defined by the EPA and USACE's joint 2023 Revised Definition of 'Waters of the U.S.' Rule (2023 WOTUS Rule), with certain interpretive modifications imposed by the U.S. Supreme Court's May 25, 2023, decision in the case of *Sackett v. Environmental Protection Agency*. These waters include:

- Waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.
- The territorial seas.
- Interstate waters, including interstate wetlands.
- Impoundments of waters otherwise defined as waters of the United States under the definition.
- Tributaries to other waters of the U.S. that are relatively permanent, standing or continuously flowing bodies of water.
- Wetlands adjacent to other waters of the U.S. that have a continuous surface connection to those waters.

The 2023 WOTUS Rule also defines a number of exclusions from the definition of waters of the U.S., many of which are longstanding exclusions from earlier regulatory regimes. These generally include:

- Waste treatment systems.
- Prior converted cropland.
- Ditches excavated wholly in and draining only dry land that do not carry a relatively permanent flow of water.



- Certain artificial features, e.g., irrigation basins, swimming pools, borrow pits, and artificially irrigated areas.
- Swales and erosional features characterized by low volume, infrequent, or short duration flow.

All activities that involve the discharge of dredge or fill material into waters of the U.S. are subject to the permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that results in no net loss of wetland functions or values.

Under the Porter-Cologne Water Quality Control Act of 1969, the State Water Resources Control Board has regulatory authority to protect the water quality of all surface water and groundwater in the State of California (“waters of the State”). Nine RWQCBs oversee water quality at the local and regional level. The RWQCB for a given region regulates discharges of fill or pollutants into waters of the State through the issuance of various permits and orders. Discharges into waters of the State that are also waters of the U.S. require a Section 401 Water Quality Certification from the RWQCB as a prerequisite to obtaining a Section 404 Clean Water Act permit. Discharges into waters of the State that are not also waters of the U.S. require Waste Discharge Requirements (WDRs), or waivers of WDRs, from the RWQCB.

The RWQCB also administers the Construction Storm Water Program and the federal National Pollution Discharge Elimination System (NPDES) program. Projects that disturb one or more acres of soil must obtain a Construction General Permit under the Construction Storm Water Program. A prerequisite for this permit is the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Projects that discharge wastewater, storm water, or other pollutants into a water of the U.S. may require a NPDES permit.

CDFW has jurisdiction over the bed and bank of natural drainages and lakes according to provisions of Section 1601 and 1602 of the California Fish and Game Code. Activities that may substantially modify such waters through the diversion or obstruction of their natural flow, change or use of any material from their bed or bank, or the deposition of debris require a Notification of Lake or Streambed Alteration. If CDFW determines that the activity may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will be prepared. Such an



agreement typically stipulates that certain measures will be implemented to protect the habitat values of the lake or drainage in question.

3.2.6 Coastal Commission and Local Coastal Program

Areas within the Coastal Zone are subject to provisions for wetland protection contained in the 1976 California Coastal Act. The California Coastal Commission allows a minimum of a 100-foot setback without application for a coastal development permit from the Commission. The San Mateo County Local Coastal Program (LCP) also requires a minimum of 100 feet from the outermost line of wetland vegetation, but provides that it may be reduced to no less than 50 feet. However, as Half Moon Bay has an LCP, Half Moon Bay's policies supersede the County LCP and the California Coastal Commission per the California Coastal Act.

Half Moon Bay's LCP identifies buffers, including:

- a. On both sides of riparian corridors, from the "limit of riparian vegetation," extend buffer zones 50 feet outward for perennial streams and 30 feet outward for intermittent streams.
- b. Where no riparian vegetation exists along both sides of riparian corridors, extend buffer zones 50 feet from the bank edge for perennial streams and 30 feet from the midpoint of intermittent streams.
- c. Along lakes, ponds, and other wet areas, extend buffer zones 100 feet from the high water point, except for man-made ponds and reservoirs used for agricultural purposes for which no buffer zone is designated."

