Pillar Point/Surfers Beach Pilot Restoration Project

Special Status Habitat and Species Analysis

Project No.:
1140

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Prepared for:
San Mateo County Harbor District
Submitted via Bradley Damitz, Project Manager

Revised:
January 2022

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I. INTRODUCTION

The San Mateo County Board of Commissioners proposes to dredge sand that has accumulated within Pillar Point Harbor and pump the material to Surfer's Beach for beach renourishment. Pillar Point Harbor's breakwaters, constructed by the United States Army Corps of Engineers (USACE) in 1959 and 1961, have caused continuous beach and bluff erosion south of the harbor. More recently, Surfer's Beach's sandy shore has completely eroded which threatens the stability of the bluff above Surfer's Beach, structures, and exposes Highway 1. The eroded sand has consequently accumulated inside of Pillar Point Harbor, impeding harbor use because boats cannot safely launch from their ramps. As this has been an ongoing issue, the USACE previously conducted a preliminary study that assessed the feasibility of relocating dredged sand from Pillar Point Harbor to nearby beaches to enable harbor use and mitigate coastal erosion (USACE 2015). The USACE concluded that while the project was feasible, there was no federal interest in funding the project (USACE 2016). Consequently, the San Mateo County Harbor District Board of Commissioners proposed a scaled-down version of the beach restoration project with an additional eelgrass mitigation plan.

This analysis identifies special status habitats, species, and other important biological resources for the Pillar Point/Surfer's Beach Project (hereafter referred to as the "project" or "project site"). The information presented draws from, and updates, the larger-scale study USACE previously conducted in 2015 titled, "DRAFT Environmental Assessment and 404(b)(1) Analysis for the N. Half Moon Bay (Princeton) Pillar Point Harbor CAP §111 Feasibility Study". This report discusses the potential project impacts on biological resources and the applicant's mitigation measures for the potential impacts. Overall, this document assesses the biological and associated regulatory issues relevant to the proposed work at the site.

Zentner Planning and Ecology completed site analyses and reviewed online databases to assess the project site and the surrounding study area for jurisdictional and other special status habitats and species. These site surveys took place on November 10, 2021. Along with site analyses, Zentner Planning and Ecology reviewed online databases to determine the special-status plant and animal species that could occur in the project vicinity. The databases include the most recent versions of the: i) California Department of Fish and Wildlife (CDFW; formerly California Department of Fish and Game; CDFG) California Natural Diversity Database (CNDDB), ii) United States Fish and Wildlife Service (USFWS) Information, Planning, and Conservation

System (iPaC) special status species list, iii) California Native Plant Society's (CNPS) Online Inventory of Rare and Endangered Plants and, iv) National Oceanic and Atmospheric Administration (NOAA) Fisheries West Coast managed species. Each database was searched for the project site and the greater project area (i.e. the surrounding USGS 7.5- minute quadrangles in San Mateo County).

A. Location

The project will take place at Pillar Point Harbor and Surfer's Beach which are confined by the northern border of Half Moon Bay, California in San Mateo County (**Figure 1**). The project is about 25 miles south of San Francisco and is bordered by Highway 1 to the east in addition to the unincorporated communities Princeton, to the north, and El Granada to the east. Pillar Point Harbor is encompassed by its east and west breakwaters, and outside of these breakwaters is part of the Monterey Bay National Marine Sanctuary (MBNMS). The harbor is a popular attraction for commercial and sport fishing, boating, and recreational use. Immediately south of Pillar Point Harbors' east breakwater lies Surfer's Beach, which is so named due to it being a surfing destination. The surrounding area is populated by an air force facility on the northern bluff of the harbor, residential communities, an airport, and agricultural and commercial areas. The project proposes that dredging will occur along Pillar Point Harbor's east breakwater and basin, the eelgrass mitigation will be implemented along the west breakwater, and dredged sand will be relocated to Surfer's Beach.

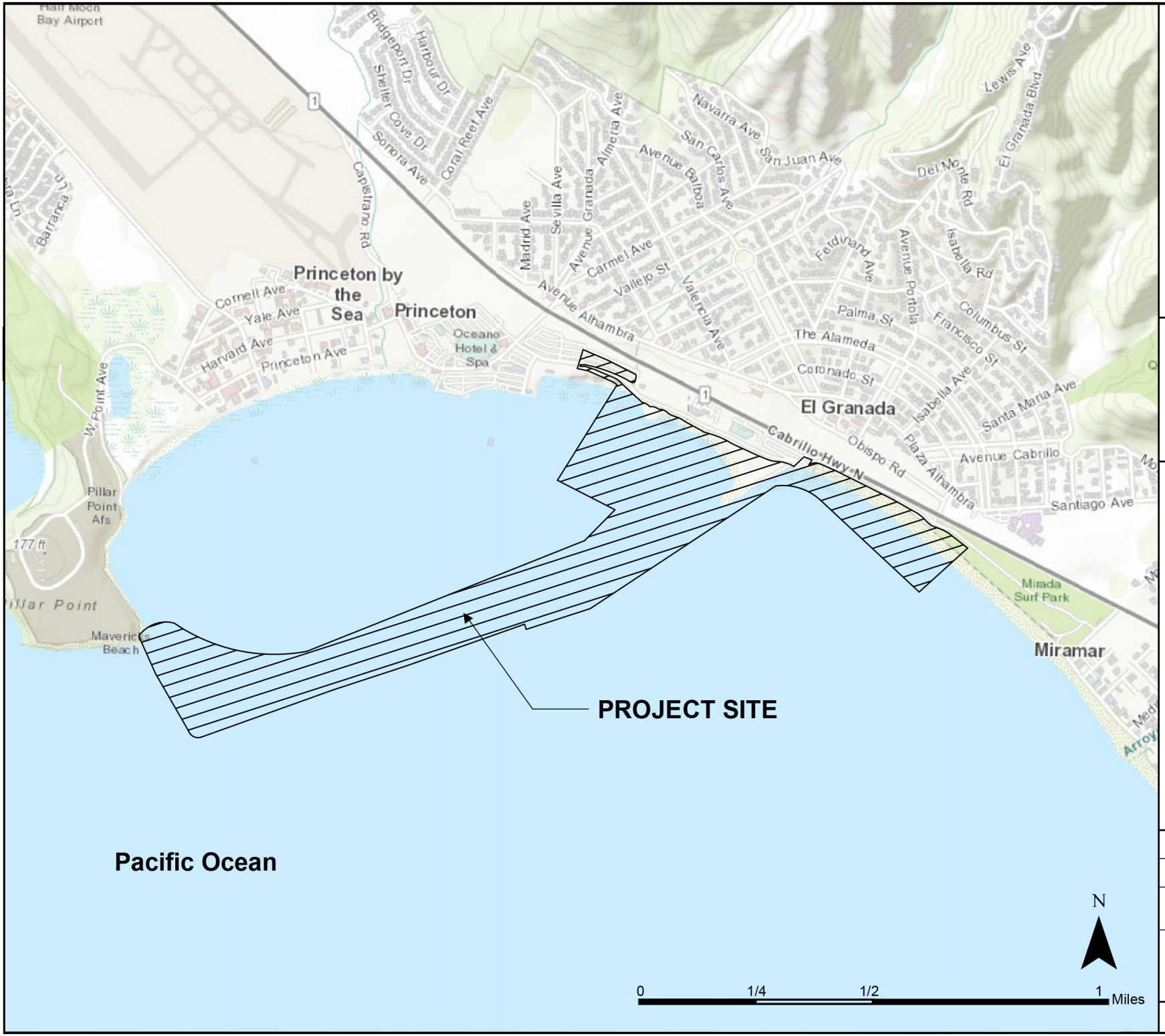

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FIGURE 1
LOCATION MAP

Pillar Point Harbor
Half Moon Bay, California

BY: **XM**

PROJECT: **1140**

BASE MAP:
GIS MAPS 2021

FILE:
D:\Graphic Designer\My Documents \ PROJECTS\1100-1199\1140 Pillar Pt Harbor\Adobe\1140 location1

DATE: **12/08/2021, 10:30 am**

II. EVIRONMENTAL SETTING

The site is located within the northern end of Half Moon Bay; encompassing the portions of the harbor within the breakwater and Surfers Beach adjacent to and just south of the breakwater. The project area includes a portion of coastal strand habitat that is dominated by ice plant (*Carpobrotus edulis*) as well as bluff habitat, dominated by a highly maintained grassland. Historically, the bluffs would have been dominated by mesic coastal prairie habitat, with occasional creeks surrounded riparian woodland, which carry water from the coast range to the east and deliver water to the Pacific. In lower elevation such as the harbor, it is likely that coastal salt marshes would have dominated in the mouths of some of these creek systems. Currently, most of these systems are highly managed and maintained and dominated by non-native species.

The relatively long and narrow project site is approximately 143 acres in extent. It is composed on the outer breakwaters and easternmost inner breakwater that make up Pillar Point Harbor, the associated tidal waters within the harbor as well as Surfers Beach just outside and south of the breakwaters, a portion of tidal waters adjacent to the beach, and a portion of the bluff above Surfers Beach. Much of the remainder of the site are constructed breakwaters and paths. The remaining habitats are fragmented, including a section of weedy coastal strand habitat, small seasonal wetlands, a patch of riparian wetland, channel fragment, and the highly maintained grassland on the bluff above Surfers Beach. The Pacific Ocean lies west of the site while the terrestrial areas to the north east and to the south are predominantly developed with commercial and residential structures.

A relatively narrow band of beach is situated on the east end of the site between the two breakwaters as well as a fragment of beach on the northwest corner adjacent to the outer western breakwater. Surfers beach, just outside the eastern outer breakwater, is highly scoured by wave action, and rocks were previously placed along the inner edge by the existing pathway to prevent further erosion.

A. Habitats and Wildlife

As noted above, the site contains an unusually large number of habitats within the relatively confined limits of the project site. The aquatic habitats on the site include intertidal and subtidal habitats. The freshwater habitats include some small seasonal wetlands and a fragment of riparian wetland. Other habitats include beach, rocky habitat, ruderal coastal strand, maintained grassland, and developed areas. These habitats are discussed in detail below.

Nomenclature for wildlife follows the California Department of Fish and Wildlife's (CDFW) *Complete list of amphibian, reptile, bird, and mammal species in California* (2016) and any changes made to species nomenclature as published in scientific journals since the publication of CDFW's list.

1. Intertidal

The intertidal habitat on site is located along Surfer's Beach, Pillar Point Harbor's east breakwater and Pillar Point Harbor's shore (**Figure 2**). This habitat is characterized by the area of land that meets the ocean. More specifically, the intertidal zone is covered at high tide and above water level at low tide. The intertidal habitat on the project site is mostly sandy but has a small portion of rocky intertidal section on the east breakwater. Common intertidal wildlife which could occur on site include sea stars, black abalone (*Haliotis cracherodii*), littorine snails, limpets, sea urchins, crabs, chitons, whelks, sea slugs, barnacles, and mussels. Intertidal plants include various species of algae including sea lettuce (*Ulva sp*), tar spot algae (*Mastocarpus sp),* and green pin cushion alga (*Cladophora columbiana*). Shore birds on site also use this habitat for feeding such as black oystercatchers (*Haematopus bachmani*) and western sandpipers (*Calidris mauri*).

2. Subtidal

The subtidal habitat on site includes Surfer's Beach and Pillar Point Harbor (Figure 2). This habitat is characterized by being submerged under water most of the time. The subtidal zone is home to a range of species. Some of the plants include kelp beds, which are not present on the project site but are located in the region. The wildlife ranges from benthic animals such as shrimp and polychaetae worms to fishes such as rockfish, northern anchovy (*Engraulis mordax*), sardines *(*e.g. *Sardinops sagax***)**, and mackerel. Other wildlife which might be present on site in the subtidal habitat includes marine mammals (e.g. *Phoca vitulina)* and marine birds (e.g. *Pelecanus occidentalis californicus, Phalacrocorax pelagicus, Melanitta perspicillata).*

3. Seasonal Wetlands

The site contains two small seasonal wetlands. Wetlands are characterized by their soil, hydrology and vegetation which are discussed more definitively the following "special status habitats" section. The first wetland is located on the harbor side of the east breakwater, between the beach and the paved trail, within coastal strand habitat (**Figures 2 and 3**). A small depression in this zone holds water for extended periods despite the sand substrate, likely due to a relatively high water table. Vegetation in the zone contains salt tolerant vegetation such as pickleweed (*Salicornia pacifica*) and saltgrass (*Distichlis spicata*) as well as freshwater associated plants such as rabbitsfoot grass (*Polypogon monspelliensis*) and bucks-horn plantain (*Plantago corononopus*), along with ice plant.

The second seasonal wetland is located on the bluff above Surfers Beach. This is a very shallow wetland that appears to pond water from runoff via the adjacent maintained grassland area as well as from overflow when the adjacent culvert is blocked or partially blocked during heavy rainfall events. This wetland was ponded to a depth of approximately two inches and contained a significant biotic crust layer. The vegetation consisted of Mediterranean barley (*Hordeum marinum*), spearscale (*Atriplex patula*), and bucks-horn plantain.

Enlargement A Scale: 1 Inch= 200 Feet

Enlargement B Scale: 1 Inch= 200 Feet

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Scale: 1 inch = 700 feet

0 350' 700' 1400'

FIGURE 2
Section 10 and Section 404 Jurisdictional Delineation

Pillar Point Harbor
Half Moon Bay, California

Legend

- Wetland
- Ephemeral Channel
- Data Points
- High Tide Line
- Mean High Water
- Section 404 Jurisdictional Area (3.29Acres)
- Section 10 and Section 404 Jurisdictional Area (126.75 Acres)
- Limits of Work
- Study Area Boundary

Jurisdictional Areas

Habitat Type	Acres	S.F.	L.F.
A. Seasonal Wetland	0.065	2810.56	
B. Riparian Wetland	0.107	4655.19	
C. Ephemeral Channel	0.000	7.90	11.85
D. Seasonal Wetland	0.009	408.62	
Total Areas:	**0.181**	**7882.27**	

Disclaimer: Section 404 Jurisdictional Map

This map exhibits conditions on the site at the time of completion of the delineation. For various reasons, conditions on a site may change, which may affect site wetland boundaries. Delineation maps generally expire five years after approval by the U.S. Army Corps of Engineers (Corps). Because regulations governing delineations are subject to change, this map should be reviewed by a qualified wetland consultant to ensure accuracy if not submitted to the Corps within six (6) months of preparation.

Field Work By: Zentner and Zentner, 11/22/21.

Topo Source: Esri Map (2021)	Revisions	By
Date: 12/15/2021		
Cartographer: XM		

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Enlargement A Scale: 1 Inch= 200 Feet

Enlargement B Scale: 1 Inch= 200 Feet

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Scale: 1 inch = 700 feet

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FIGURE 3
Coastal Commission Jurisdictional Delineation

Pillar Point Harbor
Half Moon Bay, California

Legend

- Wetland
- Ephemeral Channel
- Data Points
- High Tide Line
- Mean High Water
- Tidal/ Mudflat (3.29Acres)
- Open Water (126.75 Acres)
- Limits of Work
- Study Area Boundary

Jurisdictional Areas

Habitat Type	Acres	S.F.	L.F.
A. Seasonal Wetland	0.116	5033.88	
B. Riparian Wetland	0.107	4655.19	
C. Ephemeral Channel	0.000	7.90	11.85
D. Seasonal Wetland	0.001	35.61	
E. Seasonal Wetland	0.009	408.62	
Total Areas:	**0.233**	**10141.20**	

Topo Source: Esri Map (2021)	Revisions	By
Date: 12/15/2021		
Cartographer: XM		

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4. Ruderal Coastal Strand

The coastal strand habitat lies within the harbor side of the east breakwater, between the beach and the paved trail. Coastal strand habitat is characterized by growing near beach dunes and by being adapted to salt spray, wind, and waves. This habitat on site is dominated by non-native ice plant but also contains a number of native species in areas where the ice plant is relatively sparse. Ripgut brome (*Bromus diandrus*) is relatively common as is bur clover (*Medicago polymorpha; FACU*). Salt grass (*Distichlis spicata*) is found sparsely in some areas as is horseweed (*Erigeron canadensis*). Wildlife observed in this habitat include the Santa Cruz garter snake (*Thamnophis altratus*) and songbirds such as savannah sparrows (*Passerculus sandwichensis*) and white crowned sparrows (*Zonotrichia leucophrys*). Other wildlife that may use the habitat include long tailed weasels (*Mustela frenata*) and California meadow voles (*Microtus californicus*).

5. Maintained Grassland

The maintained grassland is located on top of the bluff above Surfer's Beach in a narrow strip between the bluff to the west and a paved trail that runs adjacent to Highway 1. This grassland is highly maintained as to give the appearance of turf, complete with picnic tables and benches. The grassland is dominated by ripgut brome and includes weedy broadleafs such as mustard (*Brassica nigra*), bur clover, Italian ryegrass (*Festuca perennis*) and storksbill (*Erodium cicutarium*). Wildlife that may use this habitat include long tailed weasels (*Mustela frenata*), California meadow voles (*Microtus californicus*), mice (e.g. *Peromyscus californicus*), coyotes (Canis latrans), foxes (e.g. *Urocyon cinereoargenteus)*, songbirds, and raptors.

6. Riparian Wetland

A relatively small fragment of riparian wetland lies between Highway 1 and the Pacific Ocean on the bluff above Surfers Beach. The riparian vegetation is dominated by arroyo willow (*Salix lasiolepis*) with an understory of poison hemlock (*Conium maculatum*), spearscale, and iceplant. A large, dense area of willow woodland is located on the east side of Highway 1 and there is obviously some drainage connection between the east and west side of the highway where this fragment is located, before it drains into the Pacific. Wildlife that may use this habitat include long tailed weasels (*Mustela frenata*), California meadow voles (*Microtus californicus*), mice (e.g. *Peromyscus californicus*), coyotes (*Canis latrans*), foxes (e.g. *Urocyon cinereoargenteus)*, songbirds, and raptors.

7. Developed Areas

The project site mostly runs through developed habitat. The developed areas include parking lots, trails in the harbor, trails along the bluffs, and the top of the rock breakwaters. The

developed areas are paved so there is a lack of plant species in these areas. Common wildlife that occurred were mainly birds such as gulls and brewer's blackbird (*Euphagus cyanocephalus*).

8. Rocky

The rocky habitat on site includes the terrestrial area on top of the breakwaters. This habitat is composed of similar species to those in the developed areas. Sea birds might use this habitat to perch further out on the breakwater such as gulls (e.g. *Larus occidentalis*) and cormorants (e.g. *Phalacrocorax penicillatus*).

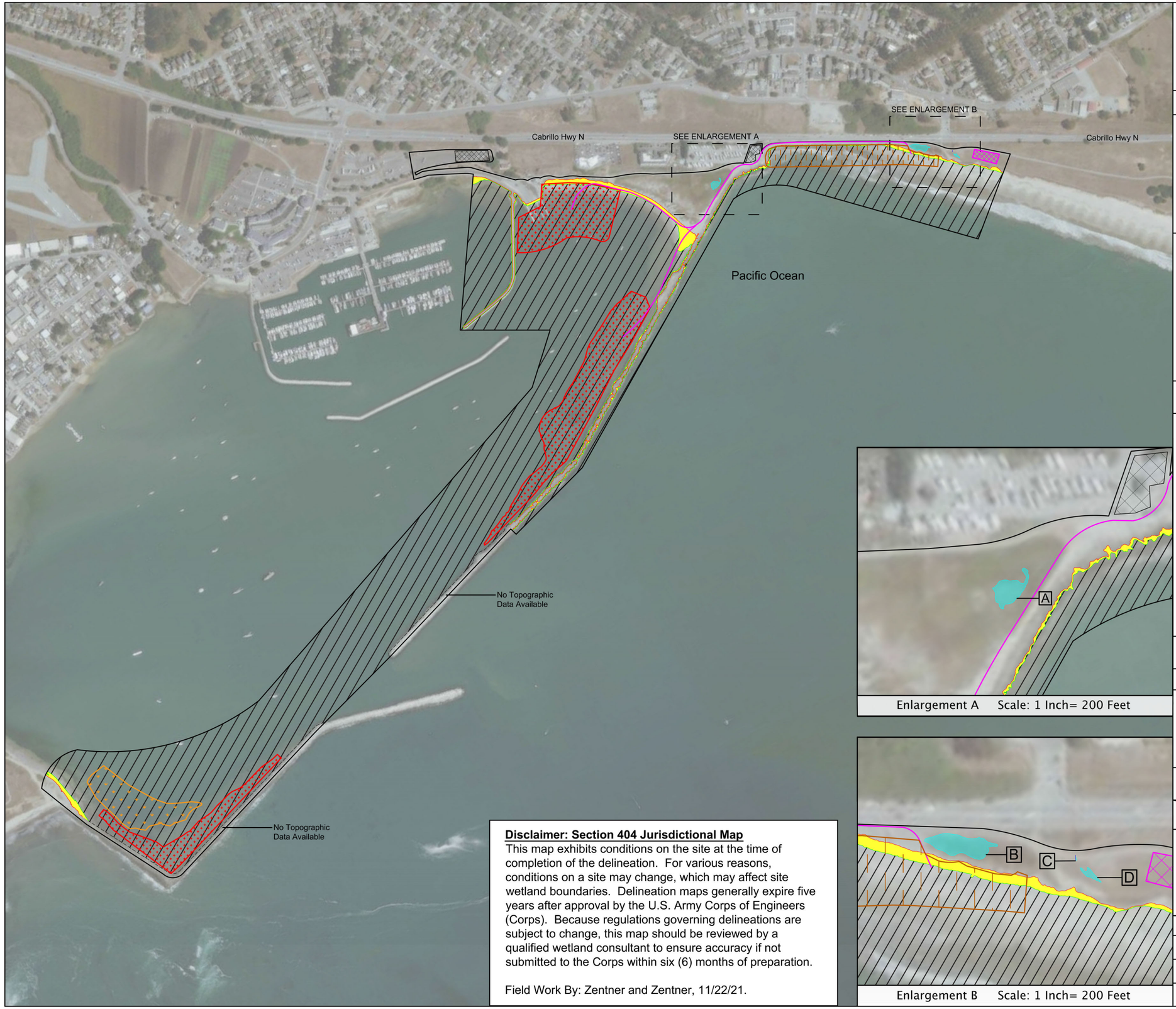
9. Beach

The project site includes beach habitat on the harbor side of the east breakwater and at Surfer's Beach. This habitat is characterized by being above the high tide mark. Most of the beach at Surfer's Beach does not exist anymore due to erosion, except for a small portion at the southern end.