Chapter 3 of the LCP discusses Environmentally Sensitive Habitat Areas: Marine and Water Resources. The LCP includes multiple definitions which may apply to a project site:

- 1) "Wetland" means lands within the Coastal Zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens."

"Riparian Area" is "any area of land bordering a stream or lake, including its banks. It includes land at least up to the highest point (in cross section) of an obvious channel or enclosure of a body of water. Such areas extend to the outer edge of appropriate indicator plant species".

The LCP also discusses preservation of Critical Habitats, and several species, including the San Francisco garter snake, San Francisco tree lupin moth, brackish water snail, California least tern, sea otter, globose dung beetle, rare plants, and California wild strawberry. The 2020 Local Coastal



Land Use Plan Update (2020; LUP) excludes California least tern, California black rail, San Francisco tree lupine moth, Guadalupe fur seal, sea otter, California brackish water sail, and globose dung beetle.

3.2.7 Half Moon Bay's 2020 Local Coastal Land Use Plan Update

The 2020 Local Coastal Land Use Plan Update (2020) is the most recent LUP document for Half Moon Bay. Chapter 6 of the LUP focuses on Natural Resources and includes maps of Environmentally Sensitive Habitat Areas (ESHA) for species and for habitats, potential ESHAs, and known special status species sightings. Article 5 includes information pertaining to Land Resources.

The LUP uses the Coastal Commission's definition of wetlands and criteria for identification: "Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats." (California Code of Regulations §13577(b)). This definition requires only one of the three indicators (hydrophytic vegetation, hydric soils, or saturated substrate) to be present to be considered a wetland. Wetland replacement is required by the LUP at a replacement ratio of 3:1, unless it can be demonstrated that a lesser ratio not less than 2:1 would sufficiently compensate for the loss of impacted wetlands.

The LUP states that "If a site-specific study prepared by a qualified biological professional finds that the area potentially contains rare or especially valuable habitat or contributes to the viability of special-status species, a detailed biological report is required. If the biological report shows that the site meets the criteria for ESHA, the area shall be designated as ESHA, and formally mapped pursuant to the California Coastal Act. Additionally, the LUP calls for encouraging and educating the public on reporting and verifying sightings of special-status species in the Planning Area to contribute to the California Natural Diversity Database and the City's habitat maps." Should the



project be within or adjacent to a designated or newly discovered ESHA, the LUP includes buffer requirements for sensitive habitats, mitigation standards, and development standards must be adhered to.

GENERAL BIOLOGICAL RESOURCES POLICIES

6-1. Protection and Enhancement of ESHA. Protect and, where possible, enhance or restore environmentally sensitive habitat areas (ESHAs).

6-2. Impact Avoidance. Avoid impacts to ESHA through development siting and design, buffer provisions, best management practices, and other protective avoidance measures. Only resource-dependent uses shall be allowed within an ESHA.

6-3. Development Review. Any development proposed to occur within or adjacent to ESHAs, Potential ESHAs, or unmapped areas that may contain ESHA shall assess the site for the presence and potential presence of sensitive habitats and special-status species as part of the development review process, in order to make an ESHA determination.

ADDITIONAL BIOLOGICAL RESOURCES POLICIES

Additional policies cover the following topics; those topics applicable to this project are noted with an “*”:

- ESHA Identification and Designation (Policies: 6-8 through 6-15)
- Biological Evaluations (Policies: 6-16 through 6-19)
- ESHA Protection (Policies: 6-20 through 6-25)
- Wetlands (Policies: 6-26 through 6-33)
- Riparian Corridors (Policies: 6-34 through 6-43)
- Sand Dunes (Policies: 6-44 through 6-52)
- Coastal Terrace Prairie (Policies: 6-53 through 6-57)
- Sea Cliffs/Bluffs (Policies: 6-58 through 6-59)
- Marine Habitats (Policies: 6-60 through 6-64)
- Ponds & Impoundments (Policies: 6-65 through 6-68)