B. Project Description

The proposed project will dredge 75,000 to 100,000 cubic yards of accumulated sand inside Pillar Point Harbor and pump the material to Surfer's Beach (**Figure 4**). The project will use a hydraulic suction dredge to excavate sand from six zones along the east breakwater and east basin up to a depth of -10 NAVD to match the surrounding bathymetry. However, eelgrass beds have established in some of the proposed dredging zones because the shoaled sand provides shallow water which is ideal habitat for eelgrass. To mitigate eelgrass impacts, an eelgrass restoration project, discussed in greater detail below, will be implemented on the harbor's west breakwater. Dredging will occur in time increments dependent on eelgrass bed presence and prioritizes finer sands ideal for the eelgrass mitigation portion and later dredges coarser material for Surfer's Beach which is outlined in detail in ESA's engineering design report (see ESA 2021).

Most of the dredged sand will be pumped to Surfer's Beach through a pipeline to create a sand berm that will dissipate into a sandy shore over time. The project plans for the pipeline to run along the harbor's beach, east breakwater, and the Coastal Trail above Surfer's Beach. The pipeline will discharge sand into a pre-graded 4 to 6-foot-tall temporary containment berm at the southern end of Surfer's Beach. The containment berm construction requires 1,000 cubic yards of existing beach to be graded. Additionally, the containment berm will be located above the mean high water (MHW) line, which complies with Monterey Bay National Marine Sanctuary's (MBNMS) requirement that prohibits dredged material from being placed below the MHW. Later, the contained sand will be pushed north along Surfer's Beach and shaped over roughly 5 acres into a 10-foot-tall and 150-foot wide embankment using heavy machinery such as dozers. The sand berm will occupy 1,000 feet of shoreline and will level out into a sandy beach with time.



Enlargement A Scale: 1 Inch= 200 Feet

Enlargement B Scale: 1 Inch= 200 Feet

Disclaimer: Section 404 Jurisdictional Map
This map exhibits conditions on the site at the time of completion of the delineation. For various reasons, conditions on a site may change, which may affect site wetland boundaries. Delineation maps generally expire five years after approval by the U.S. Army Corps of Engineers (Corps). Because regulations governing delineations are subject to change, this map should be reviewed by a qualified wetland consultant to ensure accuracy if not submitted to the Corps within six (6) months of preparation.

Field Work By: Zentner and Zentner, 11/22/21.

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Scale: 1 inch = 700 feet

0 350' 700' 1400'

FIGURE 4
Jurisdictional Impacts

Pillar Point Harbor
Half Moon Bay, California

Legend

- A — Wetland
- C — Ephemeral Channel
- Limits of Work
- Study Area Boundary
- High Tide Line
- Mean High Water
- Section 404 Jurisdictional Area
- Section 10 & 404 Jurisdictional Area
- Proposed Dredging Impacts (18.77 Acres)
- Created Beach Habitat (4.10 Acres)
- Created Eelgrass Habitat (3.90 Acres)
- Proposed Temporary Upland Impacts (0.30 Acres)
- Staging Area on Pavement (0.63 Acres)
- Proposed Temporary Impacts (3447.32 L.F. / 0.08 Acres)

Jurisdictional Areas - Not Impacted

Habitat Type	Acres	S.F.	L.F.
A. Seasonal Wetland	0.065	2810.56	
B. Riparian Wetland	0.107	4655.19	
C. Ephemeral Channel	0.000	7.90	11.85
D. Seasonal Wetland	0.009	408.62	
Total Areas:	**0.181**	**7882.27**	

Impacted Areas Detail

Habitat Type \ Zones	Section 404 Acres	Section 10&404 Acres	Upland Acres
Dredging Impacts	**0.12**	**18.63**	**0.02**
Temporary Impacts - Staging	0.00	0.00	0.30
Temporary Impacts - Pipeline	0.02	0.01	0.05
Total Temporary Impacts	**0.02**	**0.01**	**0.35**

Topo Source: Esri Map (2021)	Revisions	By
Date: 12/16/2021		
Cartographer: XM		

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The project proposes to implement an eelgrass mitigation project along the west breakwater prior to dredging areas where eelgrass beds are present (**Figure 5**). The mitigation plan proposes to harvest eelgrass in dredge footprints of the east breakwater prior to dredging and transplant the eelgrass along the west breakwater near existing eelgrass beds. The eelgrass will require shallow water, 0 to -2 feet, and fine sands to successfully transplant in the mitigation site. However, the mitigation site currently ranges from +3 to -7 feet. As a result, the project plans to modify the mitigation site into a uniformly shallow habitat at a depth of one foot. This requires a cut of 12,860 cubic yards which will be used for fill and an additional 6,360 cubic yards of fine sand that will be dredged from the east basin and transported via barge. The final mitigation planting site will expand 29,000 square meters with 5,147 square meters of eelgrass cover (MTS 2020).

Enlargement A Scale: 1 Inch= 200 Feet

Enlargement B Scale: 1 Inch= 200 Feet

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FIGURE 5
Eelgrass Impacts

Pillar Point Harbor
Half Moon Bay, California

Legend

- Wetland
- Ephemeral Channel
- Eelgrass Not Impacted (3.26 Acres)
- Eelgrass Impacted (2.70 Acres)
- Created Eelgrass Habitat (3.90 Acres)
- Proposed Dredging Impacts
- High Tide Line
- Mean High Water
- Section 404 Jurisdictional Area
- Section 10 and Section 404 Jurisdictional Area
- Limits of Work
- Study Area Boundary

Jurisdictional Areas

Habitat Type	Acres	S.F.	L.F.
A. Seasonal Wetland	0.065	2810.56	
B. Riparian Wetland	0.107	4655.19	
C. Ephemeral Channel	0.000	7.90	11.85
D. Seasonal Wetland	0.009	408.62	
Total Areas:	**0.181**	**7882.27**	

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III. SPECIAL STATUS SPECIES AND HABITATS

A. Special-Status Species

1. Definitions

Special-status species are plants and animals that are legally protected under the California and Federal Endangered Species Acts (CESA and FESA, respectively) or other regulations, and species that are considered rare by the scientific community (for example, the California Native Plant Society [CNPS]). Special-status species are defined as:

- Plants and animals that are listed or proposed for listing as threatened or endangered under the CESA (Fish and Game Code §2050 et seq.; 14 CCR §670.1 et seq.) or the FESA (50 CFR 17.12 for plants; 50 CFR 17.11 for animals; various notices in the Federal Register [FR] for proposed species);

- Plants and animals that are candidates for possible future listing as threatened or endangered under the FESA (50 CFR 17; FR Vol. 64, No. 205, pages 57533-57547, October 25, 1999); and under the CESA (California Fish and Game Code §2068);

- Plants and animals that meet the definition of endangered, rare, or threatened under the California Environmental Quality Act (CEQA) (14 CCR §15380) that may include species not found on either State or Federal Endangered Species lists;

- Plants occurring on Lists 1A, 1B, 2, 3, and 4 of CNPS' Electronic Inventory (CNPS 2015). The California Department of Fish and Wildlife (CDFW) recognizes that Lists 1A, 1B, and 2 of the CNPS inventory contain plants that, in the majority of cases, would qualify for State listing, and CDFW requests their inclusion in EIRs. Plants occurring on CNPS Lists 3 and 4 are "plants about which more information is necessary," and "plants of limited distribution," respectively (CNPS 2015). Such plants may be included as special-status species on a case by case basis due to local significance or recent biological information;

- Migratory non-game birds of management concern listed by U.S. Fish and Wildlife Service (Migratory Non-Game Birds of Management Concern in the United States: The list 1995; Office of Migratory Bird Management; Washington D.C.; Sept. 1995);

- Animals that are designated as "species of special concern" by CDFW (2010);

- Animal species that are "fully protected" in California (Fish and Game Codes 3511, 4700, 5050, and 5515).

2. Special Status Species Potentially Occurring Within the Study Area

A total of 71 special status species occur or have the potential to occur in the region. The CDFW's California Natural Diversity Database (CNDDB) lists a total of 11 special status animal species and 23 special status plant species from a 5-mile area around the property (**Figures 6 and 7**). The state and federal species lists are provided in **Appendix A**. The definitions for the special status species designations are provided in **Appendix B**.

a. Animals

A total of 26 special status wildlife species were reviewed for their potential to occur within the study area. Figure 5 shows the known occurrences of special status wildlife species within five miles of the study area from the CNDDB and other sources. **Table 1** provides information on each of these species as well as information on the likelihood of their occurrence within the study area. There are several species included in this table which do not have CNDDB recorded occurrences and are therefore not shown on the CNDDB map, though they are known from the region.

The wildlife species that have potential to occur on the project site are described in more detail below; the remaining species shown on Figure 5 and included in Table 1 are not more fully described as they are highly unlikely to occur on-site due to a lack of suitable habitat and local occurrences.

The following species have at least some potential to move through or otherwise depend on the site for some function given the presence of potentially suitable habitat and known occurrences in the surrounding area.

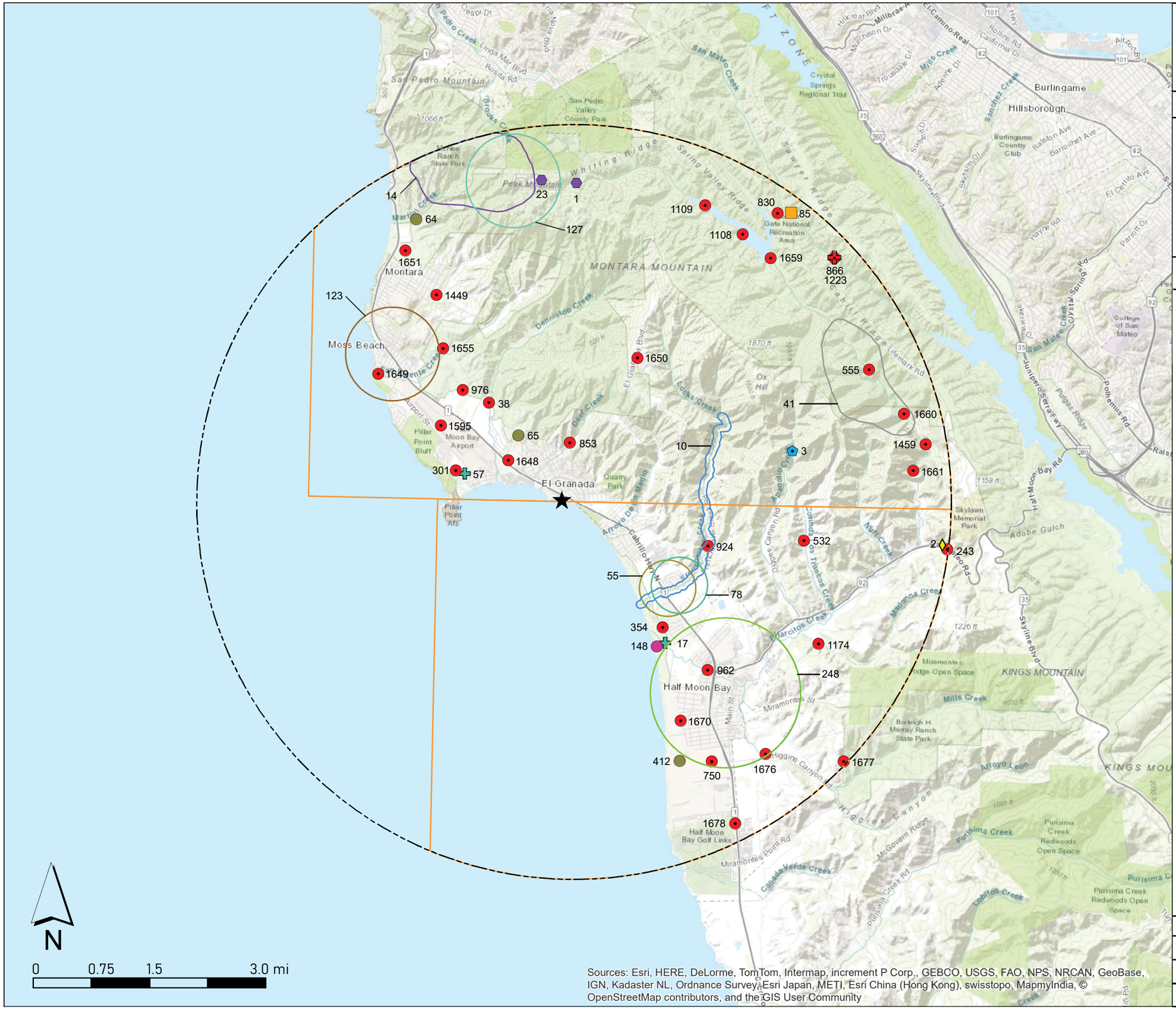
Birds

Marbled murrelet (*Brachyramphus marmoratus*)

FT, SE, CDF:S, IUCN:EN, NABCI:RWL

The marbled murrelet (*Brachyramphus marmoratus*) is a small sea bird, 9.4 to 9.8 inches and 9.1 to 12.6 ounces, with a short neck, tail and wings. Their coloration on top of their body is brown with spotted dark grey and white patches on their underside. Nonbreeding adults are colored more uniformly with a dark gray on top and a white underside, collar, and bar over their shoulder (Cornell Lab of Ornithology 2019).

Marbled murrelets historically live along the Pacific Coast in Alaska, California, Oregon, British Columbia and Washington. They live most of their life at sea and retreat inland to nest in old growth coniferous forests with slightly open canopy cover. In California, they usually make nests in Douglas fir and coastal redwoods. Fledglings fly from their nests, about 28 days after hatching, directly to the ocean (USFWS 2020). At sea, the marbled murrelet eats primarily fish, shrimp, squid, and zooplankton (Cornell Lab of Ornithology 2019).



Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

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FIGURE 6

CNDDB Special Status Wildlife Occurences
Pillar Point Harbor Project

Half Moon Bay
California

Legend

- Project Location
- 5-Mile Radius
- Neotoma fuscipes annectens / San Francisco dusky-footed woodratv (2)
- Thamnophis sirtalis tetrataenia / San Francisco gartersnake (31,45,5,50,48,46,28,47,7,57,51,11,49,56,10,55,54,13,9)
- Brachyramphus marmoratus / Marbled murrelet (41)
- Charadrius nivosus nivosus / Western snowy plover (148)
- Danaus plexippus pop. 1 / Monarch - California overwintering population (65,64,412,55)
- Bombus occidentalis / Western bumble bee (248)
- Oncorhynchus mykiss irideus pop. 8 / Steelhead - central California coast DPS (3,10)
- Emys marmorata / Western pond turtle (1223)
- Rana draytonii / California red-legged frog) (866, 853, 924,976,532,1649,1670,1655,1677,1660,1650,1659, 1449,1595,962,1678,1109,1174,243,301,1661,1648,1459,1108, 1651,38,354,830,1676,750,555)
- Geothlypis trichas sinuosa / Saltmarsh common yellowthroat (57,17,78)
- Dicamptodon ensatus / California giant salamander (85)
- Bombus caliginosus / Obscure bumble bee (123)
- Taxidea taxus / American badger (127)
- Callophrys mossii bayensis / San Bruno elfin butterfly (23,1,14)

Source: CNDDB shapefiles Dec. 2021	Revisions	By
Date: 12/20/2021		
Cartographer: XM		

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Table 1
Special Status Wildlife

Scientific name	Common name	Status	Habitat	Potential habitat on-site	Range	Known range/ Critical habitat	Potential for occurrence on-site	Previously Evaluated (USACE 2015)/ Conclusion
AMPHIBIANS								
Rana draytonii	California red-legged frog	FT, CDFW:SSC, IUCN:VU	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 flowing waters, South coast standing waters, Wetlands	No	Mendocino County to Baja California, primarily west of the Cascade-Sierra crest.	Yes	None: No habitat	Yes/ Species presence not expected
BIRDS								
Rallus obsoletus obsoletus (formerly Rallus longirostris obsoletus)	California ridgway's rail (formerly California clapper rail)	FE, SE, CDFW:FP NABCI:RWL	Saltwater and brackish marshes traversed by tidal sloughs	No	The San Francisco Bay area, including all 9 counties that border the bay.	No	None: No habitat	Yes/ Species presence not expected
Sterna antillarum browni	California least tern	FE, SE, CDFW:FP, NABCI:RWL	Alkali playa, Wetland	No	Breeds along the California coast from the San Francisco Bay to Baja California. Winters in Baja or Mexico.	No	None: No habitat, out of range	Yes/ Species presence not expected
Brachyramphus marmoratus	Marbled murrelet	FT, SE, CDF:S, IUCN:EN, NABCI:RWL	Feeds nearshore; nests inland in old growth redwood dominated forests, up to six miles inland, often in douglas-fir	Yes	Along coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz	Yes	Likely: Occurences within proximity to site, however no nesting habitat	Yes/ No impacts expected
Phoebastria (=Diomedea) albatrus	Short-tailed albatross	FE, CDFW:SSC IUCN:VU NABCI:RWL	Open ocean near island and mainland coastlines; nests primarily on the volcanic Torishima Island, Japan	No	US historic range is along the North Pacific and Bering Sea in Alaska, California, Hawaii, Oregon, Washington; CA Counties include Del Norte, Humbodlt, Los Angeles, Marin, Mendocino, Monterey, Orange, San Diego, San Fransisco, San Luis Obispo, San Mateo, Santa Barbara, Santa Cruz, Sonoma, Ventura	No	None: No habitat, out of range	Yes/ Species presence not expected

Table 1
Special Status Wildlife

Charadrius nivosus nivosus	Western snowy plover	FT, CDFW:SSC, NABCI:RWL, USFWS:BCC	Great Basin standing waters, sandy shores, wetlands, salt pond levees and shores of large alkali lakes	Yes	Along the Pacific coast of the U.S., but more numerous in valleys and deserts in southern California.	Yes	Marginal: Preferred habitat south of project site	Yes/ Lack of plovers in project area noted. No adverse effects expected
Pelecanus occidentalis californicus	Brown pelican	F: Delisted, S: Delisted, BLM:S CDFW:FP USFS:S	Nearshore waters and islands, nest in rocky coastal islands	Yes	Atlantic, Pacific and Gulf Coasts of North and South America	Yes	Likely: Occurences within proximity to site	Yes/ Roosting, but no nesting habitat; No impacts expected
Geothlypis trichas sinuosa	Saltmarsh common yellowthroat	CDFW:SSC USFWS:BCC	Fresh and saltwater marshes & swamps	No	Breeds in the San Francisco Bay area from the Tomales Bay to Carquinez Strait and San Jose. Non-breeding range extends down to San Diego.	Yes	None: No habitat	No
FISH								
Acipenser medirostris	Green sturgeon - Southern DPS	FT, CDFW:SSC, AFS:VU, CDFW:SSC, IUCN:NT, NMFS:SC	Found in nearshore waters. Critical habitat includes all coastal marine waters, bays, and estuaries	Yes	From Vancouver Island, British Columbia to Monterey Bay, California.	Yes	Marginal	Yes/ Foraging habitat present; Impacts not expected
Oncorhynchus kisutch pop. 4	Coho salmon - Central California Coast ESU	FE, SE, AFS:EN	Found in coastal waters, estuaries, and freshwater streams. Critical habitat includes all water, substrate and adjacent riparian zones of all accessible river reaches and estuarine habitat	Yes	From Punta Gorda in northern California to the San Lorenzo River, which empties into Monterey Bay at Santa Cruz.	Yes	Marginal	Yes/ No breeding habitat; No significant impacts expected
Oncorhynchus mykiss irideus pop. 8	Steelhead - central California coast DPS	FT, AFS:TH	Streams and rivers, deep low velocity pools, freshwater bodies, estuaries, Pacific ocean	Yes	Streams from the Russian River to Aptos Creek, Santa Cruz County, CA; drainages of San Fransisco and San Pablo Bays	Yes	Marginal	Yes/ No breeding habitat; No significant impacts expected