- Development Standards (Policies: 6-69 through 6-82)
- Fuel Modification and Vegetation Removal (Policies: 6-83 through 6-86)
- Grading (Policies: 6-87 through 6-91)
- Mitigation and Restoration (Policies: 6-92 through 6-100)

Open Space Acquisition for Conservation (Policies: 6-101 through 6-105)

Sea Level Rise (Policies: 6-106 through 6-111)

The LUP also identifies Hydrology and Water Quality Policies, including policies relating to:

Watershed and Ground Water Development (Policies: 6-121 through 6-126)

Development (Policies: 6-127 through 6-140)

Stormwater Management (Policies: 6-141 through 6-152)

Wastewater (Policies: 6-153 through 6-157)

Hydromodification (Policies: 6-158 through 6-161)

These policies should be reviewed when planning any development in the LUP Planning Area.

3.2.8 City of Half Moon Bay’s Heritage Trees

City of Half Moon Bay (2023) Tree Ordinance.

The City of Half Moon Bay defines a Heritage Tree in Chapter 7.40 of its Municipal Code as:

- A. A tree located on public or private property, exclusive of eucalyptus, with a trunk diameter of twelve inches or more, or a circumference of at least thirty-eight inches measured at forty-eight inches above ground level.
- B. A tree or stand of trees so designated by resolution of the city council based on its finding of special historical, environmental, or aesthetic value, including a resolution adopted under former Chapter 12.16.
- C. A tree located within the public right-of-way along the entire length of Main Street or along Kelly Avenue between San Benito Street and Highway 1. (Ord. C-2013-02 §1, 2013: Ord. C-2-12 §5, 2012: Ord. C-10-11 §1(part), 2011).”

Furthermore, “any person who owns, controls, has custody or possession of any real property within the city shall use reasonable efforts to maintain and preserve all heritage trees located thereon in a state of good health pursuant to the provisions of this chapter. Failure to do so shall



constitute a violation of this chapter. Any person who conducts any grading, excavation, demolition or construction activity on property shall do so in such a manner as to not threaten the health or viability or cause the removal of any heritage tree. Any such grading, excavation, demolition or construction activity performed within the drip line of a heritage tree, defined as the diameter of the tree's canopy formed by branches and/or leaves extending outward from the trunk of the tree, shall require submittal of a tree protection plan for review and approval by the city manager, or his or her designee, prior to issuance of any permit for grading or construction. The tree protection plan shall be prepared by a certified arborist and shall address issues related to protective fencing and protective techniques to minimize impacts associated with grading, excavation, demolition and construction. The city manager or his or her designee may impose conditions on any city permit to assure compliance with this section. (Ord. C-2013-04 §7, 2013: Ord. C-2013-02 §2, 2013: Ord. C-10-11 §1(part), 2011)."

Additionally, "it is unlawful for any person to remove, or cause to be removed any heritage tree from any parcel of property in the city, or prune more than one-third of the branches or roots within a twelve-month period, without obtaining a permit in accordance with the requirements of this chapter; provided, that in case of emergency, when a tree is imminently hazardous or dangerous to life or property, it may be removed by order of the city manager, or his or her designee, or of the chief of the Half Moon Bay fire protection district. Any person who vandalizes, grievously mutilates, destroys or unbalances a heritage tree without a permit or beyond the scope of an approved permit shall be in violation of this chapter. (Ord. C-10-11 §1(part), 2011)."

Permits are required for removal or major pruning of a heritage tree; replacement is required at a 1:1 ratio with a minimum size of a 24-inch box specimen tree.

3.3 IMPACTS SPECIFIC TO THE PROJECT

The project, as proposed, would develop a portion of the residential property into a residence and would develop the street to the west of the site. This would impact developed areas and ruderal/non-native grassland. As discussed above, activities resulting in impacts to biotic resources may be regulated by local, state, and federal laws. The natural resource issues specific to this project are discussed in detail below.