Table 1
Special Status Wildlife

Oncorhynchus mykiss pop. 9	Steelead - South Central California DPS	FT, AFS:TH	Streams and rivers, deep low velocity pools, freshwater bodies, estuaries, Pacific ocean	Yes	All accessible river reaches and coastal river basins from the Pajaro River (inclusive), Santa Cruz County, south to the Santa Maria River	Yes	Marginal	Yes/ No breeding habitat; No significant impacts expected
Hypomesus transpacificus	Delta smelt	FT, SE, AFS:TH, IUCN:EN	Open waters of bays, tidal rivers, channels, and sloughs. Rarely occurs in salt water with a salty greater than 10-12ppt.	No	The upper San Francisco Estuary, particularly the upper Sacramento-San Joaquin Delta and Suisun Bay.	No	None: Outside of range	Yes/ Species presence not expected
Eucyclogobius newberryi	Tidewater goby	FE, AFS:EN, IUCN:VU	Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters, South coast flowing waters	No	Coastal streams from Oregon to San Diego, although it is possibly extirpated from the San Francisco Bay.	No	None: Outside of range	Yes/ Species presence not expected
INVERTEBRATES								
Danaus plexippus pop. 1	Monarch butterfly - California overwintering population	FC, USFS:S	Breed in habitats with dense milkweed cover; overwinter in areas of dense, wind-protected tree groves (Eucalyptus trees, Cypress, Monterey pine, and other conifer species) with nectar and water sources nearby	No	Roost sites along the coast of Northern Mendocino to Baja California, Mexico	Yes	None: No habitat	No
Bombus caliginosus	Obscure bumble bee	IUCN:VU	Near food plant genera including baccharis, cirsium, lupinus, lotus, grindelia, and pachelia	No	Coastal areas from Santa Barbara County to North Washington State	Yes	Unlikely: No habitat	No
Callophrys mossii bayensis	San Bruno elfin butterfly	FE	Coastal Mountainous areas with grassy ground cover. Colonies are located on steep, north-facing slopes within the fog belt. Larval host plant is *Sedum spathulifolium*	No	Within the vicinity of San Bruno Mountain, San Mateo County	No	None: No habitat	Yes/ Species presence not expected
Bombus occidentalis	Western bumble bee	USFS:S	Once relatively widespread	Marginal	Once relatively widespread, now in serious decline in central to southern California	Yes	Unlikely: Historic range	No
Haliotis cracherodii	Black Abalone	FE, IUCN:CR	Rocky substrates in intertidal and shallow subtidal reefs along the coast	Yes	Point Arena, California, to Bahia Tortugas and Isla Guadalupe, Mexico	Yes	Marginal	Yes/ No significant impacts expected
MAMMALS								

Table 1
Special Status Wildlife

Taxidea taxus	American badger	CDFW:SSC IUCN:LC	Broadleaved upland forest, Chaparral, Chenopod scrub, Cismontane woodland, Coastal prairie, Coastal scrub, Meadow & seep, Riparian forest, Riparian scrub, Riparian woodland, Ultramafic, Valley & foothill grassland.	No	Throughout California and North American; from British Columbia to the Great Lake Region and south to Central Mexico.	Marginal	Unlikely: No habitat	No
Reithrodontomys raviventris	Salt marsh harvest mouse	FE, SE, CDFW:FP IUCN:EN	Marsh & swamp, wetland	No	Primarily in salt marshes in south San Francisco Bay including San Mateo, Santa Clara, Contra Costa Alameda, Marin, Napa,	No	None: No habitat	Yes/ Species presence not expected
Enhydra lutris nereis	Southern sea otter	FT, CDFW:FP IUCN:EN MMC:SSC	Nearshore waters adjacent to rocky coasts, points of land, or bays where kelp beds are present	Yes	From Ano Nuevo, San Mateo County, to Point Sal, Santa Barbara County	Yes	Likely: Occurences within proximity to site	Yes/ No effects expected
REPTILES								
Thamnophis sirtalis tetrataenia	San Francisco gartersnake	FE, SE, CDFW:FP	Vicinity of freshwater marshes, ponds and slow- moving streams with dense cover and water depths of at least one foot with upland areas near water	No	San Mateo County and extreme northern Santa Cruz County	No	None: No habitat	Yes/ Species presence not expected
Chelonia mydas	Green sea turtle - East Pacific DPS population	FT, IUCN:EN	Migrate in open ocean but otherwise are found in nearshore shallow waters including reefs, bays, and inlets, often with an abundance of marine algae and grasses. Nest on open beaches with sloping platform	Yes	The East Pacific DPS population is bounded by the following: 41 degrees N., 143 degrees W. in the northwest; 41 degrees N. Lat. in the north; along the western coasts of the Americas; 40 degrees S. Lat. in the south; and 40 degrees S., 96 degrees W. in the southwest	Yes	Marginal	Yes/ No effects expected
Dermochelys coriacea	Leatherback Sea Turtle	FE	Open ocean, nest on sandy beaches with vegetation and sloped platform	Yes	Critical habitat includes the California Coast from Point Arena to Point Arguello. Nest in South America	Yes	Marginal	Yes/ No effects expected
Caretta caretta	Loggerhead Sea Turtle	FE	From open ocean to inshore bays, lagoons, salt marshes, creeks, ship channels and river mouths. Nest on open beaches or narrow bays	Yes	Individuals reported as far north as Alaska and as far south as Chile, with numerous records off the coast of California.	Yes	Marginal	Yes/ No effects expected

There is one CNDDB observation of the marbled murrelet within five miles of the project site. The CNDDB record describes a nesting pair east of the project site along Pilarcitos Creek, both downstream and west of the dam. This occurrence is approximately four miles from the project site.

Although the project site contains suitable foraging habitat, there is no nesting habitat on site. Therefore, marbled murrelets only have the potential to be found in the ocean near the project site. Project noise could disturb the species if they are nearby, but it is likely that the species is accustomed to the daily noise and activity that the Pillar Point Harbor receives. Additionally, there is an abundance of suitable foraging habitat nearby where marbled murrelets could temporarily relocate to.

This species was also reviewed by the Corps as part of a larger and more impactful dredging and beach restoration project at the site (USACE 2015). The Corps concluded that no effects to this species were expected from this more impactful project. We concur with the Corps conclusions and find that the currently proposed, less-impactful project is not likely to impact this species.

Western snowy plover (*Charadrius nivosus nivosus*)

FT, CDFW:SSC, NABCI:RWL, USFWS:BCC

The western snowy plover (*Charadrius alexandrinus nivosus*) is a small shorebird distinguished from other plovers (family Charadriidae) by its small size, pale brown upper parts, dark patches on either side of the upper breast, and dark gray to blackish legs. Snowy plovers weigh approximately 1.4 ounces and are about 6.25 inches long (Sibley 2001).

The Pacific coast population of the western snowy plover is defined as those individuals that nest beside or near tidal waters, and includes all nesting colonies on the mainland coast, peninsulas, offshore islands, adjacent bays and estuaries from southern Washington to southern Baja California, Mexico (USFWS 2001). Habitats used by nesting and non-nesting birds include sandy coastal beaches, salt pans, coastal dredged spoils sites, dry salt ponds, salt pond levees and gravel bars. Historic records suggest that nesting western snowy plovers were once more widely distributed in coastal California.

Fledging of late-season broods may extend into the third week of September throughout the breeding range. Nests typically occur in flat, open areas with sandy or saline substrates (USFWS 2001). Vegetation and driftwood are usually sparse or absent. The typical clutch size is three eggs but it can range from two to six.

Snowy plover chicks leave the nest within hours after hatching to search for food (USFWS 2001). They are not able to fly for approximately 4 weeks after hatching. Adult plovers do not feed their chicks, but lead them to suitable feeding areas. Adults use distraction displays to lure

predators and people away from chicks. Adult plovers signal the chicks to crouch, with calls, as another way to protect them. They may also lead chicks, especially larger ones, away from predators. Most chick mortality occurs within 6 days after hatching.

CNDDB lists one record of the western snowy plover within 5 miles of the project site. CNDDB recorded the occurrence in 2016 at Half Moon Bay State Beach which they described as a wintering site with two active nests and up to 50 snowy plovers. This occurrence is roughly 3 miles south of the project site.

While snowy plovers could be present on site, it is much more likely that they will occupy shorelines south of the project site where there is less beach erosion, and they are known to exist. Beach shoreline at the Surfer's Beach portion of the project site is nearly absent and does not provide ideal nesting or foraging habitat relative to the beaches south of the site. Additionally, noise from the project would likely encourage snowy plovers to avoid the area as they can be sensitive to sound, especially since the harbor is highly trafficked and noisy daily.

This species was also reviewed by the Corps as part of a larger and more impactful dredging and beach restoration project at the site (USACE 2015). The Corps acknowledged that there was potential to impact snowy plovers with equipment, project noise, while the sand berm is built, and while the sand slurry pipeline is installed/deinstalled (USACE 2015). The Corps concluded that this project could help snowy plovers by providing more habitat and that it is unlikely for them to occur on site. However, if they were present, best management practices would need to be implemented. We concur with the Corps conclusions and find that the currently proposed, less-impactful project is not likely to impact this species if best management practices are implemented.

Brown pelican (*Pelecanus occidentalis californicus*)

F: Delisted, S: Delisted, BLM:S, CDFW:FP, USFS:S

The California brown pelican (*Pelecanus occidentalis californicus*) is a large bird with an average wingspan of 79 inches and weight of 8.2 pounds (Sibley 2001). The adult has a white head and dark body, but immature birds are dark with a white belly. They have long, dark bills with big pouches for catching and holding fish. The brown pelican is easily distinguished from the American white pelican, the only other pelican in its range, which is white with black primary and secondary flight feathers.

The California brown pelican, *P. o. californicus*, breeds in western North America primarily on islands off southern California and western Mexico, and including the Gulf of California (Anderson et al. 2007). It is found along the California Coast and nests from the Channel Islands of southern California southward along the Baja California coast and in the Gulf of California to coastal southern Mexico (CDFG 2000).

Roosting and loafing sites provide important resting habitat for breeding and non-breeding birds. Important roosting sites include offshore rocks and islands, river mouths with sand bars, breakwaters, pilings, and jetties along the Pacific Coast and San Francisco Bay. Pelicans breed in nesting colonies on islands without mammal predators. The only breeding population in United States waters consists of breeding birds on the Channel Islands and several islands off Baja California: West Anacapa Island, Santa Barbara Island, Isla Coronado Medio, and Isla Coronado Norte. Nest sites generally occur on the ground or low shrubbery of steep coastal slopes on small islands, isolated from ground predators and human disturbance; the brown pelicans utilize local vegetation to build nests of sticks, grasses, and other debris each year (USFWS 1983). All courtship occurs at the nest site. The male brings nesting materials to the female and she builds the nest. Normal clutch size is three eggs, which are laid in March or April. Both take turns incubating the eggs and rearing the chicks.

The California brown pelican is listed because of widespread pollutant-related reproductive failures but was petitioned to delisted in 2005. They are extremely sensitive to bioaccumulation of the pesticide DDT, which causes reproductive failure by altering calcium metabolism and thinning eggshells. Although California breeding populations have rebounded since the elimination of DDT use, persistent residues in the coastal environment continue to cause chronic reproductive problems. Despite the banning of DDT, some birds still show relatively high levels of pesticides in their tissues. Pelicans are also threatened by the possibility of oil spills from tanker traffic in the Santa Barbara Channel, disturbance at post-breeding roosts on the central California coast, entanglement with hooks and fishing line, and disease outbreaks resulting from overcrowding in harbors. Pelicans are dependent on northern anchovies and Pacific sardines, which have declined due to over-fishing by humans. Breeding populations and nesting productivity vary dramatically from year to year depending on El Niño events and other climatic changes (Tangley 2009).

There are not any CNDDB records of the California brown pelican within 5 miles of the project site. However, the birds are known to occupy Pillar Point Harbor and Zentner Planning and Ecology observed the species flying over the site during surveys.

This species is likely to occur on or near the project site, however, the site provides only roosting habitat but no nesting habitat. In addition, Pillar Point Harbor is a busy location with lots of people, boats, noises and other disturbance activities continually taking place. Because of this, the pelicans and other wildlife that use the site are habitualized to ongoing disturbance activities. The dredging work and placement of the dredging pipeline is likely to be perceived as just another of these similar types of disturbance activities. In addition, this species was also reviewed by the Corps as part of a larger and more impactful dredging and beach restoration project at the site (USACE 2015). The Corps concluded that no effects to this species were expected from this more impactful project but that informal consultations should be conducted with USFWS and CDFW. Since the 2015 USACE review, however, this species has been delisted both federally and at the state level. For all of the above reasons, we concur with the Corps conclusions and find that the currently proposed, less-impactful project is not likely to impact this species.

Nesting Raptors (various species); generally protected under the CDFW Code and the Migratory Bird Treaty Act (MBTA)

The site does not contain suitable nesting habitat. However, the site does contain moderately suitable foraging habitat and moderately suitable nesting habitat adjacent to the site. Therefore, a preconstruction survey should be completed to determine the presence/absence of nesting raptors prior to the start of construction for any work conducted within the nesting season.

Other Nesting Birds (various species), protected by the Migratory Bird Treaty Act (MBTA)

This site supports moderately suitable habitat for nesting birds protected by the MBTA, primarily in the small portion of riparian wetland on site and within shrubs of the coastal strand habitat. Accordingly, there is some limited potential for migratory nesting birds to nest on or adjacent to the site and a preconstruction nesting bird survey should be completed for any work conducted within the nesting season.

Fish

Anadromous Fish

> **Green sturgeon - Southern DPS (*Acipenser medirostris*) -** FT, CDFW:SSC **Steelhead - central California coast DPS (*Oncorhynchus mykiss irideus pop. 8)* -** FT, AFS:TH; **south central California coast DPS (*Oncorhynchus mykiss irideus* pop. 9) -** FT, AFS:TH; **Coho salmon - Central California Coast ESU (*Oncorhynchus kisutch* pop. 4) -**FE, SE, AFS:EN

Green sturgeon, steelhead trout and Coho salmon all migrate from the ocean to freshwater sources to spawn, which classifies them as anadromous fish. Each of the previously listed fishes have a distinct population segment (DPS) or evolutionary significant unit (ESU) that could occur within the project site. Their individual ecologies are discussed below.

Green sturgeon is a large benthic feeder, up to 7 feet long and 350 pounds, found near-shore in marine and estuarine waters from Mexico to southeast Alaska (Moyle *et al*. 1995, Davies 2004). The southern population is principally comprised of the Sacramento River and San Francisco Bay area spawning stock. Adult green sturgeon typically migrate into freshwater beginning in late February and spawning occurs every 2 to 5 years in April to June in deep, turbulent river main stems (Moyle *et al*. 1995). Spawning is presently known to occur in only two rivers in California; these consist of the Klamath and Sacramento River systems (EPIC 2001,

CDFG 2002, Moyle *et al*. 1992, 1994). San Francisco Bay, San Pablo Bay, Suisun Bay and the Delta support the southernmost reproducing population of green sturgeon.

The coastal steelhead is an anadromous trout. Steelhead that do mature in the ocean typically return to home streams between December and April, although dam releases with the concomitant lower water temperatures have been known to trigger returns between August and March (Leidy 2003). Steelhead spawn and then do not die like salmon but return to the ocean. The young stay in freshwater for one to four years and then migrate downstream, typically during spring and early summer. Steelhead numbers have declined drastically throughout the North Pacific in the past several decades due to habitat loss, over-fishing, predation, and other factors. The central California coast and south central California coast distinct population segments (DPS) of steelhead are similar in size and ecology but are distinguished by their ranges (Appendix A).

Coho salmon may grow to 2 feet in length and up to 35 pounds, though they average about 8 pounds. They have dark metallic blue or greenish backs with silver sides and a light underside. Spawning individuals are dark with reddish sides. They may be marked with dark spots towards the dorsal side and faint horizontal stripes. Coho salmon in California are distributed in coastal streams from the Smith River, Del Norte County, south to the Big Sur River, Monterey County (Moyle 2002). Coho salmon also were occasionally recorded from California's Central Valley, where the species historically was considered the rarest of the five salmon species known to inhabit the Sacramento River (Hallock and Fry 1967). It is believed Coho salmon populations were sustained by estuary watersheds and that at least thirteen Estuary watersheds historically supported Coho salmon, although these populations now appear to be extirpated (Leidy 1984, 2002).

According to CNDDB, there are two occurrences of the central California steelhead DPS within five miles of the project. These occurrences were recorded in 1997 and 1999 and were located south of the project site, at Frenchman's Creek and Apanolio Creek. Aside from these two occurrences, no other anadromous species have been recorded within five miles of the project site.

The project site falls within Critical Habitat for green sturgeon. Critical Habitat for the southern DPS of green sturgeon includes all marine waters from Monterey Bay, California to Cape Flattery Washington and includes some additional rivers, bays and estuaries outside of the project area. The project activities could lead to minor temporary impacts to this species. For example, dredging could temporarily decrease the clarity of the water affecting foraging or reduce benthic prey. However, these impacts are not likely to affect green sturgeon since the impacts are temporary and the species would likely avoid the area and use other suitable habitat that exists near the project.

These species were also reviewed by the Corps as part of a larger and more impactful dredging and beach restoration project at the site (USACE 2015). The Corps discusses that site's nearshore habitat could be used by the anadromous species for foraging or passage.

Additionally, the central California coast DPS has critical habitat at Denniston Creek near the project site, however the creek has a barrier that impedes any fish passage into Pillar Point Harbor (USACE 2015). The Corps concluded that no effects to these species were expected from this more impactful project. We concur with the Corps conclusions and find that the currently proposed, less-impactful project is not likely to impact these species.

Other Pacific Salmonids (various species); protected by the Pacific Salmonid Fishery Management Plan (FMP) under the Magnuson-Stevens Fisheries Conservation and Management Act (MSFCMA)

This site contains suitable habitat for salmonids protected under the Pacific Salmonid FMP. The only protected salmonid that might occur in the project site is the Coho salmon central California coast ESU (*Oncorhynchus kisutch* pop. 4). We expect that the project will not impact this species which is described above in the anadromous fish section.

Pacific Groundfish (various species); protected by the Pacific Groundfish FMP under the MSFCMA

This site contains suitable habitat for species protected under the Pacific Groundfish FMP. NOAA Fisheries has designated eelgrass as a Habitat Area of Particular Concern (HAPC) for groundfish and the project proposes to remove eelgrass habitat. However, as part of the project work, biologists will remove the eelgrass prior to the dredging work. The fine sands that eelgrass prefer will be moved to the west end of the harbor where eelgrass restoration will take place, which will create more habitat than is proposed to be impacted. Therefore, no long-term impacts to pacific groundfish are expected as a result of the project, though there may be some minor, short-term, indirect impacts to this species.

Pacific groundfish were reviewed by the Corps as part of a larger and more impactful dredging and beach restoration project at the site (USACE 2015). The Corps concluded that there HAPCS: estuary, sea grass, kelp canopy, and rocky habitats. As this is a scaled down project, the only habitats the project will encounter from the previous list are rocky and sea grass habitats. The rocky habitat may be temporarily affected by dredging as it could reduce water quality interfere with species visibility. However, there are no long-term impacts expected. Additionally, the sea grass habitat will be restored as a part of the project plan. Therefore, the currently proposed, less-impactful project is not likely to significantly impact these species.

Coastal Pelagic Fishes (various species); protected by the Coastal Pelagic FMP under the MSFCMA

This site contains suitable habitat for species protected under the Coastal Pelagic FMP. These species might endure minor temporary impacts like those we have discussed in the previous

fish sections. These species might experience reduced visibility, their prey may be temporarily covered by disturbed sediment, and noise might induce stress. However, these impacts are all temporary or are similar to the impacts they already experience from daily noise and activity in the harbor.

This habitat and species were reviewed by the Corps as part of a larger and more impactful dredging and beach restoration project at the site (USACE 2015). The Corps concluded that temporary minor impacts would occur to these species and an essential fisheries habitat (EFH) consultation with the National Marine Fisheries Service (NMFS) would be necessary. We concur with the Corps conclusions and, following NMFS guidelines, the currently proposed, less-impactful project is not likely to significantly impact these species.

Invertebrates

Black Abalone (*Haliotis cracherodii)*

FE, IUCN:CR

Black abalone *(Hailotis cracherodii*) are marine mollusks that live in the rocky intertidal and subtidal reefs along California and Baja California's coasts. Black abalone grow up to 2 inches in length, have a large muscular foot, a dark black or blue colored shell, and sensory tentacles. Their shell has nine holes which they use to breathe, eat and broadcast spawn for reproduction (NOAA Fisheries 2021a). Broadcast spawners release eggs and sperm into water where the egg becomes fertilized externally. Abalone broadcast spawn in spring and early summer, the eggs hatch one day after fertilization, and juveniles drift for up to 14 days until they attach to rocky substrate (USACE 2015, NOAA Fisheries 2021a). They primarily eat plants such as algae and kelp and occupy deep rock crevices which they use for shelter. Black abalone were once widely spread but their population has dramatically declined. Threats to the species include disease, overfishing, low reproductive rates, spills, and sedimentation (NOAA Fisheries 2021a).

According to CNDDB, there are not any occurrences of black abalone within five miles of the project site. However, at least a portion of the project site is located within Critical Habitat for black abalone, which includes rocky intertidal and subtidal habitats as well as all water from MHHW to a depth of 20 ft (USACE 2015). In addition, it is possible that black abalone could occupy the rocky east breakwater adjacent to the dredging work, though they are much more likely to inhabit the outer portion of the breakwater. The proposed dredge pipeline is proposed to run parallel to the breakwater, but well away from the rocky edge and, therefore, is not expected to result in any direct impacts to abalone. The beach nourishment work at Surfers Beach will include a containment berm, which is expected to greatly reduce turbidity as well as potential impacts to black abalone.

This species was also reviewed by the Corps as part of a larger and more impactful dredging and beach restoration project at the site (USACE 2015). The Corps concluded that no effects to this species were expected from this more impactful project if dredging occurred outside of

abalone spawning season and preconstruction surveys were implemented before choosing the pipeline route. We concur with the Corps conclusions and find that the currently proposed, less-impactful project, is not likely to impact this species if preconstruction surveys are implemented and beach nourishment work directly adjacent to the outer east breakwater is timed to occur outside of abalone spawning season.

Marine Mammals

Southern sea otter (*Enhydra lutris nereis*)
FT, CDFW:FP, IUCN:EN, MMC:SSC

Southern sea otters (*Enhydra lutris nereis*) are a small marine mammal that grow to an average of 3 to 5 feet. They are found in nearshore waters along the central California coastline, often near kelp beds (Kenyon 1969). Sea otters prey on marine invertebrates such as abalone, sea urchins, crabs and clams. Sea otters breed year-round but peak in December through March (Wild and Ames 1974). Sea otter populations initially declined as a result of the fur trade in the early 1900s and current threats include biotoxins, fishing, oil spills and climate change.

CNDDB does not have any occurrence records of the southern sea otter within five miles of the project vicinity. However, sea otters have been observed in Pillar Point Harbor before and it is possible that they will occur near the project site. Pillar Point Harbor is a busy location with lots of people, boats, noises and other disturbance activities continually taking place. Because of this, otters and other wildlife that use the site are habitualized to ongoing disturbance activities. The dredging work and placement of the dredging pipeline is likely to be perceived as just another of these similar types of disturbance activities.

This species was also reviewed by the Corps as part of a larger and more impactful dredging and beach restoration project at the site (USACE 2015). The Corps noted that the closest kelp bed is outside of the project area, where sea otters tend to be near, and concluded that no effects to this species were expected from this more impactful project. We concur with the Corps conclusions and find that the currently proposed, less-impactful project is not likely to impact this species.

Other Marine Mammals (various species) protected by the Marine Mammal Protection Act (MMPA)

This site provides suitable habitat for some additional marine mammals protected under the MMPA. The additional marine mammals, which are could be found near the project site include California sea lions *(Zalophus californianus*), stellar sea lions (*Euetopias jubatus*), northern elephant seals (*Mirounga angustirostris*), Pacific harbor seals (*Phoca vitulina*). Pillar Point Harbor is a busy location with lots of people, boats, noises and other disturbance activities continually taking place. Because of this, the mammals that use the site are habitualized to ongoing

disturbance activities. The dredging work and placement of the dredging pipeline is likely to be perceived as just another of these similar types of disturbance activities.

These species were evaluated by the Corps as part of a larger and more impactful dredging and beach restoration project at the site (USACE 2015). The Corps concluded that dredging noise might create behavioral disturbance to marine mammals, but the noise is similar to what they already experience from boat traffic. Additionally, dredging noise will remain under their injury threshold. We concur with the Corps conclusions and find that the currently proposed, less-impactful project is not likely to impact these species.

Sea Turtles

Green sea turtle - East Pacific DPS population (*Chelonia mydas)* - FT, IUCN:EN***;*** **Leatherback Sea Turtle (*Dermochelys coriacea)* –** FE***;*** **Loggerhead Sea Turtle (*Caretta caretta)* –** FE

The east pacific green sea turtle DPS population, leatherback sea turtle and loggerhead sea turtle all inhabit open ocean, nearshore habitat, and nest on sandy sloped tropical and subtropical beaches. Their ranges overlap in the Atlantic, Pacific and Indian Oceans, though are most common in subtropical waters (NOAA Fisheries 2021b, c, d). The east pacific DPS green sea turtle is mainly herbivorous but also eats sponges, invertebrates and fish debris (NOAA Fisheries 2021b). In contrast, loggerhead and leatherback sea turtles are primarily carnivorous. Loggerhead sea turtles have a powerful jaw which allows them to predate on hard bodied invertebrates whereas leatherbacks lack a powerful jaw and eat soft bodied open ocean prey (NOAA Fisheries 2021c, d). Of the three sea turtles, leatherback sea turtles spend the most time in the open ocean (NOAA Fisheries 2021c). All three sea turtle populations are threatened by loss of nesting habitat, bycatch, harvest of turtles and their eggs, vessel collision, ocean pollution and climate change (NOAA Fisheries 2021b, c, d).

There are no CNDDB records of the east pacific DPS green sea turtle, leatherback sea turtle or loggerhead sea turtle within five miles of the project vicinity. However, the project lies within leatherback sea turtle Critical Habitat. Leatherback sea turtles spend most of their time in deep open ocean, where they feed, and their nesting habitat is absent on site. Consequently, it is unlikely that the species or their critical habitat will be affected by the project actives.

These species were also reviewed by the Corps as part of a larger and more impactful dredging and beach restoration project at the site (USACE 2015). The Corps acknowledged that sea turtles could pass through the site, but their presence is unlikely due to the shallow project site, high activity in the harbor, and lack of nesting habitat. Thus, the Corps concluded that no effects to these species were expected from this more impactful project. We concur with the Corps conclusions and find that the currently proposed, less-impactful project is not likely to impact this species.

b. Plants

There are 45 special status plant species that are known to occur in the project region; **Figure 7** shows the known occurrences of special status plant species within five miles of the project site from CNDDB and other sources. **Table 2** provides information on each of these species as well as information on the likelihood of their occurrence within the study area.

The plant species that have a potential to occur on the project site are described in more detail below; the remaining species shown on Figure 6 and included in Table 2 are not described in more detail as they are highly unlikely to occur on-site due to a lack of suitable habitat, or local or recent occurrences. The species below have not been observed within the study area though they have at least some likelihood to occur within the study area given the presence of potentially suitable habitat and known occurrences in the surrounding area.

Eelgrass (*Zostera marina; Zostera pacifica*) – PFMC: HAPC

Eelgrass *(Zostera marina and Z. pacifica)* are types of seagrass that grow along the West Coast in Washington, California and Oregon. The seagrass is among one of the sole angiosperms that can live in marine habitats. Eelgrass can be found in nearshore shallow, protected, and estuarine habitats. Eelgrass beds are essential habitat for many marine species because they provide shelter and foraging opportunity (NOAA Fisheries 2020).

There are no CNDDB records for this species within five miles of the project site. However, eelgrass (*Z. marina*) and eelgrass habitat are known to exist within the project site just within the outer breakwaters of the harbor. Eelgrass is primarily found on the fine-textured sands, which occur within portions of the harbor. Eelgrass is planned to be impacted and mitigated by the project. Eelgrass is known to exist within and outside portions of the harbor where dredging will occur. Prior to dredging, however, biologists will remove the eelgrass. The fine sands that are dredged will then be brought to the eelgrass mitigation site on the west end of the harbor to provide a suitable substrate for planting. A larger amount of eelgrass mitigation will occur than the area that is impacted. Therefore, there should be an overall increase in eelgrass in the harbor after the project is complete (see MTS 2020). Given all of the above, the project includes suitable measures to ensure adequate eelgrass mitigation for the impacts.

Blasdale's bent grass (*Agrostis blasdalei)*- CRPR 1B.2, BLM:S

Blasdale's bent grass (*Agrostis blasdalei)* is a perennial, rhizomatous herb in the Poacea family and is endemic to California. It is known from Marin, Mendocino, Monterey, San Mateo, Santa Cruz, and Sonoma. It is found in coastal bluff scrub, coastal dunes, and coastal prairie (CNPS 2021).

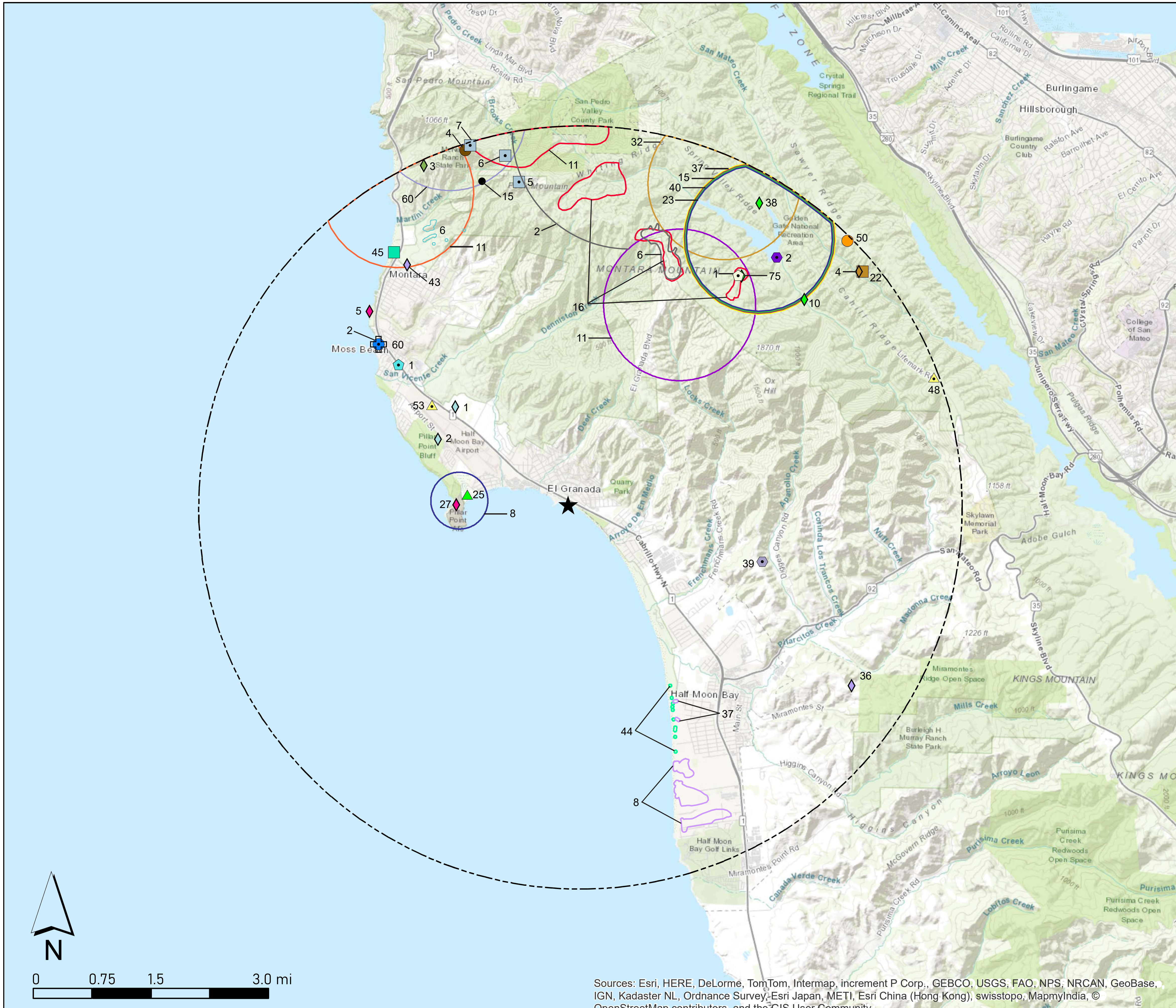

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FIGURE 7

CNDDB Special Status Plant & Habitat Occurences
Pillar Point Harbor Project

Half Moon Bay
California

Legend

- Project Location
- 5-Mile Radius
- Northern Coastal Salt Marsh / Northern Coastal Salt Marsh (25)
- Northern Maritime Chaparral / Northern Maritime Chaparral (11,16)
- Valley Needlegrass Grassland / Valley Needlegrass Grassland (50)
- Leptosiphon croceus / Coast yellow leptosiphon (2)
- Leptosiphon rosaceus / Rose leptosiphon (5,27)
- Cirsium andrewsii / Franciscan thistle (3)
- Eriophyllum latilobum / San Mateo woolly sunflower(4)
- Plagiobothrys chorisianus var. chorisianus / Choris' popcornflower (8,43,37,36)
- Dirca occidentalis / Western leatherwood (10,75,38)
- Limnanthes douglasii ssp. ornduffii / Ornduff's meadowfoam (1, 2)
- Agrostis blasdalei / Blasdale's bent grass (60)
- Malacothamnus arcuatus / Arcuate bush-mallow (32,22)
- Lasthenia californica ssp. macrantha / Perennial goldfields (44,45)
- Arctostaphylos regismontana / Kings Mountain manzanita (15)
- Collinsia multicolor / San Francisco collinsia (15)
- Silene verecunda ssp. verecunda / San Francisco campion (11)
- Astragalus pycnostachyus var. pycnostachyus / Coastal marsh milk-vetch (23)
- Grindelia hirsutula var. maritima / San Francisco gumplant (11)
- Hypogymnia schizidiata / Island tube lichen (6,5,7)
- Fritillaria liliacea / Fragrant fritillary (37)
- Horkelia cuneata var. sericea / Kellogg's horkelia (60,39)
- Polemonium carneum / Oregon polemonium (2)
- Arctostaphylos montaraensis / Montara manzanita (2,6,1)
- Potentilla hickmanii / Hickman's cinquefoil (1,6)
- Silene scouleri ssp. scouleri / Scouler's catchfly (4)
- Monolopia gracilens / Woodland woollythreads (40)
- Triphysaria floribunda / San Francisco owl's-clover (48,53)

Source: CNDDB shapefiles Dec. 2021	Revisions	By
Date: 12/20/2021		
Cartographer: XM		

File: D:\Graphic Designer\My Documents\PROJECTS\1100-1199\1140 Pillar Pt Harbor\Adobe\Fig6_1140 CNDDB_Flora.ai

Table 2
Special Status Plants

Scientific name	Common name	Status	Habitat	Potential Habitat On-Site	Range	Known Range	Elevation	Life Form	Potential for Occurrence On-site	Flowering/ Survey Period
Agrostis blasdalei	Blasdale's bent grass	CRPR 1B.2, BLM:S	Coastal bluff scrub, coastal dunes, coastal prairie; sandy or gravelly soil close to rocks, often in nutrient poor soil with sparse vegetation	Yes	Marin, Mendocino, Monterey, San Mateo, Santa Cruz, Sonoma	Yes	0 - 150 meters	perennial rhizomatous herb	Moderate	May - July
Allium peninsulare var. franciscanum	Franciscan onion	CRPR 1B.2	Cismontane woodland, valley and foothill grassland; clay soils, often on serpentinite soils, volcanic soil	Marginal	Mendocino, Napa, San Mateo, Santa Clara, Sonoma	Yes	52 - 305 meters	perennial bulbiferous herb	Marginal	April - June
Arabis blepharophylla	Coast rockcress	CRPR 4.3	Broadleafed upland forest, coastal bluff scrub, coastal prairie, coastal scrub; rocky substrate	Marginal	Contra Costa, Marin, Monterey, San Francisco, San Mateo, Santa Cruz, Sonoma	Yes	3 - 1100 meters	perennial herb	Marginal	February - May
Arctostaphylos montaraensis	Montara manzanita	CRPR 1B.2	Chaparral, coastal scrub	No	San Mateo	Yes	80 - 500 meters	perennial evergreen shrub	Unlikely: No Habitat	January - Match
Arctostaphylos regismontana	Kings Mountain manzanita	CRPR 1B.2	Broadleafed upland forest, chaparral, north coast coniferous forest; granitic and sandstone outcrops	No	San Mateo, Santa Clara, Santa Cruz	Yes	305 - 730 meters	perennial evergreen shrub	Unlikely: No Habitat	December - April
Astragalus nuttallii var. nuttallii	ocean bluff milk-vetch	CRPR 4.2	Coastal bluff scrub, coastal dunes	Yes	Marin, Monterey, San Francisco, San Luis Obispo, San Mateo, Santa Barbara	Yes	3 - 120 meters	perennial herb	Moderate	January - November
Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	CRPR 1B.2, BLM:S	Coastal dunes, coastal scrub, marshes and swamps; mesic sites in dunes or along streams or coastal salt marshes	Yes	Humboldt, Marin, San Luis Obispo, San Mateo	Yes	0 - 30 meters	perennial herb	Moderate	April - October
Castilleja ambigua var. ambigua	johnny-nip	CRPR 4.2	Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Valley and foothill grassland, Vernal pools	Yes	Alameda, Contra Costa, Del Norte, Humboldt, Marin, Mendocino, Napa, San Mateo, Santa Cruz, Solano, Sonoma	Yes	0 - 435 meters	annual herb	Moderate	March - August
Centromadia parryi ssp. parryi	papoose tarplant	CRPR 1B.2, BLM:S	Chaparral, Coastal prairie, Marshes and swamps, Meadows and seeps, Valley and foothill grassland; often in alkaline conditions	Marginal	Butte, Colusa, Glenn, Lake, Napa, San Mateo, Solano, Sonoma, Yolo	Yes	0 - 420 meters	annual herb	Marginal	May - November
Chorizanthe cuspidata var. cuspidata	San Francisco Bay spineflower	CRPR 1B.2	Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub; sandy substrate	Yes	Alameda, Marin, San Francisco, San Mateo, Sonoma	Yes	3 - 215 meters	annual herb	Moderate	April - August
Cirsium andrewsii	Franciscan thistle	CRPR 1B.2	Broadleafed upland forest, Coastal bluff scrub, Coastal prairie, Coastal scrub; mesic conditions, sometimes on serpentinite seeps	No	Contra Costa, Marin, San Francisco, San Mateo, Sonoma	Yes	0 - 150 meters	perennial herb	Unlikely: No Habitat	March - July

Table 2
Special Status Plants

Collinsia multicolor	San Francisco collinsia	CRPR 1B.2	Closed-cone coniferous forest, Coastal scrub; sometimes on serpentinite soils	No	Marin, Monterey, San Francisco, San Mateo, Santa Clara, Santa Cruz	Yes	30 - 275 meters	annual herb	Unlikely: No Habitat	February - March
Cypripedium fasciculatum	clustered lady's-slipper	CRPR 4.2, BLM:S, IUCN:VU, USFS:S	Lower montane coniferous forest, North Coast coniferous forest; usually in seeps and serpentinite soils, streambanks	No	Butte, Del Norte, Glenn, Humboldt, Lassen, Mendocino, Nevada, Plumas, San Mateo, Santa Clara, Santa Cruz, Shasta, Sierra, Siskiyou, Tehama, Trinity, Yuba	No	100 - 2435 meters	perennial rhizomatous herb	Unlikely: No Habitat	March - August
Dirca occidentalis	western leatherwood	CRPR 1B.2	Broadleafed upland forest, Chaparral, Cismontane woodland, Closed-cone coniferous forest, North Coast coniferous forest, Riparian forest, Riparian woodland; mesic conditions	Marginal	Alameda, Contra Costa, Marin, San Mateo, Santa Clara, Sonoma	Yes	25 - 425 meters	perennial deciduous shrub	Marginal	January - April
Elymus californicus	California bottle-brush grass	CRPR 4.3	Broadleafed upland forest, Cismontane woodland, North Coast coniferous forest, Riparian woodland	Marginal	Marin, San Diego, San Mateo, Santa Cruz, Sonoma	Yes	15 - 470 meters	perennial herb	Marginal	May - November
Eriophyllum latilobum	San Mateo Woolly Sunflower	FE, SE, CRPR 1B.1	Cismontane woodland, Coastal scrub, Lower montane coniferous forest	No (USACE 2015)	San Mateo	Yes	45 - 330 meters	perennial herb	No (USACE 2015)	May - June
Erysimum franciscanum	San Francisco wallflower	CRPR 4.2	Chaparral, Coastal dunes, Coastal scrub, Valley and foothill grassland	Marginal	Marin, San Francisco, San Mateo, Santa Clara, Santa Cruz, Sonoma	Yes	0 - 550 meters	perennial herb	Marginal	March - June
Fritillaria biflora var. ineziana	Hillsborough chocolate lily	CRPR 1B.1	Cismontane woodland, Valley and foothill grassland	Marginal	San Mateo	Yes	150 meters	perennial bulbiferous herb	Marginal	March - April
Fritillaria liliacea	fragrant fritillary	CRPR 1B.2, USFS:S	Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland; often on serpentine, various soils reported though usually on clay in grassland	Marginal	Alameda, Contra Costa, Marin, Monterey, San Benito, San Francisco, San Mateo, Santa Clara, Solano, Sonoma	Yes	3 - 410 meters	perennial bulbiferous herb	Marginal	February - April
Grindelia hirsutula var. maritima	San Francisco gumplant	CRPR 3.2	Coastal bluff scrub, Coastal scrub, Valley and foothill grassland; sandy or serpentine slopes, sea bluffs	Yes	Marin, San Francisco, San Luis Obispo, San Mateo	Yes	15 - 400 meters	perennial herb	maybe	June - September
Horkelia cuneata var. sericea	Kellogg's horkelia	CRPR 1B.1, USFS:S	Chaparral, Closed-cone coniferous forest, Coastal dunes, Coastal scrub; sandy or gravelly soils	Yes	Alameda, Marin, Monterey, San Francisco, San Luis Obispo, San Mateo, Santa Barbara, Santa Cruz	Yes	10 - 200 meters	perennial herb	Moderate	April - September
Horkelia marinensis	Point Reyes horkelia	CRPR 1B.2	Coastal dunes, Coastal prairie, Coastal scrub	Yes	Marin, Mendocino, Monterey, San Mateo, Santa Cruz, Sonoma	Yes	5 - 755 meters	perennial herb	Moderate	May - September