3.3.1 Project Impacts to Special Status Plants

Potential Impact. Sixty-nine special status plant species are known to occur in the region. Due to habitat loss associated with past and ongoing land use practices on the project site, the absence of any historical suitable habitat, and/or the site's being situated outside a particular species' range, these species are absent from or unlikely to occur on site. For these 69 species, the project would not adversely affect them, and impacts would be less than significant as defined by CEQA.

The Choris' popcornflower, a CRPR 1B list ("Plants rare, threatened or endangered in California and elsewhere") species, has been documented less than 0.5 miles from the site and has some potential (although minimal) to occur on the onsite non-native/ruderal grasslands (Table 2). Properly timed, focused rare plant surveys during the species blooming period have yet to be completed to ascertain the species' presence or absence. If the project results in the loss of a significant portion of the regional population of Choris' popcornflower, this impact would be considered significant.

Mitigation. The project should implement the following measures to avoid, minimize, and/or compensate for impacts from project-related disturbance to or loss of special status plant populations.

Mitigation Measure 3.3.1a (Blooming Season Survey-April or May). Prior to site grading, a properly timed, a focused rare plant survey should be conducted by a qualified botanist or plant ecologist in all areas of the non-native grassland that are to be disturbed. The survey should be conducted in April or May, which is the species' peak blooming period. The actual timing of the survey may be modified if local reference populations can be checked to establish when the target species is actually blooming and, therefore, identifiable in the field. Survey guidelines developed by the CNPS and CDFW should be employed for all surveys conducted for special status plant species. If no populations of Choris' popcornflower are detected during the survey, then no additional mitigation or action is warranted. If populations of this species are present on the site and occur within areas of the site that will be impacted by the proposed project, and if a plant ecologist determines that project impacts would result in the loss of a significant portion of the regional population of Choris' popcornflower, then the following additional mitigation measures (i.e., Mitigation Measures 3.3.1b and 3.3.1c) should be implemented:



Mitigation Measure 3.3.1b (Avoidance of Choris' Popcornflower Populations). Any populations of special status plants detected on the site and identified as potentially subject to disturbance should be mapped, and the Project should avoid disturbance to those populations through preservation with an appropriately sized buffer, if technically feasible.

Mitigation Measure 3.3.1c (Compensatory Mitigation for Significant Impacts to Choris' Popcornflower Populations that Cannot be Avoided). In the event that Choris' popcornflower plant populations are subject to impacts from site disturbance, then the following compensatory measures will be implemented.

Onsite Preservation. Site plans may include the preservation of specific areas where special status species (i.e., Choris' Popcornflower) that have been previously detected on the site and/or have habitat known to support this species. As mentioned previously, these areas should be surveyed during the appropriate blooming season (Table 1) to determine whether populations of the species being significantly impacted by the project are also present within areas that will be preserved. If populations of the species are present on the preservation area, it should be determined by a qualified botanist or plant ecologist whether these populations to be preserved would adequately compensate, or partially compensate, for lost populations on the project site. If it is determined that preserved populations would completely compensate for impacted populations, then no further compensation would be required. However, if it is determined that populations of the impacted species are absent from the site, or that they are present, but their preservation would only partially mitigate for lost populations, then additional mitigation measures described below will be implemented.