Table 2
Special Status Plants

Hosackia gracilis	harlequin lotus	CRPR 4.2	Broadleafed upland forest, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Meadows and seeps, North Coast coniferous forest, Valley and foothill grassland	Marginal	Del Norte, Humboldt, Marin, Mendocino, Monterey, San Francisco, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, Sonoma	Yes	0 - 700 meters	perennial rhizomatous herb	Marginal	March - July
Hypogymnia schizidiata	island tube lichen	CRPR 1B.3	Chaparral, Closed-cone coniferous forest; on bark and wood of hardwoods and conifers	No	Marin, Mendocino, San Mateo, Santa Barbara	No	306 - 405 meters	foliose lichen	Unlikely: No Habitat	-
Iris longipetala	coast iris	CRPR 4.2	Coastal prairie, Lower montane coniferous forest, Meadows and seeps	No	Alameda, Contra Costa, El Dorado, Glenn, Humboldt, Marin, Mendocino, Merced, Monterey, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma, Ventura	Yes	0 - 600 meters	perennial rhizomatous herb	Unlikely: No Habitat	March - June
Lasthenia californica ssp. macrantha	perennial goldfields	CRPR 1B.2, BLM:S	Coastal bluff scrub, Coastal dunes, Coastal scrub	Marginal	Del Norte, Humboldt, Marin, Mendocino, San Luis Obispo, San Mateo, Santa Cruz, Sonoma	Yes	5 - 520 meters	perennial herb	Marginal	January - November
Leptosiphon croceus	coast yellow leptosiphon	CRPR 1B.1, SE	Coastal bluff scrub, Coastal prairie	Marginal	San Mateo	Yes	10 - 150 meters	annual herb	Marginal	April - June
Leptosiphon latisectus	broad-lobed leptosiphon	CRPR 4.3	Broadleafed upland forest, Cismontane woodland	No	Colusa, Del Norte, Humboldt, Lake, Marin, Mendocino, Monterey, Napa, San Benito, San Francisco, San Mateo, Shasta, Sonoma, Tehama, Trinity, Yolo	No	170 - 1500 meters	annual herb	Unlikely: No Habitat	April - June
Leptosiphon rosaceus	rose leptosiphon	CRPR 1B.1	Coastal bluff scrub	No	Marin, San Francisco, San Mateo, Sonoma	Yes	0 - 100 meters	annual herb	Unlikely: No Habitat	April - July
Lessingia arachnoidea	Crystal Springs lessingia	CRPR 1B.2	Cismontane woodland, Coastal scrub, Valley and foothill grassland	Marginal	San Mateo, Sonoma	Yes	60 - 200 meters	annual herb	Marginal	July - October
Lessingia hololeuca	woolly-headed lessingia	CRPR 3	Broadleafed upland forest, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland	Marginal	Alameda, Fresno, Marin, Mendocino, Monterey, Napa, San Diego, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma, Tehama, Tuolumne, Yolo	Yes	15 - 305 meters	annual herb	Marginal	June - October
Limnanthes douglasii ssp. ornduffii	Ornduff's meadowfoam	CRPR 1B.1	Meadows and seeps, agricultural fields	Marginal	San Mateo	Yes	10 - 20 meters	annual herb	Marginal	November - May
Lupinus arboreus var. eximius	San Mateo tree lupine	CRPR 3.2	Chaparral, Coastal scrub	No	San Mateo	Yes	90 - 550 meters	perennial evergreen shrub	Unlikely: No Habitat	April - July

Table 2
Special Status Plants

Malacothamnus arcuatus	arcuate bush-mallow	CRPR 1B.2	Chaparral, Cismontane woodland	No	San Mateo, Santa Clara, Santa Cruz	No	15 - 355 meters	perennial deciduous shrub	Unlikely: No Habitat	April - September
Monolopia gracilens	woodland woollythreads	CRPR 1B.2	Broadleafed upland forest, Chaparral, Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland	Marginal	Alameda, Contra Costa, Monterey, San Benito, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz	Yes	100 - 1200 meters	annual herb	Marginal	February - July
Pentachaeta bellidiflora	White-rayed Pentachaeta	CRPR 1B.1, FE, SE	Cismontane woodland, Valley and foothill grassland	No (USACE 2015)	Marin, San Mateo, Santa Cruz	Yes	35 - 620 meters	annual herb	No (USACE 2015)	March - May
Plagiobothrys chorisianus var. chorisianus	Choris' popcornflower	CRPR 1B.2, BLM:S	Chaparral, Coastal prairie, Coastal scrub	No	Alameda, Monterey, San Francisco, San Mateo, Santa Clara, Santa Cruz	Yes	3 - 160 meters	annual herb	Unlikely: No Habitat	March - June
Plagiobothrys chorisianus var. hickmanii	Hickman's popcornflower	CRPR 4.2	Chaparral, Closed-cone coniferous forest, Coastal scrub, Marshes and swamps, Vernal pools	Marginal	Monterey, San Mateo, Santa Clara, Santa Cruz	Yes	15 - 390 meters	annual herb	Marginal	April - June
Polemonium carneum	Oregon polemonium	CRPR 2B.2	Coastal prairie, Coastal scrub, Lower montane coniferous forest	No	Alameda, Del Norte, Humboldt, Marin, San Francisco, San Mateo, Siskiyou, Sonoma	Yes	0 -1830 meters	perennial herb	Unlikely: No Habitat	April - September
Potentilla hickmanii	Hickman's cinquefoil (also called Hickman's potentilla)	CRPR 1B.1, FE, SE	Closed-cone coniferous forest, Coastal bluff scrub, Marshes and swamps, Meadows and seeps	No (USACE 2015)	Monterey, San Mateo	Yes	10 -149 meters	perennial herb	No (USACE 2015)	April - August
Silene scouleri ssp. scouleri	Scouler's catchfly	CRPR 2B.2	Coastal bluff scrub, Coastal prairie, Valley and foothill grassland	Marginal	Del Norte, Humboldt, Marin, San Francisco, San Mateo, Sonoma	Yes	0 - 600 meters	perennial herb	Marginal	March - September
Silene verecunda ssp. verecunda	San Francisco campion	CRPR 1B.2	Chaparral, Coastal bluff scrub, Coastal prairie, Coastal scrub, Valley and foothill grassland	Marginal	San Francisco, San Mateo, Santa Cruz	Yes	30 - 645 meters	perennial herb	Marginal	February - August
Triphysaria floribunda	San Francisco owl's-clover	CRPR 1B.2	Coastal prairie, Coastal scrub, Valley and foothill grassland	Marginal	Marin, San Francisco, San Mateo	Yes	10 -160 meters	annual herb	Marginal	April - June
Triquetrella californica	coastal triquetrella	CRPR 1B.2, USFS:S	Coastal bluff scrub, Coastal scrub	No	Contra Costa, Del Norte, Marin, Mendocino, San Diego, San Francisco, San Mateo, Sonoma	Yes	10 -100 meters	moss	Unlikely: No Habitat	-
Zostera marina	Eelgrass	PFMC: HAPC	Nearshore marine habitats that are shallow and protected; estuaries	Yes	Washington, California, Oregon	Yes	-1.5 - 0 meters	seagrass	Yes: on site	late spring

Blasdale's bent grass grows up to 30 centimeters tall with short thread like leaves. This species blooms from May to July with clusters of brown spikelets up to 4 millimeters long (CNPS Calscape 2021).

There is one CNDDB record of this species within five miles of the project site. The CNDDB observation occurred in 2015 and is described as fewer than 50 plants in a 4x45 area on the cliff edge of Vallemar Bluff. This is occurrence is north of the project site and west of Highway 1 at Moss Beach. CNDDB notes that the blasdale's bent grass was crowded out by *Carpobrotus edulis* and was associated with *Armeria maritima, Bromus carinatus, Castilleja ambigua ssp. ambigua,* and *Danthonia californica.*

The project site contains moderate habitat for this species. Though the species generally grows in colonies connected by rhizomes and would likely have been observed, the surveys conducted on the site were outside of the blooming period. Therefore, a botanical survey should be conducted during its blooming period to ensure that this species does not occur within the project site and will not be impacted by the project.

Franciscan onion (*Allium peninsulare var. franciscanum)* - CRPR 1B.2

Franciscan onion (*Allium peninsulare var. franciscanum)* is a perennial bulbiferous herb in the Alliaceae family and is endemic to California. It is known from Mendocino, Napa, San Mateo, Santa Clara, and Sonoma. It is found in cismontane woodland, and in valley and foothill grasslands. It grows on clay soils, often on serpentinite soils, and volcanic soil (CNPS 2021).

Franciscan onion blooms with clusters of pink umbel flowers from April to June (CNPS Calscape 2021).

There are no CNDDB records for this species within five miles of the project site.

The project site contains marginal habitat for this species and though there are no observations in the vicinity, they are known from the region. No signs of bulb species were observed on the project site during site surveys. However, the surveys of the site were conducted outside of the blooming period for this species. Therefore, a botanical survey should be conducted during its blooming period to ensure that this species does not occur on the project site and will not be impacted by the project.

Coast rockcress (*Arabis blepharophylla*) - CRPR 4.3

Coast rockcress (*Arabis blepharophylla)* is a perennial herb in the Brassicaceae family and is native to California. It is known from Contra Costa, Marin, Monterey, San Francisco, San Mateo,

Santa Cruz, and Sonoma. It is found in broadleaved upland forest, coastal bluff scrub, coastal prairie, and coastal scrub with rocky substrate (CNPS 2021).

Coast rockcress blooms February through May with four pink to purple flowers that are sweetly fragrant. The species has a thin hairy stem and fuzzy leaves (CNPS Calscape 2021).

There are no CNDDB records for this species within five miles of the project site.

The project site contains marginal habitat for this species and though there are no known observations in the vicinity, they are known from the region. This species is perennial and it is likely that any individuals would have been observed during surveys of the site. However, the surveys were conducted outside of the blooming period for this species. Therefore, a botanical survey should be conducted during its blooming period to ensure that this species does not occur on the project site and will not be impacted by the project.

Ocean bluff milk-vetch (*Astragalus nuttallii var. nuttallii*) - CRPR 4.2

Ocean bluff milk-vetch (*Astragalus nuttallii var. nuttallii)* is a perennial herb in the Fabaceae family and is native to California. It is known from Marin, Monterey, San Francisco, San Luis Obispo, San Mateo, and Santa Barbara. It is found on coastal bluff scrub and coastal dunes (CNPS 2021).

Ocean bluff milk-vetch grows 0.7 to 3.3 feet tall (CNPS Calscape 2021). The species blooms from January to November with cream or green yellow bell flowers. The plant has fine hairs and its leaves spread the stem crowdedly and are arched (Jepson eFlora 2021).

There are no CNDDB records for this species within five miles of the project site.

The project site contains moderate habitat for this species and though there are no known observations in the vicinity, they are known from the region. No observations of this plant were made during surveys conducted at the site, which were conducted within the blooming period for this species. Therefore, this species is unlikely to be found on the project site or be impacted by the project activities.

Coastal marsh milk-vetch (*Astragalus pycnostachyus var. pycnostachyus*) - CRPR 1B.2, BLM:S

Coastal marsh milk-vetch (*Astragalus pycnostachyus var. pycnostachyus* is a perennial herb in the Fabaceae family and is native to California. It is known from Humboldt, Marin, San Luis Obispo, and San Mateo. It is found in coastal dunes, coastal scrub, marshes, and swamps (CNPS 2021).

Coastal marsh milk-vetch grows 1.3 to 3 feet tall. The species blooms densely clustered yellow white or cream flowers from April to October (CNPS Calscape 2021).

According to CNDDB, there is one occurrence of the coastal marsh milk-vetch within five miles of the project site. The observation is described from a collection in 1902 on the west end of Pillar Point, near the marsh, approximately 1.5 miles from the project site. However, the plants were not found again during a survey conducted in 2004 at Pillar Point Marsh.

This species has not been observed in the surrounding project area since 1902, however, the project site contains moderate habitat for this species. No observations of this plant were made during surveys conducted at the site. However, site surveys were conducted outside of the blooming period for this species. Therefore, a botanical survey should be conducted during its blooming period to ensure that this species does not occur on the project site and will not be impacted by the project.

Johnny-nip (*Castilleja ambigua var. ambigua*) - CRPR 4.2

Johnny-nip (*Castilleja ambigua var. ambigua)* is an annual herb in the family Orobanchaceae and is native to California. It is known from Alameda, Contra Costa, Del Norte, Humboldt, Marin, Mendocino, Napa, San Mateo, Santa Cruz, Solano, and Sonoma. It is found in coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, and vernal pools (CNPS 2021).

Johnny-nip blooms from March to August with yellow flowers surrounded by rounded bracts that become pink with age (CNPS 2021, Jepson eFlora 2021).

There are no CNDDB records for this species within five miles of the project site.

The project site contains moderate habitat for this species and though there are no known observations in the vicinity, they are known from the region. No observations of this plant were made during surveys conducted at the site. However, site surveys were conducted outside of the blooming period for this species. Therefore, a botanical survey should be conducted during its blooming period to ensure that this species does not occur on the project site and will not be impacted by the project.

Papoose tarplant (*Centromadia parryi ssp. parryi)* - CRPR 1B.2, BLM:S

Pappose tarplant is an annual herb in the Asteraceae family that is native to California. It is known from Butte, Colusa, Glenn, Lake, Napa, San Mateo, Solano and Sonoma County. It is found in a variety of habitats including chaparral, coastal prairie, meadows, seeps, coastal salt marshes and swamps, valley and foothill grassland, and alkaline coastal prairies (CNPS 2007). This species can be found at elevations from two to 420 meters.

Pappose tarplant blooms May through November with yellow aster flowers. The species has small spiny and hairy leaves and inflorescence sepals.

There are no CNDDB records for this species within five miles of the project site.

The project site contains marginal habitat for this species and though there are none in the vicinity, they are known from the region. No observations of this plant were made during surveys conducted at the site, which were conducted within the blooming period for this species. Therefore, this species is unlikely to be found on the project site or be impacted by the project activities.

San Francisco Bay spineflower (*Chorizanthe cuspidata var. cuspidata*) - CRPR 1B.2

San Francisco Bay spineflower (*Chorizanthe cuspidata var. cuspidata)* is an annual herb in the Polygonaceae family and is native to California. It is known from Alameda, Marin, San Francisco, San Mateo, and Sonoma. It is found in coastal bluff scrub, coastal dunes, coastal prairie, and coastal scrub (CNPS 2021).

San Francisco Bay spineflower is grows to 1.9 to 5.9 inches tall. The species blooms from April through August with clusters of small hairy white and pink flowers (CNPS Calscape 2021).

There are no CNDDB records for this species within five miles of the project site.

The project site contains moderate habitat for this species and though there are no known observations in the vicinity, they are known from the region. No observations of this plant were made during surveys conducted at the site. However, site surveys were conducted outside of the blooming period for this species. Therefore, a botanical survey should be conducted during its blooming period to ensure that this species does not occur on the project site and will not be impacted by the project.

Western leatherwood (*Dirca occidentalis*) - CRPR 1B.2

Western leatherwood is a perennial deciduous shrub that is native and endemic to California. It is the only member of the daphne family, Thymeleaceae, within the state. It is restricted to the Bay Area, growing on moist slopes in partial shade, within Alameda, Contra Costa, Marin, Santa Clara, and San Mateo counties (Hickman 1993). It is found in broadleaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest and riparian woodland habitats in association with buckeye, madrone, and coast live oak.

Western leatherwood individuals may grow to 6 feet tall and 3 feet wide. The species has oval, entire, leaves 3 to 7 centimeters in length. Small, pendulous yellow flowers emerge from the tips of branches before the leaves. It blooms from January to April (CNPS 2007).

There are two CNDDB records for this species within five miles of the project site. The observations are based off collections which occurred in 1969 and 1975, both east of the project site. The locations are approximate and mapped at CNDDB's best guess. CNDDB describes the first observation 0.9 miles from the Pilarcitos dam on the way to Montara Mountain growing with *Actostaphylos montaraensis*. The second observation was 0.5 miles below the Pilarcitos Lake Dam in a Douglas fir forest and wooded canyon.

There are no records of this species near the project site since 1975, which occurred in the Santa Cruz Mountains and in a different habitat from those present on site. However, the project site contains marginal habitat for this species. No observations of this plant were made during surveys conducted at the site, though they were conducted outside of the blooming period for this species. Therefore, a botanical survey should be conducted during its blooming period to ensure that this species does not occur on the project site and will not be impacted by the project.

California bottle-brush grass (*Elymus californicus*) - CRPR 4.3

California bottle-brush grass (*Elymus californicus)* is a perennial herb in the Poaceae family and is native to California. It is known from Marin, San Diego, San Mateo, Santa Cruz, and Sonoma. It is found in broadleafed upland forest, cismontane woodland, north coast coniferous forest, and riparian woodland (CNPS 2021).

California bottle-brush grass grows 3.3 to 7 feet tall with sheathed leaves. It blooms from May through November with brown flower clusters, each with three to four nodes and three to four small spikelets (CNPS Calscape 2021).

There are no CNDDB records for this species within five miles of the project site.

The project site contains marginal habitat for this species and though there are no known observations in the vicinity, they are known from the region. No observations of this plant were made during surveys conducted at the site, which were conducted within the blooming period for this species. Therefore, this species is unlikely to be found on the project site or be impacted by the project activities.

San Francisco wallflower (*Erysimum franciscanum*) - CRPR 4.2

San Francisco wallflower (*Erysimum franciscanum*) is a perennial herb in the Brassicaceae family and is native to California. It is known from Marin, San Francisco, San Mateo, Santa Clara, Santa

Cruz, and Sonoma. It is found in chaparral, coastal dunes, coastal scrub, valley and foothill grassland. It is often in granitic and serpentine soils and sometimes on roadsides (CNPS 2021).

San Francisco wallflower blooms from March to June with four cream petals and four sepals (CNPS Calscape 2021).

There are no CNDDB records for this species within five miles of the project site.

The project site contains marginal habitat for this species and though there are no known observations in the vicinity, they are known from the region. No observations of this plant were made during surveys conducted at the site. However, site surveys were conducted outside of the blooming period for this species. Therefore, a botanical survey should be conducted during its blooming period to ensure that this species does not occur on the project site and will not be impacted by the project.

Hillsborough chocolate lily (*Fritillaria biflora var. ineziana*) - CRPR 1B.1

Hillsborough chocolate lily (*Fritillaria biflora var. ineziana*) is a perennial bulbiferous herb in the Liliaceae family and is native to California. It is only known to occur in San Mateo County. It is found in cismontane woodland, valley and foothill grassland and often grows in serpentine soils (CNPS 2021).

Hillsborough chocolate lily blooms from March through April with a bell-shaped chocolate colored flower (CNPS 2021).

There are no CNDDB records for this species within five miles of the project site.

The project site contains marginal habitat for this species and though there are no known observations in the vicinity, they are known from the region. No observations of this plant were made during surveys conducted at the site. However, site surveys were conducted outside of the blooming period for this species. Therefore, a botanical survey should be conducted during its blooming period to ensure that this species does not occur on the project site and will not be impacted by the project.

Fragrant fritillary (*Fritillaria liliacea*) - CRPR 1B.2, USFS:S

Fragrant fritillary is a perennial herb (bulb) that is native and endemic to California. The range of this wildflower is over parts of southwestern Northern California, especially Solano and Sonoma Counties and at coastal locations south to Monterey County. It found in coastal scrub, valley and foothill grassland, and coastal prairie. It occurs typically in open hilly grasslands at altitudes less than 370 meters in elevation. The species prefers heavy soils including clays; for

example, andesitic and basaltic soils derived from the Sonoma Volcanic soil layers are suitable substrate for this species.

The bell-shaped white flowers have greenish stripes and are set on a nodding pedicel of about 37 centimeters in height. The blossoms are odorless to faintly fragrant. Its blooming period is between February and May. The species is threatened by grazing, agriculture, urbanization and non-native plants (CNPS 2007).

There is one CNDDB record of this species within five miles of the project site. The CNDDB observation is described from a collection in 1931. The exact location is unknown but is estimated to be at the head of Pilarcitos Creek, which is approximately five miles east from the site in the Santa Cruz Mountains.

The only record of the species in the greater project area is historic (1931) and it occurred in a different habitat than those at the project site. The project site contains marginal habitat for this species and no observations of this plant were made during surveys conducted at the site. However, site surveys were conducted outside of the blooming period for this species. Therefore, a botanical survey should be conducted during its blooming period to ensure that this species does not occur on the project site and will not be impacted by the project.

San Francisco gumplant (*Grindelia hirsutula var. maritima)* - CRPR 3.2

San Francisco gumplant (*Grindelia hirsutula var. maritima)* is a perennial herb in the Asteraceae family and is endemic to coastal California. It is known from Marin, San Francisco, San Luis Obispo, and San Mateo. It is found in coastal bluff scrub, coastal scrub, valley and foothill grassland, sandy or serpentine slopes, and sea bluffs (CNPS 2021).

San Francisco gumplant blooms from June to September with bright yellow aster flowers (CNPS 2021).

CNDDB lists one occurrence of the San Francisco gumplant within five miles of the project site. The record is from 1972 approximately five miles north of the project site along the ocean bluff.

Although this species has not been recorded in the area since 1972, the project site contains marginal habitat for this species. No observations of this species were made during surveys of the site, which were conducted outside of the blooming period for this species. Though this species is perennial and would like have been observed had it been present on the site, a botanical survey should be conducted during its blooming period to ensure that this species does not occur on the project site and will not be impacted by the project.

Kellogg's horkelia (*Horkelia cuneata var. sericea*) - CRPR 1B.1, USFS:S

Kellogg's horkelia (*Horkelia cuneata var. sericea*) is a perennial herb in the Rosaceae family and is native to California. It is known from Alameda, Marin, Monterey, San Francisco, San Luis Obispo, San Mateo, Santa Barbara, and Santa Cruz. It is found in chaparral, closed-cone coniferous forest, coastal dunes, and coastal scrub (CNPS 2021).

Kellogg's horkelia blooms from April to September with several small white flowers which have five petals. The species has dense hairs and grows 0.7 to 2.3 feet tall (CNPS Calscape 2021).

There are two CNDDB observations of Kellogg's horkelia within five miles of the project vicinity. The first observation occurred in 2000 a grassland along a ridgetop between Frenchmans Creek and Apanilio Creek, approximately four miles southeast of the site. The second record of this species occurred in 2001 on Montana Mountain about 5 miles north of the project site.

Both CNDDB records occurred in the Santa Cruz Mountains, which is a different habitat than those that occur on the project site. The project site contains moderate habitat for this species though no observations of this plant were made during surveys conducted at the site. However, site surveys were conducted outside of the blooming period for this species. Therefore, a botanical survey should be conducted during its blooming period to ensure that this species does not occur on the project site and will not be impacted by the project.

Point Reyes horkelia (*Horkelia marinensis*) - CRPR 1B.2

Point Reyes horkelia (*Horkelia marinensis*) is a perennial herb in the Rosaceae family and is endemic to California's coastline. It is known from Marin, Mendocino, Monterey, San Mateo, Santa Cruz, and Sonoma. It is found in coastal dunes, coastal prairie, and coastal scrub (CNPS 2021).

From May to September, Point Reyes horkelia blooms dense clusters of white flowers. The flowers emerge from red green stems, have fuzzy sepals, a ring of stamens, and 20 to 30 pistils. The species grows up to 11.8 inches tall with toothy hairy leaves up to 10 centimeters long (CNPS Calscape 2021).

There are no CNDDB records for this species within five miles of the project site.
The project site contains moderate habitat for this species and though there are no known observations in the vicinity, they are known from the region. No observations of this plant were made during surveys conducted at the site. However, site surveys were conducted outside of the blooming period for this species. Therefore, a botanical survey should be conducted during its blooming period to ensure that this species does not occur on the project site and will not be impacted by the project.

Harlequin lotus (*Hosackia gracilis*) - CRPR 4.2

Harlequin lotus (*Hosackia gracilis*) is a perennial rhizomatous herb in the Fabaceae family and is native to California. It is known from Del Norte, Humboldt, Marin, Mendocino, Monterey, San Francisco, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, and Sonoma. It is found in broadleafed upland forest, cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal prairie, coastal scrub, marshes, swamps, meadows, seeps, north coast coniferous forest, valley and foothill grassland (CNPS 2021).

Harlequin lotus blooms from March to July with pea like flowers which have a yellow upper petal and pink or white lower petals. The plant grows from 0.66 to 1.6 feet tall and has leaves composed of a few leaflets (CNPS Calscape 2021).

There are no CNDDB records for this species within five miles of the project site.

The project site contains marginal habitat for this species and though there are no known observations in the vicinity, they are known from the region. No observations of this plant were made during surveys conducted at the site. However, site surveys were conducted outside of the blooming period for this species. Therefore, a botanical survey should be conducted during its blooming period to ensure that this species does not occur on the project site and will not be impacted by the project.

Perennial goldfields (*Lasthenia californica ssp. macrantha)* - CRPR 1B.2, BLM:S

Perennial goldfields (*Lasthenia californica ssp. macrantha)* is a perennial herb in the Asteraceae family and is native to California. It is known from Del Norte, Humboldt, Marin, Mendocino, San Luis Obispo, San Mateo, Santa Cruz, and Sonoma. It is found in coastal bluff scrub, coastal dunes, and coastal scrub (CNPS 2021).

Perennial goldfields bloom from January to November with bright yellow aster flowers (CNPS Calscape 2021). This species' stem branches at its base and has linear leaves (Jepson eFlora 2021).

There are two CNDDB records of perennial goldfields within five miles of the project site. Both records are from 2015 along bluffs with dirt trails. One of the observations was at Montara State Beach, west of Highway 1 and about four miles north of the project site. CNDDB describes the observation as more than 500 plants in coastal prairie. The species was present on both sides of the trail and was denser at the northern end of the bluff. The second record occurred between Seymore Bridge and Francis State Beach which is about four miles south of the project site. This observation had more than 100 plants which were spread along the western edge of the bluff and cliff faces.

The previous CNDDB perennial goldfields observations occurred in similar conditions to the project site, which includes marginal habitat for this species. No observations of this plant were made during surveys conducted at the site, which were conducted within the blooming period for this species. Therefore, this species is unlikely to be found on the project site or be impacted by the project activities.

Coast yellow leptosiphon (*Leptosiphon croceus*) - CRPR 1B.1, SE

Coast yellow leptosiphon (*Leptosiphon croceus*) is an annual herb in the Polemoniaceae family and is native to California. It is only known from San Mateo. It is found in coastal bluff scrub and coastal prairie (CNPS 2021).

Coast yellow leptosiphon is low growing, up to 0.8 to 2.8 inches tall. The species blooms from April to June with brightly colored yellow flowers which have fused petals and two red dots at the base of the petal (CNPS Calscape 2021, CDFW 2021).

There is one CNDDB record of this species within five miles of the project vicinity. The record, observed in 2015, was west of the trail on Vallemar Bluff in coastal prairie and in the cliff's edge. CNDDB states that the plants in this observation decreased from 1000 plants in 1998 to less than 400 plants in 2015. This record is approximately three miles north of the project site.

The project site contains marginal habitat for this species and similar habitat described in the CNDDB record. No observations of this plant were made during surveys conducted at the site. However, site surveys were conducted outside of the blooming period for this species. Therefore, a botanical survey should be conducted during its blooming period to ensure that this species does not occur on the project site and will not be impacted by the project.

Crystal Springs lessingia (*Lessingia arachnoidea)* - CRPR 1B.2

Crystal Springs lessingia (*Lessingia arachnoidea)* is an annual herb in the Asteraceae family and is native to California. It is known from San Mateo and Sonoma. It is found in cismontane woodland, coastal scrub, valley and foothill grassland (CNPS 2021).

Crystal Springs lessingia grows up to 2.6 ft tall and has a thin stem that becomes woolier towards the top with occasionally toothy narrow leaves. The species blooms from July to October with a single lavender flower that has ray like lobes (CNPS Calscape 2021).

There are no CNDDB records for this species within five miles of the project site.

The project site contains marginal habitat for this species and though there are no known observations in the vicinity, they are known from the region. No observations of this plant were made during surveys conducted at the site. However, site surveys were conducted just outside

of the blooming period for this species. Therefore, a botanical survey should be conducted during its blooming period to ensure that this species does not occur on the project site and will not be impacted by the project.

Woolly-headed lessingia (*Lessingia hololeuca*) - CRPR 3

Woolly-headed lessingia (*Lessingia hololeuca)* is an annual herb in the Asteraceae family and is native to California. It is known from Alameda, Fresno, Marin, Mendocino, Monterey, Napa, San Diego, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma, Tehama, Tuolumne, and Yolo. It is found in clay and serpentine soils in broadleafed upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland (CNPS 2021).

Woolly-headed lessingia is a wooly textured plant that grows 0.1 to 1.3 feet tall with a thin stem. The flower has many pink to purple funnel shaped petals which bloom from June to October in clusters (CNPS Calscape 2021).

There are no CNDDB records for this species within five miles of the project site.

The project site contains marginal habitat for this species and though there are no known observations in the vicinity, they are known from the region. No observations of this plant were made during surveys conducted at the site. However, site surveys were conducted outside of the blooming period for this species. Therefore, a botanical survey should be conducted during its blooming period to ensure that this species does not occur on the project site and will not be impacted by the project.

Ornduff's meadowfoam (*Limnanthes douglasii ssp. ornduffii)* - CRPR 1B.1

Ornduff's meadowfoam (*Limnanthes douglasii ssp. ornduffii)* is an annual herb in the Limnanthaceae family and is native to California. It is only known from San Mateo and is restricted to a single agricultural field. It is found in meadows, seeps, and agricultural fields (CNPS 2021).

Ornduff's meadowfoam bloom in November through May with small white flowers that have four petals, stamen, and pistils (CNPS 2021).

There are two CNDDB occurrences of Orduff's meadowfoam within five miles of the project vicinity. Both observations occurred northeast of the project site. One record says the species was last seen in 2008 in a cultivated field west of the Half Moon Bay Airport. The record stated there were originally three plants but that the species is "possibly extirpated" because they were not found during site visits in 2009, 2010, or 2011. The other record described the species as last seen in 2011 east of Highway 1 in saturated soil of a fallow field. CNDDB states that there

was nearly absolute cover of this species over about 18 acres in 1998 but has now diminished to about 90% cover.

This species is currently confined to a single agricultural field and the project site contains marginal habitat for this species. No observations of this plant were made during surveys conducted at the site, which were conducted within the blooming period for this species. Therefore, this plant is unlikely to occur on the project site or be impacted by project activities.

Woodland woollythreads (*Monolopia gracilens)* - CRPR 1B.2

Woodland woollythreads (*Monolopia gracilens)* is an annual herb in the Asteraceae family and is native to California. It is known from Alameda, Contra Costa, Monterey, San Benito, San Luis Obispo, San Mateo, Santa Clara, and Santa Cruz. It found in broadleafed upland forest, chaparral, cismontane woodland, north coast coniferous forest, valley and foothill grassland (CNPS 2021).

Woodland woollythreads grow approximately 2.6 feet tall and are woolly textured. This species blooms from February to July with inflorescence that has white flower heads and bright yellow ray florets which surround numerous disc florets (CNPS Calscape 2021).

There is one CNDDB record of this species within five miles of the project. The observation is from 1949 about five miles east of the project site at Pilarcitos Lake and Canyon in the Santa Cruz Mountains. The exact location is unknown but is based off collections in 1893 and 1949.

There are no records of this species near the project site since 1949, which occurred in the Santa Cruz Mountains and within a different habitat than those present on site. The project site contains marginal habitat for this species, though no observations of this plant were made during surveys conducted at the site. However, site surveys were conducted outside of the blooming period for this species. Therefore, a botanical survey should be conducted during its blooming period to ensure that this species does not occur on the project site and will not be impacted by the project.

Hickman's popcornflower (*Plagiobothrys chorisianus var. hickmanii)* - CRPR 4.2

Hickman's popcornflower (*Plagiobothrys chorisianus var. hickmanii)* is an annual herb in the Boraginaceae family and is native to California. It is known from Monterey, San Mateo, Santa Clara, and Santa Cruz. It is found in chaparral, closed-cone coniferous forest, coastal scrub, marshes, swamps, and vernal pools (CNPS 2021).

Hickman's popcornflower grows 0.33 to 1.33 feet tall. The species blooms from April to June with small white flowers which have a yellow center and five petals (CNPS Calscape 2021).

There are four CNDDB records of Hickman's popcorn flower within five miles from the project site. Three of the records occurred south of the project site, and one north of the site. These occurrences were last seen in 2007, 2015 and 2016. Two of these records occurred along a coastal bluff in annual grasslands. The remaining two records were located west of Farallone View Elementary School and along a muddy road with mesic deciduous shrubs.

The project site contains marginal habitat for this species. No observations of this plant were made during surveys conducted at the site. However, site surveys were conducted outside of the blooming period for this species. Therefore, a botanical survey should be conducted during its blooming period to ensure that this species does not occur on the project site and will not be impacted by the project.

Scouler's catchfly (*Silene scouleri ssp. scouleri)* - CRPR 2B.2

Scouler's catchfly (*Silene scouleri ssp. scouleri)* is a perennial herb in the Caryophyllaceae family and is native to California. It is known from Del Norte, Humboldt, Marin, San Francisco, San Mateo, and Sonoma. It is found in coastal bluff scrub, coastal prairie, valley and foothill grassland (CNPS 2021).

Scouler's catchfly grows many stems and blooms from March to April with clusters of flowers which have a tubular veined calyx and five bi-lobed pink petals (CNPS 2021).

There is one CNDDB record of this species within five miles of the project site. The exact location is unknown but is northeast of the project site and is described between San Pedro Mountain and Montara Mountain. The record is based off a collection in 1983 and a photo taken in 2003.

The CNDDB record of this species occurred in the Santa Cruz Mountains and within different habitat than those present at the project site. The project site contains marginal habitat for this species, though no observations of this plant were made during surveys conducted at the site. However, site surveys were conducted outside of the blooming period for this species. Therefore, a botanical survey should be conducted during its blooming period to ensure that this species does not occur on the project site and will not be impacted by the project.

San Francisco campion (*Silene verecunda ssp. verecunda)* - CRPR 1B.2

San Francisco campion (*Silene verecunda ssp. verecunda)* is a perennial herb in the Caryophyllaceae family and is endemic to coastal California. It is known from San Francisco, San Mateo, and Santa Cruz. It is found in chaparral, coastal bluff scrub, coastal prairie, coastal scrub, valley and foothill grassland (CNPS 2021).

San Francisco campion grows 0.33 to 1.6 feet tall (CNPS Calscape 2021). This species has thin flexible upward reduced leaves that are 3 to 6 centimeters long (Wilkens 1993). Flowers bloom

from February to August with a short and hairy calyx and bi-lobed pink petals (CNPS 2021, Wilkens 1993).

There is one CNDDB record of this species within five miles of the project. This observation occurred northeast of the project site with an unknown exact location but was near Montara Mountain. The record is based off a collection in 1900 with vague site descriptions.

The single CNDDB record of this species is historic and has not been seen since 1900. Further, this known occurrence was within a different habitat than those found at the project site. The project site contains marginal habitat for this species, though no observations of this plant were made during surveys conducted at the site. However, site surveys were conducted outside of the blooming period for this species. Therefore, a botanical survey should be conducted during its blooming period to ensure that this species does not occur on the project site and will not be impacted by the project.

San Francisco owl's-clover (*Triphysaria floribunda)* - CRPR 1B.2

San Francisco owl's-clover (*Triphysaria floribunda)* is an annual herb in the Orobanchaceae family and is native to California. It is known from Marin, San Francisco, and San Mateo. It is found in coastal prairie, coastal scrub, valley and foothill grassland (CNPS 2021).

San Francisco owl's-clover grows to approximately 11.8 inches tall with a yellow brown stem and long pointed leaves. This species blooms from April to June with clusters of yellow white flowers which have a wide lower lip that pouches (CNPS Calscape 2021).

There is one CNDDB record of this species within five miles of the project. The record is based off a collection in 1900 where the exact location is unknown. CNDDB describes the location near Seal Cove in a field above a schoolhouse. This estimated location is approximately two miles north of the project site.

There are no records of this species in the greater project area since the one historic observation (1900), however, the project site contains marginal habitat for this species, though no observations of this plant were made during surveys conducted at the site. However, site surveys were conducted outside of the blooming period for this species. Therefore, a botanical survey should be conducted during its blooming period to ensure that this species does not occur on the project site and will not be impacted by the project.

B. Special-Status Habitats

1. Wetlands and Waters

Zentner Planning and Ecology completed wetland delineations for the USACE and the California Coastal Commission, however we focus on the USACE delineation throughout this report as there are only minor differences in the two delineations in regards to the size of the seasonal wetlands.

a. Jurisdictions

As defined by the Army Corps of Engineers (Corps), "wetlands" are areas periodically or permanently saturated by surface or groundwater and typically support vegetation adapted to life in saturated (hydric) soil. Wetlands are recognized as important features on a regional and national level due to their high inherent value to fish and wildlife, use as storage areas for storm and floodwaters, promotion of groundwater recharge, and their water filtration and purification functions. "Other waters" include tributaries or drainage ditches which exhibit perennial or ephemeral flow to a navigable waterway, wetland, or other significant water feature. Other waters may not necessarily be wetlands.

b. Delineation Methods

Boundaries between jurisdictional areas and uplands were investigated using the routine on-site assessment procedure, Section D, Subsection 2, page 57 of the 1987 "Corps of Engineers Wetlands Delineation Manual" (Environmental Laboratory 1987; hereafter the "Delineation Manual") as modified by the new Interim Arid West Supplement to the Delineation Manual (Environmental Laboratory 2006; hereafter the AWS). Dominant plant species, soil characteristics, and hydrology indicators were noted within a 10-foot by 10-foot plot at each sample point.

Zentner Planning and Ecology completed a wetland delineation at each discrete project site. The wetland delineation did not encompass the entire study area. The delineation overview graphic is presented in Figure 2. Wetlands were distinguished from uplands on this site by the presence of: 1) hydrophytic vegetation, 2) wetland hydrology, and 3) hydric soils, which are defined below.

Hydrophytic Vegetation

Hydrophytic vegetation is dominated by plant species that can tolerate prolonged inundation or soil saturation during the growing season. More than 50% of the dominant species must be wetland indicators of FAC, FACW and OBL or outweigh them using a prevalence index for the vegetation to be considered hydrophytic. These wetland indicators, or hydrophytes, are listed in the Delineation Manual as OBL, FACW, and FAC. Other plants are listed as FACU or NI, and unlisted plants are considered as UPL. These abbreviations are defined as follows:

OBL	Obligate Wetland Plants	Plants that occur over 99% of the time in wetlands
FACW	Facultative Wetland Plants	Plants that occur 67% to 99% of the time in wetlands
FAC	Facultative Plants	Plants likely to occur 33% to 67% of the time in wetlands
FACU	Facultative Upland Plants	Plants that occur 1% to 33% of the time in wetlands, but which occur more frequently in uplands
NI	Non-indicator plants	These must be checked against the National Indicator List and could be changed to a wetter or drier status
UPL	Upland Plants	Plants that occur less than 1% of the time in wetlands

Note: The 3 facultative categories are subdivided by (+) and (-) modifiers. FAC+ species are considered to be wetter (have a greater estimated probability of occurring in wetlands) than FAC species. FAC- species are considered to be drier (have a lesser estimated probability of occurring in wetlands) than FAC species.

Hydric Soils

Hydric soils develop under the low oxygen conditions typical of prolonged inundation or saturation, and generally show visible indications of chemical reduction. The hydric nature of a soil is most often indicated by low matrix chromas of 0 to 1, or 2 with mottles, and is determined by comparing the wetted soil with Munsell Soil Color Charts. The hydric nature of a soil may also be indicated by the presence of manganese or iron nodules, or other more subtle characteristics.

Wetland Hydrology

Common wetland hydrology indicators demonstrate inundation or saturation and include observations of standing water, saturated soils, algal mats, water-matted detritus, and water stains on rocks or other objects. In evaluating these hydrology indicators some attention must be given to the frequency and duration of inundation, and the effects of recent weather, unusual flooding and climatic fluctuations. According to the AWS, an area must have "14 or more days of flooding or ponding or a water table 12 inches (30 centimeters) or less below the soil surface, during the growing season at a minimum frequency of 5 years in 10 (50 percent or

higher probability)" to satisfy the hydrology standard. The old standard (US Army Corps 1987 Manual) was that an area must have ponding for 5% of the growing season (18 days in California) or a water table at a depth equal to 80% of the root mass.

Other Waters

The Corps also regulates "other waters tributary to waters of the U.S." Boundaries between uplands and other waters are determined based on water elevations and geomorphic features. In freshwater conditions, the boundary between uplands and other waters is the ordinary high water mark (OHWM). In tidal conditions, the upper limit of Section 10 Navigable Waters is set by Mean High Water (MHW), while the boundary of Section 404 Waters extends to the High Tide Line (HTL).

c. Results

The results of the delineation are detailed in the Pillar Point/ Surfer's Beach Sections 10 and 404 Jurisdictional Delineation (**Attached Separately**) and the Coastal Commission Jurisdictional Delineation (**Attached Separately**). The USACE delineation is summarized below.

1. Jurisdictional Areas

a. Tidal Waters (Sections 10 and 404 Jurisdictions)

Total Area: 126.75 acres

The majority of the site is tidal water that was mapped to the edge of Mean High Water (MHW). Outside of the breakwater, this area is nearly always open water. The exception is the area along Surfers Beach, which has been well scoured and is a mix of water and sand depending upon the tide. Inside the harbor, which is located within the breakwater, portions of this zone are exposed sand during low tides, especially adjacent to and just north of, the breakwater.

No terrestrial vegetation is present in this habitat. Hydric substrates are present as indicated by frequent and prolonged inundation during high tides and prolonged saturation during low tides. The tidal waters habitat is not a wetland as there is no vegetation, however it is jurisdiction under Sections 10 and 404 as a "Water of the US" since it is a navigable water.

b. High Tidal Areas (Section 404 Jurisdiction)

Total Area: 3.29 acres

The next largest jurisdictional habitat is the area between MHW at the low elevation up to the High Tide Line (HTL) at its upper elevation. In tidally influenced estuaries, this zone is usually inhabited by tidal marsh vegetation. Along the coast, however, this area is often characterized

as an upper zone along the beach, as it is with the majority of the project site. Along the breakwaters, however, the zone between MHW and the HTL, which delineate this habitat, is very narrow. Though this zone is also unvegetated, it is not navigable and thus, it falls within Section 404 jurisdiction.

c. Ephemeral Channel

Area: C

Total Area: 7.9 square feet

Total length: 11.85 linear feet

A very small channel fragment runs between two culverts within the project boundary. The culverts originate from the area around Highway 1 and outfall into the Pacific. The channel appears to be very ephemeral and the bed only approximately 8 inches in width. The channel and immediate surroundings are dominated by upland vegetation and therefore, the channel was mapped to the ordinary high water mark (OHWM).

d. Seasonal Wetland

Areas: A and D

Total Area: 0.074 acres

Data Points: 1 and 6

The site contains two small seasonal wetlands. The first is located within a zone of ruderal coastal strand vegetation that is dominated by ice plant. A small depression in this zone holds water for extended periods despite the sand substrate, likely due to a relatively high water table. Vegetation in the zone contains salt tolerant vegetation such as pickleweed (*Salicornia pacifica; OBL*) and saltgrass (*Distichlis spicata; FACW*) as well as freshwater associated plants such as rabbitsfoot grass (*Polypogon monspelliensis; FACW*) and bucks-horn plantain (*Plantago coronopus; FAC*), along with ice plant.