Off-site Mitigation. If an onsite restoration plan is not feasible, mitigation for impacted special status plant species could be accommodated through restoration and conservation at an off-site location. Restoration may include seed-broadcasting of Choris' popcorn flowers at a site with suitable habitat. If off-site preservation is the mitigation alternative chosen, then the mitigation site must be confirmed to support populations of the impacted species and must be preserved in perpetuity via deed restriction, establishment of a conservation easement, or similar preservation



mechanism. A qualified botanist or plant ecologist should prepare a Preservation/Conservation Plan for the site containing the following elements:

- Identification of a suitable site confirmed to support populations of the impacted species;
- Description of onsite seed collection methodology at the location of impact to Choris' popcorn flowers
- Methodology for seed dispersal at the selected off-site mitigation location
- Maintenance and management of the mitigation site during the establishment period (following the year of seed dispersal) to optimize establishment success (i.e., grazing, weed control, control of human entry, etc.) and conserve existing populations of Choris' popcornflowers
- Development of success criteria that must be met for the restoration and seed broadcasting effort to be considered a success
- Monitoring methodology to be employed during the monitoring that will be effective in demonstrating the success or lack thereof of the seed broadcasting and restoration effort
- A description of remedial or adaptive management measures to be implemented in the event that initial restoration measures are unsuccessful in meeting the performance criteria.

Implementation of the above measures is expected to reduce project impacts to a less-than-significant level to Choris' popcornflower.

3.3.2 Loss of Habitat for Special Status Animals

Potential Impact. Twenty-three (23) special status animal species occur, or once occurred, regionally. Of these, 11 species would be absent or unlikely to occur on the site due to a lack of suitable habitat for these species. The species that would be absent or unlikely to occur include the San Bruno elfin butterfly, Myrtle's silverspot butterfly, California tiger salamander, California giant salamander, Santa Cruz black salamander, Foothill yellow-legged frog, western pond turtle, western snowy plover, bank swallow, Alameda song sparrow, and burrowing owl.



The remaining 12 special status animal species from Table 1 potentially occur more frequently as potential foragers, transients, or they may occur within areas adjacent to the site. These include the western bumble bee, Monarch butterfly, California red-legged frog, San Francisco garter snake, white-tailed kite, San Francisco common yellowthroat, grasshopper sparrow, Bryant's savannah sparrow, Townsend's big-eared bat, pallid bat, big free-tailed bat, and American badger.

Nest habitat for the western bumble bee is absent from the site and overwintering habitat for the Monarch butterfly is absent from the site. Roosting habitat for bats (Townsend's big-eared, pallid, big free-tailed, and other species) is also absent from the site, therefore, while these species may occur on the site for foraging or dispersal movements, they would be moving through the site and not spending a significant amount of time on the site, therefore, preconstruction surveys are not warranted for these species.

For the remaining species listed below, impacts to habitat would not be considered a significant impact to habitat due to the general availability of similar habitats in the vicinity.

Nesting birds, including, but not limited to the white-tailed kite, San Francisco common yellowthroat, grasshopper sparrow, Bryant's savannah sparrow, and other migratory birds and raptors may nest onsite or adjacent to the site.

The California red-legged frog, San Francisco gartersnake, and American badger may be expected to move through or forage on the site, however, the site does not support breeding habitat for these species.

Potential impacts to specific species are discussed further below in sections 3.3.4-3.3.8.

Mitigation. No mitigation warranted.

3.3.3 Interference with the Movement of Native Wildlife

Potential Impact. The buildout of the site would not constrain native wildlife movement, and the site does not support a major wildlife movement corridor. Any wildlife moving through the site would continue to be able to move through it after site development.

Mitigation. No mitigation warranted.



3.3.4 Impacts to Nesting Migratory Birds Including Nesting Raptors and other Protected Birds

Potential Impacts. The trees, shrubs, and grasslands of the site and the immediate vicinity of the site may support nesting migratory birds and raptors as well as other protected birds and raptors. Impacts to nesting migratory birds and raptors may be considered a significant impact.

Mitigation. To reduce impacts to a less-than-significant level, the applicant will implement the following mitigation to reduce impacts to nesting migratory birds and raptors.

- **Mitigation Measure 3.3.5a:** Should project construction be scheduled to commence between February 1 and August 31, a pre-construction survey will be conducted by a qualified biologist for nesting birds within the onsite trees as well as all trees within 250 feet of the site to the extent practicable. This survey will occur within 14 days of the on-set of construction.