The second seasonal wetland is located on the bluff above Surfers Beach. This is a very shallow wetland that appears to pond water from runoff via the adjacent maintained grassland area as well as from overflow when the adjacent culvert is block or partially blocked during heavy rainfall events. This wetland was ponded to a depth of approximately two inches and contained a significant biotic crust layer. The vegetation consisted of Mediterranean barley (*Hordeum marinum*; FAC), spearscale (*Atriplex patula*; FACW), and bucks-horn plantain.

ii. Soils

Seasonal wetland A is located within a zone of CF or Coastal Beaches, which is composed of sand. Though these areas are well-drained, the basin was low enough to be near the water table and contained some light redox. Seasonal wetland D, located on the bluff, is within an

area of Denison Clay loams. These soils do not appear to be very well drained and contained an upper layer of very dark material (7.5YR 2/0).

iii. Hydrology

The seasonal wetlands are all found within relatively obvious depressional features on the site, which contained indicators of ponded water.

d. Riparian Wetland

Areas: B

Total Area: 0.107 acres

Data Points: 8

A relatively small fragment of riparian wetland lies between Highway 1 and the Pacific Ocean on the bluff above Surfers Beach. The riparian vegetation is dominated by arroyo willow (*Salix lasiolepis*; FACW) with an understory of poison hemlock (*Conium maculatum*; FAC), spearscale, and iceplant. A large, dense area of willow woodland is located on the east side of Highway 1 and there is obviously some drainage connection between the east and west side of the highway where this fragment is located, before it drains into the Pacific.

ii. Soils

The riparian wetland B, is located on the bluff, within an area of Denison Clay loams. These soils do not appear to be very well drained despite being on a relatively shallow layer above the bedrock and contained an upper layer of very dark material (7.5YR 2/0).

iii. Hydrology

The riparian wetland is found within relatively obvious depressional feature on the site, which contained indicators of ponded water.

2. Non-jurisdictional

The remaining habitat within the project site is upland and non-jurisdictional. The upland habitats consist of developed areas such as parking lots, trails and the tops of the rock breakwaters. More natural, but heavily disturbed upland habitats consist of coastal strand and maintained grassland habitats. The coastal strand lies within the harbor between the beach and the paved trail, while the maintained grasslands are located on the bluff east of and above, Surfers Beach.

a. Coastal Strand

2021 Data points: 2, 3, and 4

The coastal strand habitat lies within the harbor side of the breakwater between the beach and the paved trail. This habitat is dominated by non-native ice plant, but does contain a number of native species in areas where the ice plant is relatively sparse. Ripgut brome (*Bromus diandrus; UPL*) is relatively common as is bur clover (*Medicago polymorpha; FACU*). Salt grass (*Distichlis spicata; FACW*) is found sparsely in some areas as is horseweed (*Erigeron canadensis; FACU*).

The substrate of the coastal strand is sand that is relatively quick draining outside of the very low basin that is located within the coastal strand and showed no hydrologic indicators. The sample points in these areas failed to satisfy the three technical wetland criteria with vegetation, soils, and hydrology failing to show wetland indicators.

b. Maintained Grassland

2021 Data points: 5 and 7

As noted above, the maintained grasslands are located on top of the bluff in a narrow strip between the bluff to the west and a paved trail that runs adjacent to Highway 1. This grassland is highly maintained as to give the appearance of turf, complete with picnic tables and benches. The grassland is dominated by ripgut brome and includes weedy broadleafs such as mustard (*Brassica nigra*; UPL), bur clover, Italian ryegrass (*Festuca perennis*; FAC) and storksbill (*Erodium cicutarium*; UPL).

Rainfall sheet flows off of the site primarily to the west off of the bluff, but also north into the small drainage ditch. The area is relatively level and slopes gently to the west and, therefore, does not provide a place for water to collect to form any seasonally wet areas. The sample point in this area failed to satisfy the three technical wetland criteria with vegetation, soils, and hydrology failing to show wetland indicators.

2. Other Special Status Habitats

A total of two special status habitats are known from the region: northern coastal salt marsh and northern maritime chapparal. Neither of these habitats occur within the study area.

Northern coastal salt marsh habitat is not present within the study area. This tidal habitat is present on the west side of Pillar Point Harbor, opposite from the project site. Both seasonal wetlands on site are geographically separated from the tide line either by sand dunes or a coastal bluff, inhibiting tidal mixing. Only one of seasonal wetlands contains some of the

species found within north coastal salt marsh, most notably pickleweed (*Salicornia pacifica*), but also lack the suite of species found within tidal salt marshes. Additionally, it is composed of freshwater plants and ice plant which are not characteristic of northern coastal salt marsh.

Northern maritime chapparal does not exist on the project site. This habitat is mainly composed of dense shrub cover including plants like manzanita and chamise. There are few shrubs on the project site which are few and far between. This habitat is known from the project area because it exists more inland but not close enough to the site to be impacted by project activities.

3. Wildlife Movement Corridors

Wildlife corridors are generally described as pathways or habitat linkages that connect discrete areas of natural open space otherwise separated or fragmented by topography, changes in vegetation, and other natural or human induced factors such as urbanization. The fragmentation of natural habitat creates isolated "islands" of vegetation that may not provide sufficient area or resources to accommodate sustainable populations for a number of species and thus, adversely affecting both genetic and species diversity. Corridors often partially or largely eliminate the adverse effects of fragmentation by 1) allowing wildlife to move between remaining habitats to replenish depleted populations and increase the gene pool available; 2) providing escape routes from fire, predators, and human disturbances, thus reducing the risk that catastrophic events (such as fire or disease) will result in population or species extinction; and 3) serving as travel paths for individual animals moving throughout their home range in search of food, water, mates, and other needs, or for dispersing juveniles in search of new home ranges.

The study area is generally surrounded by barriers to wildlife movement on all sides, including Highway 1, Pillar Point Harbor, and the Pacific Ocean. The area is highly trafficked by humans and consequently, there is little terrestrial wildlife cover aside from birds. The Pacific Ocean is used as a wildlife corridor; however, it is unlikely that the ocean in the project area will be used as one since it is within Pillar Point Harbor which is mostly geographically secluded by breakwaters and is shallow. For these reasons, the site is unlikely to be utilized as a movement corridor for wildlife in the area. However, the salt marsh west of the site and local creeks such as Denniston Creek and Deer Creek may provide movement pathways for some common wildlife species. Common wildlife species, such as coyote, that find their way into the region around the study area may forage before leaving the area. In short, however, the proposed project is unlikely to be used as a wildlife movement corridor and it will have very little to no impact on any common, urban adapted species that may occasionally utilize the study area.

IV. BIOLOGICAL RESOURCES

A. Regulatory Setting and Federal Framework

1. Federal Endangered Species Act

The Federal Endangered Species Act (FESA) forms the basis for the federal protection of threatened or endangered plants, insects, fish and wildlife. FESA contains four main elements, they are as follows:

1. Section 4 (16 USCA §1533): Species listing, Critical Habitat Designation, and Recovery Planning: outlines the procedure for listing endangered plants and wildlife.

2. Section 7 (§1536): Federal Consultation Requirement: imposes limits on the actions of federal agencies that might impact listed species.

3. Section 9 (§1538): Prohibition on Take: prohibits the "taking" of a listed species by anyone, including private individuals, and State and local agencies.

4. Section 10: Exceptions to the Take Prohibition: non-federal agencies can obtain an incidental take permit through approval of a Habitat Conservation Plan.

In the case of saltwater fish and other marine organisms, the requirements of FESA are enforced by the National Marine Fisheries Service (NMFS). The USFWS enforces all other cases. Section 9 of FESA as amended, prohibits the "take" of any fish or wildlife species listed under FESA as endangered. Under Federal regulation, "take" of fish or wildlife species listed as threatened is also prohibited unless otherwise specifically authorized by regulation. "Take," as defined by FESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." "Harm" includes not only the direct taking of a species itself, but the destruction or modification of the species' habitat resulting in the potential injury of the species. As such, "harm" is further defined to mean "an act which actually kills or injures wildlife; such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering" (50 CFR 17.3).

Section 9 applies to any person, corporation, federal agency, or any local or State agency. If "take" of a listed species is necessary to complete an otherwise lawful activity, this triggers the need to obtain an incidental take permit either through a Section 7 Consultation as discussed further below (for federal actions or private actions that are permitted or funded by a federal agency), or requires preparation of a Habitat Conservation Plan (HCP) pursuant to Section 10 of FESA (for state and local agencies, or individuals, and projects without a federal "nexus").

Section 7(a)(2) of the Act requires that each federal agency consult with the USFWS to ensure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of an endangered or threatened species or result in the destruction or adverse modification of critical habitat for listed species. The Section 7 consultation process applies only to actions taken by federal agencies, or actions by private parties that require federal agency permits, approval, or funding (for example, a private landowner applying to the Corps for a permit). Section 7's consultation process is triggered by a determination of the "action agency" (i.e., the federal agency that is carrying out, funding, or approving a project) that the project "may affect" a listed species or critical habitat. If an action is likely to adversely affect a listed species or designated critical habitat, formal consultation with the USFWS is required.

2. Federal Migratory Bird Treaty Act (FMBTA)

The Migratory Bird Treaty Act of 1918 (16 U.S.C. §§ 703-712, July 3, 1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986 and 1989) makes it unlawful to "take" (kill, harm, harass, shoot, etc.) any migratory bird listed in Title 50 of the Code of Federal Regulations, Section 10.13, including their nests, eggs, or young. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, wading birds, seabirds, and passerine birds (such as warblers, flycatchers, swallows, etc.).

3. Federal Clean Water Act

Section 404

Pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344), the U.S. Army Corps of Engineers (USACE) regulates the discharge of dredged or fill material into "waters of the United States" (33 CFR Part 320 *et seq.*). This requires project applicants to obtain authorization from the USACE prior to discharging dredged or fill material into any water of the United States. The "waters of the United States" are defined in federal regulations at 33 CFR section 328.3, and may include wetlands, ponds, drainages, creeks, streams, and other types of waterbodies, depending on whether any such aquatic feature meets current jurisdictional standards.

To remain in compliance with Section 404 of the Clean Water Act, project proponents and property owners (applicants) are required to acquire authorization from the USACE prior to discharging or otherwise impacting "waters of the United States." This authorization is typically given by reference to compliance with an existing Nationwide Permit(s) or by issuance of a project-specific Individual Permit.

Section 401

Prior to issuance by a Section 404 authorization by the USACE, Section 401 of the federal Clean Water Act requires the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCB) to certify, conditionally certify, or waive certification on the question of whether issuance of the USACE permit will violate water quality standards of the State. This certification (or waiver thereof) applies only to the proposed impacts to the "waters

of the United States" that are at issue in the proposed Section 404 permit. Potential impacts to "waters of the State" that may not be jurisdictional for the USACE are addressed under the RWQCB's Porter-Cologne Water Quality Control Act statutory authority (see below).

B. State Framework

1. California Endangered Species Act

In 1984, the state legislated the California Endangered Species Act (CESA) (Fish and Game Code §2050). The basic policy of CESA is to conserve and enhance endangered species and their habitats.

If proposed projects would result in impacts to a State listed species, an "incidental take" permit pursuant to §2081 of CDFG Code would be necessary (versus a Federal incidental take permit for Federal listed species). No §2081 permit may authorize the take of a species for which the Legislature has imposed strict prohibitions on all forms of "take."

State and federal incidental take permits are typically only authorized if applicants are able to demonstrate that impacts on the listed species in question are unavoidable, and can be mitigated to an extent that the reviewing agency can conclude that the proposed impacts would not jeopardize the continued existence of the listed species under review.

2. California Fish and Game Code

Section 4700

In accordance with California Fish and Game Code, Section 4700, "fully protected" mammals or parts thereof may not be taken or possessed (held in captivity) at any time (a) (1), except as provided in Section 2081.7. No provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected mammal, and no permits or licenses heretofore issued shall have any force or effect for that purpose. However, subject to certain notice requirements, the department may authorize the taking of those species for necessary scientific research, including efforts to recover fully protected, threatened, or endangered species.

Sections 3503, 3503.5, 3511, and 3513

CDFG Code §§ 3503, 3503.5, 3511, and 3513 prohibit the take, possession, or destruction of the nest or eggs of any bird. Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered "take." Take of any migratory nongame bird is also prohibited, except in compliance with rules promulgated under the Migratory Bird Treaty Act.

All raptors (that is, hawks, eagles, owls) their nests, eggs, and young are protected under California Fish and Game Code (§3503.5). Additionally, "fully protected" birds, such as the white-tailed kite (*Elanus leucurus*) and golden eagle (*Aquila chrysaetos*), are protected under

CDFG Code (§3511). “Fully protected” birds may not be taken or possessed (that is, kept in captivity) at any time.

Section 1602
Pursuant to Section 1602 of the Fish and Game Code, CDFG regulates activities that divert, obstruct, or alter stream flow, or substantially modify the bed, channel, or bank of a stream. CDFG's jurisdiction includes the outer extent of any riparian vegetation associated with the stream. Any proposed activity in a natural stream channel that would substantially adversely affect an existing fish and/or wildlife resource, would require entering into a Streambed Alteration Agreement (SBAA) with CDFG prior to commencing work in the stream.

3. Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Control Act, Water Code § 13260, requires that “any person discharging waste, or proposing to discharge waste, that could affect the waters of the State to file a report of discharge” with the RWQCB through an application for waste discharge (Water Code Section 13260(a)(1). The SWRCB and its several RWQCBs have interpreted this authority to extend to proposed fills of "waters of the State" that include all "waters of the United States" that are subject to the jurisdiction of the USACE, and any other "isolated" waters that are beyond the reach of the USACE claim of jurisdiction.

C. Environmental Analysis

1. CEQA Thresholds of Significance

According to Appendix G of the CEQA Guidelines, the proposed project would have significant impacts on biological resources if it would:

1. 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 CDFG or U.S. Fish and Wildlife Service (USFWS).

2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by CDFG or USFWS.

3. Have a substantial adverse effect on federally protected “wetlands” or “Waters of the U.S.” as defined by Section 404 of the Clean Water Act or “Waters of the State” as defined by the Porter-Cologne Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

4. 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.

5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

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

V. POTENTIAL IMPACTS AND MITIGATION MEASURES

A. Less Than Significant Impacts

1.0 Temporary pipeline impacts

Placement of the dredge pipeline itself, will temporarily impact upland (Maintained Grassland) habitats (0.05 ac) as well as small amounts of Sections 10/404 (0.01 ac) and 404 tidal (0.02 ac) habitats. The majority of these temporary impacts will occur along heavily disturbed upland areas and paved areas and the majority of the remaining areas are sandy beach habitat. These sandy beach habitats are constantly changing due to tidal action, including sand scour and accretion, as well as a variety of debris that are brought in by the tides. Outside of the upland habitats that are already disturbed in on on-going basis, the sandy beach and tidal habitats are largely unvegetated and the temporary placement of the pipeline is unlikely to cause any direct impacts. The temporary placement of the pipeline is unlikely to pose disturbances to wildlife in the area, which are habituallized to ongoing noise and activities by people, boats, cars, and other vehicles. As well, there are an abundance of such habitats within and outside of the project area in the region and the wildlife in the area are capable of using these areas. Therefore, the temporary impacts to the pipeline are not expected to be significant.

2.0 Temporary impacts to Maintained Grassland (upland) Habitat from project staging

The proposed project will result in a small amount of temporary impacts (0.30 acre) to the Maintained Grassland habitat due to staging and storage. The remainder of the staging areas will occur on already paved areas, which will not result in impacts. This Maintained Grassland habitat is currently disturbed by ongoing maintenance activities and experiences a lot of foot traffic and use by people. This grassland is dominated by weedy, non-native species, though a small number of common native plants are also present.

The temporary impacts to this habitat are not a significant impact as they are relatively negligible and there is an abundance of non-native grassland and less disturbed grassland habitats in the region. Similarly, impacts to wildlife species that may potentially use this habitat are not significant as the species that use these areas are common and capable of using adjacent lands.

B. Potentially Significant Impacts Before Mitigation

1. Special Status Habitats

1.0 The proposed project could have a potentially significant adverse impact on Waters of the U.S. and State Waters.

Impact Analysis

The proposed project will result in dredging impacts to 0.12 acres of Section 404 habitats within the High Tide Line (HTL) and 18.63 acres to Section 10/404 habitats within Mean High Water (MHW). "Wetlands" or "waters of the U.S." as defined by Section 404 of the Clean Water Act are specially protected under CEQA and loss of or impacts to these habitats must be mitigated to ensure that the project does not result in a substantial adverse effect. However, these dredging impacts are relatively short-lived and sand accretion within the harbor will continue. As well, directly after the dredging work, these habitats will continue to be jurisdictional and can be used by fish and other wildlife.

Mitigation Measure

1.0-1 The project will create approximately 4.1 acres of beach habitat and 3.90 acres of eelgrass habitat. Prior to project approval, a plan describing the constructed locations, construction methods, mitigation measures, monitoring and success criteria will be submitted to the permitting agencies for review and approval.

1.0-2 The project will obtain the necessary permits from the applicable state and federal resource agencies including, but not limited to: US Army Corps of Engineers, State Regional Water Quality Control Board, and California Coastal Commission, California Department of Fish and Wildlife.

When implemented, these measures would reduce potentially significant adverse impacts on special status habitats to a less than significant level.

Level of Significance After Mitigation: Less Than Significant

1.1 Development of the project could have a significant impact on eelgrass.

Impact Analysis

The project would impact a total of 2.7 acres of existing and potential eelgrass habitat. Eelgrass, which is a type of seagrass, is designated as a Habitat of Particular Concern by NOAA Fisheries. It is also protected under the Clean Water Act and managed by NOAA in California through

adherence to the California Eelgrass Mitigation Policy (NMFS 2014). Therefore, the loss of 2.7 acres of eelgrass and eelgrass habitat would be a potentially significant impact.

Mitigation Measures

1.1-1 The project will create approximately 3.90 acres of eelgrass habitat (nearly a 1.5:1 ratio of created to impacted) using the fine sands that will be dredged as part of the project work. In addition, prior to dredging, qualified biologist (knowledgeable and experienced with eelgrass) shall harvest as much of the existing eelgrass from the dredge footprint as practicable. As soon as feasible, the harvested eelgrass will be replanted within the newly created habitat.

1.1-2 The qualified biologist who are conducting the eelgrass harvesting, will obtain a CDFW collection permit and follow all of the measures required by the permit.

1.1-3 Prior to project approval, a plan describing the constructed locations, construction methods, mitigation measures, and monitoring and success criteria will be submitted to the permitting agencies for review and approval.

Level of Significance After Mitigation: Less Than Significant

2. Special Status Wildlife Species

2.0 Development of the project could have a significant impact on snowy plover.

Impact Analysis

Snowy plovers are not known to be present within the Surfers Beach project area due to the erosion of sand and the presence of disturbance activities in the area. However, they are known to occur approximately 1 mile south of this area. Therefore, it is possible that a Section 7 consultation regarding this species will be initiated as part of the USACE permitting process. Though the project is expected to result in long-term benefits to snowy plover, the following impacts shall be implemented to reduce potential short-term impacts to a level considered less than significant.

Mitigation Measures

2.0-1 A qualified biologist (knowledgeable and experienced in snowy plover ecology and identification) shall conduct a pre-construction survey for snowy plovers within 7 days prior to the initiation of construction or equipment use, including pipeline placement and removal, and any beach nourishment activities. A survey report detailing the survey

findings shall be prepared and submitted to the biological permitting agencies prior to the start of construction. If disturbance activities are delayed following a survey, then an additional pre-construction survey should be conducted such that no more than one week will have elapsed between the last survey and the commencement of ground disturbance activities at each discrete project location

2.0-2 Prior to the initiation of work, the qualified biologist will conduct Worker Environmental Awareness Training (WEAT) for all personnel conducting work at the project. At a minimum, the training will include written and oral information regarding special status species and habitats that have the potential to occur on the site, a description of the species and their habitat, and the importance of these species. The training will include the general measures that are being implemented to conserve the species as they relate to the project and the penalties for non-compliance. A fact sheet or other supporting materials containing this information will be prepared and distributed to all personnel conducting work at the project. Upon completion of the training, construction personnel will sign a form stating that they have attended the training and understood all of the conservation protection measures. The signed form will be kept onsite at all times and available for agency staff review if requested. Interpretation shall be provided for non-English speaking workers.

2.0-3 If snowy plovers were found to be located within the Surfers Beach project area, the following measures shall be initiated to reduce the potential impacts to a less than significant level:

a. A biological monitor shall be present during any construction activities in and around Surfers Beach during the first week. If snowy plovers continue to be observed near the construction area, the monitor will advise the work crews on how to avoid or minimize impacts to plover, which may include temporarily halting activities, until the plovers have left the site. The minimization measures shall continue throughout the beach nourishment activities.

b. The qualified biologist will conduct surveys of Surfers Beach and immediate surroundings until the snowy plovers have left the work area. Project work may resume after snowy plovers have left the work area.

2.0-4 During project activities, all trash that may attract predators will be properly contained, removed from the construction area and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

2.0-5 Vehicle and equipment refueling, repair, and lubrication will only be permitted in designated areas where accidental spills will be contained.

Level of Significant After Mitigation: Less Than Significant

2.1 Development of the project could have a potentially significant impact on coastal pelagic and groundfish.

Impact Analysis

Eelgrass beds are known to provide habitat for coastal pelagic fish and groundfish. However, it is expected that fish will be able to swim away to avoid impacts from either clamshell or suction type dredges, especially to adjacent eelgrass beds, which won't be impacted by the project. Disturbance of the eelgrass beds could cause temporary, minor disturbances to these fish species, though the eelgrass mitigation proposed by the project is expected to result in increased habitat for these same fish species over the long-term.

It is assumed that a Section 7 consultation regarding these species will be initiated as part of the USACE permitting process. However, the following measures shall be implemented to reduce potential impacts. With the implementation of these measures, the impacts can be mitigated to a level considered less than significant.

Mitigation Measures

2.1-1 Worker Environmental Awareness Training (WEAT), as described in Mitigation Measure 2.0-2, will be provided.