Mitigation Measure 3.3.5b: If pre-construction surveys undertaken during the nesting season locate active nests within or near construction zones, these nests, and an appropriate buffer around them (as determined by a qualified biologist) will remain off-limits to construction until the nest has been determined to be inactive (young have fledged) by a qualified biologist.

Implementation of the above measures would reduce impacts to the nesting migratory birds and raptors to a less-than-significant level.

3.3.5 Impacts to California Red-Legged Frog (CRLF)

Potential Impacts. Although suitable breeding habitat is absent from the site, this species has a small potential to move onto the site and use the site for dispersal or upland habitat. The nearest recorded observation of CRLF is less than a tenth of a mile from the site. Although the project site is just outside an ESHA or Potential ESHA, the LUP (2020) shows the site to be adjacent to CRLF Breeding habitat and within a tenth of a mile of “Potential Upland, Foraging, and Dispersal Habitat for CRLF” which is also identified as being within a Potential ESHA. Therefore, construction activities could result in harm to individual California red-legged frogs. This would be considered a significant impact under CEQA.

Mitigation. Implementation of the following mitigation measures would reduce impacts to the California red-legged frog to a less-than-significant level.



- **Mitigation Measure 3.3.6a:** A qualified biologist should conduct a pre-construction survey for California red-legged frogs immediately prior to start of construction activities and within 50 feet of construction zones.
- **Mitigation Measure 3.3.6b:** Should CRLF be observed onsite, they should be allowed to leave the site on their own.
- **Mitigation Measure 3.3.6c:** All workers will be trained about this species and what to do if it is found onsite during construction (stop work in the vicinity of the animal, not to harass it, and allow it to leave on its own).

Implementation of the above measures would reduce impacts to California red-legged frog to a less-than-significant level.

3.3.6 Impacts to San Francisco Gartersnake

Potential Impacts. Although suitable breeding habitat is absent from the site, this species has a small potential to move onto the site and use the site for dispersal or upland habitat. The CNDDDB (CDFW 2023) shows undisclosed records in the quadrangle in which the site exists, and the LUP identifies “potential San Francisco Garter Snake Habitat and/or California red-legged frog Upland, Foraging, and Dispersal Habitat” just south of the project site, therefore, we cannot completely discount the possibility for this species to occur onsite. Therefore, construction activities could result in harm to individual San Francisco gartersnakes. This would be considered a significant impact under CEQA.

Mitigation. Implementation of the following mitigation measures would reduce impacts to the San Francisco gartersnake to a less-than-significant level.

- **Mitigation Measure 3.3.6a:** A qualified biologist should conduct a pre-construction survey for San Francisco gartersnake immediately prior to start of construction activities and within 50 feet of construction zones.
- **Mitigation Measure 3.3.6b:** Should the San Francisco gartersnake be observed onsite, they should be allowed to leave the site on their own.



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- **Mitigation Measure 3.3.6c:** All workers will be trained about this species and what to do if it is found onsite during construction (stop work in the vicinity of the animal, not to harass it, and allow it to leave on its own).

Implementation of the above measures would reduce impacts to San Francisco gartersnake to a less-than-significant level.

3.3.7 Impacts to American Badgers

Potential Impacts. Although the 2023 survey showed no sign of badgers or other burrows on the site, however, they could move onto the site from adjacent suitable habitat. The harm, injury or mortality of individuals from site development would be considered significant. Should site grading occur while a badger is inside a den, they may be buried in their den. Any actions related to site development that result in the mortality of badgers would constitute a significant adverse environmental impact.

Mitigation. Implementation of the following mitigation measures would reduce impacts to the American badger to a less-than-significant level.

- **Mitigation Measure 3.3.7a:** Pre-construction surveys conducted for nesting birds should also be used to determine the presence or absence of badgers in the development footprint.
- **Mitigation Measure 3.3.7b:** If an active badger den is identified during pre-construction surveys within or immediately adjacent to the construction envelope, a construction-free buffer of up to 300 ft. (or distance specified by the resource agencies, i.e., CDFW, formerly CDFG) should be established around the den. Because badgers are known to use multiple burrows in a breeding burrow complex, a biological monitor should be present onsite during construction activities to ensure the buffer is adequate to avoid direct impact to individuals or nest abandonment. The monitor would be necessary onsite until it is determined that young are of an independent age and construction activities would not harm individual badgers.
- **Mitigation Measure 3.3.7c:** Once it has been determined that badgers have vacated the site, the burrows can be collapsed or excavated, and ground disturbance can proceed.



Implementation of the above measures would reduce impacts to American badgers to a less-than-significant level.

3.3.8 Potential Impacts to Jurisdictional Waters, Riparian Habitat and Other Sensitive Natural Communities, Including Federally and State Protected Wetlands

Potential Impacts. Jurisdictional waters, riparian habitat, wetlands, and other sensitive natural communities do not exist on the site (Section 3.2.5). A formal wetland delineation was completed concurrently with the August 21, 2023 site visit, and the vegetation, soils, and hydrology were examined (Section 2.4, Appendix A). The data collected elucidated that the site did not meet the criteria of a wetland. In sum, no significant impacts to wetlands, riparian habitat, and other sensitive natural communities are anticipated because these habitats do not exist on the site.

Mitigation Measures. No mitigation is warranted.

3.3.9 Degradation of Water Quality in Seasonal Drainages, Stock Ponds, and Downstream Waters

Potential Impact. Eventual site development and construction may require grading that leaves the soil of construction zones barren of vegetation and, therefore, vulnerable to sheet, rill, or gully erosion. Eroded soil is generally carried as sediment in surface runoff to be deposited in natural creek beds, canals, and adjacent wetlands. Furthermore, urban runoff is often polluted with grease, oil, pesticide and herbicide residues, heavy metals, etc. These pollutants may eventually be carried to adjacent/nearby sensitive wetland habitats used by a diversity of native wildlife species. The deposition of pollutants and sediments in nearby riparian and wetland habitats would be considered a potentially significant adverse environmental impact. The project would comply with the City's grading requirements. Therefore, the project buildout would result in a less-than-significant impact to water quality.

Mitigation. No mitigation is warranted.

3.3.10 Conflict with Local Policies and Ordinances: Half Moon Bay's 2020 Local Coastal Land Use Plan (LCLUP) Update

Chapter 6 of the LUP (2020) focuses on Natural Resources and includes maps of Environmentally Sensitive Habitat Areas (ESHAs) and potential ESHAs. The site is just outside of an established ESHA; however, any work extending beyond Railroad Avenue would be within an established



ESHA. The habitat noted on the project site within the LUP (non-native grassland) is consistent with the current habitat on the ground. Policies of the LUP will be adhered to by the project. Failure to comply with the LUP policies (Section 3.2.7) could constitute as, a significant impact under CEQA. However, the proposed project would ensure compliance with the LUP which would ensure there is no project conflict with the LUP.

Mitigation. No mitigation warranted.

3.3.11 Habitat Conservation Plan, Natural Community Conservation Plan or Other Approved Local, Regional, or State Habitat Conservation Plan

The only Habitat Conservation Plan (HCP) or Natural Communities Conservation Plan that San Mateo County is currently participating in is the San Bruno Mountain HCP (2010), which does not include the project site. The county is not participating in any other such plans.

Mitigation. No mitigation warranted.



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APPENDIX A: USACE WETLAND DETERMINATION FORM

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 2/1							

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR D)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No <u>X</u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Water Marks (B1) (Riverine)
	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Some surface soil cracks by bare around around sewer line, indicating potential hydrological influence of sewer line.