2.1-2 Prior to dredging work a qualified biologist (knowledgeable and experienced in pelagic fish species and groundfish identification) shall remove eelgrass from the proposed dredge footprint in order to remove potential habitat prior to dredging activities.

2.1-3 The project will create approximately 3.90 acres of eelgrass habitat using the fine sands that will be dredged as part of the project work. As soon as feasible, the harvested eelgrass will be replanted within the newly created habitat.

Level of Significance After Mitigation: Less than Significant

2.2 Development of the project could have a potentially significant impact on black abalone or black abalone critical habitat

Impact Analysis

The portions of the project including rocky intertidal and subtidal habitats and all water from MHHW to a depth of 20 ft exist are critical habitat for black abalone. Project activities are likely to result in minor amounts of increased turbidity in these habitats, but the increase will be short duration and temporary and are not expected to cause significant impacts on abalone or their food supply. A containment berm is expected to significantly reduce turbidity during beach nourishment activities along Surfers Beach.

It is assumed that a Section 7 consultation regarding this species will be initiated as part of the USACE permitting process. However, the following mitigation measures are necessary to ensure that project impacts will be mitigated to a less than significant level.

Mitigation Measures

2.2-1 Worker Environmental Awareness Training (WEAT), as described in Mitigation Measure 2.0-2, will be provided.

2.2-2 A qualified biologist (knowledgeable and experienced in black abalone identification) with experience surveying for abalone shall conduct preconstruction surveys within potential habitat inside the project area in order to ensure that they avoid sensitive abalone habitat and existing individuals.

2.2-3 If black abalone are not found, then no additional measures are necessary.

2.2-4 If black abalone are found, then beach nourishment work at Surfers Beach shall proceed such that work taking place directly adjacent to (within 25 feet) the outer breakwater shall take place outside of the spring to early summer abalone spawning season to avoid effects on larval settlement or on juvenile abalone.

Level of Significant After Mitigation: Less Than Significant

2.3 Development of the project could have a potentially significant impact on nesting raptors and other migratory nesting birds

Impact Analysis

The project site contains potentially suitable habitat for migratory nesting birds, primarily in the riparian wetland habitat, but also in the coastal strand habitat. In addition, though there is no potential nesting habitat onsite for nesting raptors, there is suitable habitat adjacent to the site. These birds are protected under the Migratory Bird Treaty Act (50 CFR 10.13) and their nest, eggs, and young are protected under California CDFW Code §§3503, 3503.5, 3800, and 3513.

Potential impacts from the proposed project include disturbance to nesting birds. Any project-related impacts on the nesting success of these species would be considered a significant adverse impact. These impacts could be mitigated to a level considered less than significant by employing the mitigation measures below.

Mitigation Measures

2.3–1 Worker Environmental Awareness Training (WEAT), as described in Mitigation Measure 2.0-2, will be provided by a qualified biologist.

2.3-2 If construction would commence anytime during the nesting/breeding season for raptors, or other bird species listed in the Migratory Bird Treaty Act (typically February through September 15), a pre-construction survey of the project vicinity for nesting birds should be conducted. This survey should be conducted by a qualified biologist (experienced with the nesting behavior of bird species of the region) within 7 days prior to the commencement of construction activities at each discrete project location that would occur during the nesting/breeding season. The intent of the survey should be to determine if active nests are present within or adjacent (within 100 feet) to the construction zone. If ground disturbance activities are delayed following a survey, then an additional pre-construction survey should be conducted such that no more than one week will have elapsed between the last survey and the commencement of ground disturbance activities at each discrete project location.

If active nests are found in areas that could be directly or indirectly affected by the project, a no-disturbance buffer zone should be created around active nests during the breeding season or until a qualified biologist determines that all young have fledged. The size of the buffer zones and types of construction activities restricted within them should be determined through consultation with the CDFW depending on the species, taking into account factors such as the following:

- Noise and human disturbance levels at the construction site at the time of the survey and the noise and disturbance expected during the construction activity;
- Distance and amount of vegetation or other screening between the construction site and the nest; and
- Sensitivity of individual nesting species and behaviors of the nesting birds.

The buffer zone around an active nest should be established in the field with orange construction fencing or another appropriate barrier and construction personnel should be instructed on the nest areas' sensitivity. The qualified biologist should serve as a construction monitor during those periods when construction activities would occur near active nest areas of special status bird species to ensure that no impacts on these nests occur.

Level of Significance After Mitigation: Less Than Significant

3. Special Status Plant Species

3.0 The proposed project could have a potentially significant adverse impact on special-status plant species.

Impact Analysis

The November survey of the project site occurred during the blooming period for only a handful of the plant species with the potential to occur on site. Therefore, the project site

provides potentially suitable habitat for 23 special status species, including: Blasdale's bent grass (*Agrostis blasdalei),* Franciscan onion (*Allium peninsulare var. franciscanum),* Coast rockcress (*Arabis blepharophylla*), Coastal marsh milk-vetch (*Astragalus pycnostachyus var. pycnostachyus*), Johnny-nip (*Castilleja ambigua var. ambigua*), San Francisco Bay spineflower (*Chorizanthe cuspidata var. cuspidata*), Western leatherwood (*Dirca occidentalis*), San Francisco wallflower (*Erysimum franciscanum*), Hillsborough chocolate lily (*Fritillaria biflora var. ineziana*), Fragrant fritillary (*Fritillaria liliacea*), San Francisco gumplant (*Grindelia hirsutula var. maritima),* Kellogg's horkelia (*Horkelia cuneata var. sericea*), Point Reyes horkelia (*Horkelia marinensis*), Harlequin lotus (*Hosackia gracilis*), Coast yellow leptosiphon (*Leptosiphon croceus*), Crystal Springs lessingia (*Lessingia arachnoidea),* Woolly-headed lessingia (*Lessingia hololeuca*), Woodland woollythreads (*Monolopia gracilens),* Hickman's popcornflower (*Plagiobothrys chorisianus var. hickmanii),* Scouler's catchfly (*Silene scouleri ssp. scouleri),* San Francisco campion (*Silene verecunda ssp. verecunda),* and San Francisco owl's-clover (*Triphysaria floribunda)*. The project could, consequently, result in the loss of these species if the appropriate blooming period surveys are not completed. Therefore, the following measures shall be implemented to reduce potential impacts to these special status species.

Mitigation Measures

3.0-1 A qualified biologist shall complete bloom season surveys for special-status plant species prior to initiation of project activities. The survey shall be completed during the appropriate blooming periods for the above listed species that have the potential to occur on site. These surveys shall be in compliance with all CDFW (2009), USFWS (1996), and CNPS (2001) published survey guidelines.

If the surveys find that there are no special-status plants on the property that would be impacted or within the proposed project site, then there would be no further mitigation and the project may proceed, provided all other applicable permits and authorizations are obtained for the project.

If special-status plant species are found, populations will be mapped and enumerated. If any populations are found within the proposed development area, project development plans shall consider avoidance to the extent practicable. If avoidance is not practicable while otherwise obtaining the project's objectives, then other suitable measures and mitigation shall be implemented as detailed below. If impact to the area is unavoidable all activity in that area shall halt and not proceed until CDFW has been consulted and the follow measures shall be implemented:

A. Initially the practicability of avoidance shall be evaluated as noted above.

B. If avoidance is not practicable, a mitigation plan shall be developed and approved by the CDFW for implementation of steps 1 through 3 below prior to site disturbance.

The mitigation plan shall include the following elements:

1. Prior to construction within the project area, a qualified botanist shall collect the seeds, propagules, and top soils, or other part of the plant that would ensure successful replanting of the population elsewhere. The seeds, propagules, or other plantable portion of all plants shall be collected at the appropriate time of the year.

2. At least 2/3 of the seeds, propagules, or other plantable portion of all plants shall be planted at the appropriate time of year (late-fall months). Half of the seeds and top soils collected shall be appropriately stored and propagated at a native plant nursery to ensure germination. This material will be planted at an approved and protected area during the appropriate season. Planting location, timing, collection methods etc… will be detailed in the mitigation plan required by Measure B above.

3. The applicant shall hire a qualified biologist to conduct annual monitoring surveys of the transplanted plant population for a five-year period and shall prepare annual monitoring reports reporting the success or failure of the transplanting efforts. These reports shall be submitted to the City no later than December 1st each monitoring year.

4. These steps shall be implemented prior to site disturbance.

A CNDDB form shall be filled out and submitted to CDFW for any special-status plant species identified within the project site.

In lieu of the above prescribed mitigation, as allowed in writing by the County, mitigation requirements may be satisfied via the purchase of qualified mitigation credits or the preservation of offsite habitat.

When implemented, these measures would reduce potentially significant adverse impacts on special-status plant species to a level considered less than significant.

Level of Significance After Mitigation: Less Than Significant

VI. REFERENCES

Anderson, D.W., C.J. Henny, C. Godinez-Reyes, F. Gress, E.L. Palacios, K. Santos del Prado, and J. Bredy. 2007. Size of the California brown pelican metapopulation during a non-El Niño year: Reston, Virginia, U.S. Geological Survey, Open-File Report 2007-1299. 35 pp.

California Department of Fish and Game (CDFG). 2002. California Department of Fish and Game Comments to NMFS regarding green sturgeon listing.

California Department of Fish and Wildlife (CDFW). 2021. Coast Yellow Leptosiphon https://wildlife.ca.gov/Conservation/Plants/Endangered/Leptosiphon-croceus [Accessed 12/14/21]

California Native Plant Society (CNPS). 2007. *Electronic Inventory of Rare and Endangered Plants of California.* Sacramento, California.

California Native Plant Society, Rare Plant Program (CNPS). 2021. Inventory of Rare and Endangered Plants of California (online edition, v9-01 1.0). Website: https://www.rareplants.cnps.org [Accessed 11/17/21].

California Native Plant Society (CNPS) Calscape. 2021. Online Inventory of Plants Native to California. https://calscape.org/ [Accessed on 12/15/21]

California Natural Diversity Database (CNDDB). 2021. RareFind 5, Version 5.2.14. California Department of Fish and Wildlife. Sacramento, CA.

Cornell Lab of Ornithology. 2019. Marbled Murrelet. All About Birds. Cornell Lab of Ornithology, Ithaca, New York. https://www.allaboutbirds.org/guide/Marbled_Murrelet/lifehistory [Accessed on 12/14/21]

Davies, T.D. 2004. Update COSEWIC status report on green sturgeon (Acipenser medirostris). Committee on the Status of Endangered Wildlife in Canada (COSEIC). CWS, Ottawa, ON, CA.

ESA. 2021. Surfer's Beach Pilot Restoration Project Preliminary Design Report.

EPIC. 2001. Environmental Protection Information Center, Center for Biological Diversity, and Waterkeepers Northern California. Petition to list the North American Green Sturgeon (Acipenser medirostris) as an endangered or threatened species under the Endangered Species Act.

Hallock, R. J., and D. H. Fry, Jr. 1967. Five species of salmon, Oncorhynchus, in the Sacramento River, California. California Fish and Game 53:5-22.

Hickman, James C. (ed.). 1993. The Jepson Manual. Berkeley, CA: University of California Press.

Jepson Flora Project (eds.), Jepson eFlora. 2021. https://ucjeps.berkeley.edu/eflora/ [Accessed on 12/15/21]

Leidy, R. A., USEPA. 2002. Unpublished stream survey data 1992-2002

Leidy, R. A. and Leidy, G. R. 1984. Life Stage Periodicities of Anadromous Salmonids in the Klamath River Basin, Northwestern California. U.S. Fish and Wildlife Service.

Marine Taxonomic Services, LTD. 2020. Pillar Point Harbor- Wide Eelgrass Management and Mitigation Plan.

Moyle, P. B. 2002. Inland Fishes of California. Berkeley: University of California Press 502 pp.

Moyle, P.B., Williams, J.E. and Wikramanayake, E.D. 1989. Fish species of special concern of California. Final report submitted to California Department of Fish and Game, Inland Fisheries Division. Rancho Cordova, California.

Moyle, P.B., Yoshiyama, R.M., Williams, J.E. and Wikramanayake, E.D. 1995. Fish Species of Special Concern in California. Second edition. Final report to CA Department of Fish and Game, contract 2128IF.

Moyle, P.B., Foley, P.J. and Yoshiyama, R.M. 1992. Status of green sturgeon, Acipenser medirostris, in California. Final report to National Marine Fisheries Service by University of California at Davis.

Moyle, P.B., Foley, P.J. and Yoshiyama, R.M. 1994. Status and Biology of the Green sturgeon, Acipenser medirostris. The Sturgeon Quarterly. 2(1):7.

National Oceanic and Atmospheric Administration (NOAA) Fisheries. 2021a. Black Abalone. NOAA Fisheries West Coast Region. https://www.fisheries.noaa.gov/species/black-abalone [Accessed on 12/13/21]

National Oceanic and Atmospheric Administration (NOAA) Fisheries. 2021b. Green Turtle. NOAA Fisheries West Coast Region. https://www.fisheries.noaa.gov/species/green-turtle [Accessed on 12/13/21]

National Oceanic and Atmospheric Administration (NOAA) Fisheries. 2021c. Leatherback Turtle. NOAA Fisheries West Coast Region. https://www.fisheries.noaa.gov/species/leatherback-turtle. [Accessed on 12/13/21]

National Oceanic and Atmospheric Administration (NOAA) Fisheries. 2021d. Loggerhead Turtle. NOAA Fisheries West Coast Region. https://www.fisheries.noaa.gov/species/loggerhead-turtle. [Accessed on 12/13/21]

National Oceanic and Atmospheric Administration (NOAA) Fisheries. 2020. Seagrass on the West Coast. NOAA Fisheries West Coast Region. https://www.fisheries.noaa.gov/west-coast/habitat-conservation/seagrass-west-coast [Accessed on 12/14/21]

Sheilds, M. 2002. *The Birds of North America*. Ithaca, NY: Cornell Lab of Ornithology.

Sibley, David Allen. 2001. *National Audubon Society, The Sibley Guide to Books*. New York; Alfred A. Knopf Inc.

Spahr, R., L. Armstrong, D. Atwood, and M. Rath. 1991. Threatened, Endangered, and Sensitive species of the Intermountain Region. Fisheries and Wildlife Management, Intermountain Region, U.S. Forest Service.

Tangley, L. 2009. Oil Spill Hammers Brown Pelicans. *National Wildlife*, 48/6: 12-14.

US Army Corps of Engineers. 2015. DRAFT Environmental Assessment and 404(b)(1) Analysis for the N. Half Moon Bay (Princeton) Pillar Point Harbor CAP §111 Feasibility Study.

U.S. Army Corps of Engineers (USACE). 2016. Continuing Authorities Program, Section 111 Detailed Project Report and Draft Environmental Assessment, North Half Moon Bay Shoreline Improvement Project, Pillar Point Harbor, CA.

U.S. Fish and Wildlife Service. 1983. California Brown Pelican Recovery Plan. Prepared by F. Gress and D.W. Anderson. U.S. Fish Wildl. Serv., Portland, OR.

U.S. Fish and Wildlife Service (USFWS). 2020. Marbled Murrelet. Arcata Fish and Wildlife Office, Arcata, California. https://www.fws.gov/arcata/es/birds/mm/m_murrelet.html [Accessed 12/14/21]

U.S. Fish and Wildlife Service IPaC - Information for Planning and Consultation. 2021. https://ecos.fws.gov/ipac/

U.S. Fish and Wildlife Service. 2001. Western Snowy Plover (*Charadrius alexandrinus nivosus*) Pacific Coast Population Draft Recovery Plan. Portland, Oregon. xix + 630 pp.

Wilken, D. H. 1993. *Silene*, in The Jepson manual: vascular plants of California, J. C. Hickman (ed.). University of California Press, Berkeley, CA.

APPENDIX A

List of Observed Wildlife

Wildlfe Observed On Site at Pillar Point/ Surfers Beach

	COMMON NAME	SCIENTIFIC NAME
BIRDS	Brown pelican (flying over site)	*Pelecanus occidentalis*
	California gull	*Larus occidentalis*
	Western gull	*Larus occidentalis*
	Western grebe	*Aechmophorus occidentalis*
	White crowned sparrow	*Zonotrichia leucophrys*
	Heerman's gull	*Larus heermanni*
	Savannah sparrow	*Passerculus sandwichensis*
	Surf scooter	*Melanitta perspicillata*
	Brewer's blackbird	*Euphagus cyanocephalus*
	American crow	*Corvus brachyrhynchos*
	Wesern sandpiper	*Calidris mauri*
	Black oystercatcher	*Haematopus bachmani*
MAMMALS	Dolphin	
	Harbor seal	*Phoca vitulina*
	mouse	
REPTILES	Santa Cruz garter snake	*Thamnophis altratus*

APPENDIX B

Special Status Species Lists

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: BIOS selection

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
American badger *Taxidea taxus*	AMAJF04010	None	None	G5	S3	SSC
arcuate bush-mallow *Malacothamnus arcuatus*	PDMAL0Q0E0	None	None	G2Q	S2	1B.2
Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060	None	None	G2	S2	1B.2
California red-legged frog *Rana draytonii*	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Choris' popcornflower *Plagiobothrys chorisianus var. chorisianus*	PDBOR0V061	None	None	G3T1Q	S1	1B.2
coast yellow leptosiphon *Leptosiphon croceus*	PDPLM09170	None	Endangered	G1	S1	1B.1
coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2	None	None	G2T2	S2	1B.2
fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0	None	None	G2	S2	1B.2
Franciscan thistle *Cirsium andrewsii*	PDAST2E050	None	None	G3	S3	1B.2
Hickman's cinquefoil *Potentilla hickmanii*	PDROS1B370	Endangered	Endangered	G1	S1	1B.1
island tube lichen *Hypogymnia schizidiata*	NLT0032640	None	None	G2G3	S2	1B.3
Kellogg's horkelia *Horkelia cuneata var. sericea*	PDROS0W043	None	None	G4T1?	S1?	1B.1
Kings Mountain manzanita *Arctostaphylos regismontana*	PDERI041C0	None	None	G2	S2	1B.2
marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3	S2	
monarch - California overwintering population *Danaus plexippus pop. 1*	IILEPP2012	Candidate	None	G4T2T3	S2S3	
Montara manzanita *Arctostaphylos montaraensis*	PDERI042W0	None	None	G1	S1	1B.2
Northern Coastal Salt Marsh *Northern Coastal Salt Marsh*	CTT52110CA	None	None	G3	S3.2	
Northern Maritime Chaparral *Northern Maritime Chaparral*	CTT37C10CA	None	None	G1	S1.2	
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
Oregon polemonium *Polemonium carneum*	PDPLM0E050	None	None	G3G4	S2	2B.2

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Ornduff's meadowfoam *Limnanthes douglasii ssp. ornduffii*	PDLIM02039	None	None	G4T1	S1	1B.1
perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5	None	None	G3T2	S2	1B.2
rose leptosiphon *Leptosiphon rosaceus*	PDPLM09180	None	None	G1	S1	1B.1
saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	ABPBX1201A	None	None	G5T3	S3	SSC
San Bruno elfin butterfly *Callophrys mossii bayensis*	IILEPE2202	Endangered	None	G4T1	S3	
San Francisco campion *Silene verecunda ssp. verecunda*	PDCAR0U213	None	None	G5T1	S1	1B.2
San Francisco collinsia *Collinsia multicolor*	PDSCR0H0B0	None	None	G2	S2	1B.2
San Francisco gartersnake *Thamnophis sirtalis tetrataenia*	ARADB3613B	Endangered	Endangered	G5T2Q	S2	FP
San Francisco gumplant *Grindelia hirsutula var. maritima*	PDAST470D3	None	None	G5T1Q	S1	3.2
San Francisco owl's-clover *Triphysaria floribunda*	PDSCR2T010	None	None	G2?	S2?	1B.2
Scouler's catchfly *Silene scouleri ssp. scouleri*	PDCAR0U1MC	None	None	G5T4T5	S2S3	2B.2
steelhead - central California coast DPS *Oncorhynchus mykiss irideus pop. 8*	AFCHA0209G	Threatened	None	G5T2T3Q	S2S3	
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
western leatherwood *Dirca occidentalis*	PDTHY03010	None	None	G2	S2	1B.2
western snowy plover *Charadrius nivosus nivosus*	ABNNB03031	Threatened	None	G3T3	S2	SSC
woodland woollythreads *Monolopia gracilens*	PDAST6G010	None	None	G3	S3	1B.2

Record Count: 36

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: November 15, 2021
Consultation Code: 08ESMF00-2022-SLI-0375
Event Code: 08ESMF00-2022-E-01139
Project Name: Pillar Point / Surfer's Beach

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to

utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2022-SLI-0375
Event Code: Some(08ESMF00-2022-E-01139)
Project Name: Pillar Point / Surfer's Beach
Project Type: SHORELINE / BEACH PROTECTION / RENOURISHMENT
Project Description: A coastal erosion project at Pillar Point Harbor, north of Half Moon Bay. This project involves dredging sand within the harbor which will be relocated to Surfer's Beach to restore a sandy beach and decrease erosion along the bluffs and Highway 1.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.50160645,-122.47754411350616,14z

Counties: San Mateo County, California

Endangered Species Act Species

There is a total of 16 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse *Reithrodontomys raviventris* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/613	Endangered
Southern Sea Otter *Enhydra lutris nereis* No critical habitat has been designated for this species. ***This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.*** Species profile: https://ecos.fws.gov/ecp/species/8560	Threatened

Birds

NAME	STATUS
California Clapper Rail *Rallus longirostris obsoletus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4240	Endangered
California Least Tern *Sterna antillarum browni* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Marbled Murrelet *Brachyramphus marmoratus* Population: U.S.A. (CA, OR, WA) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/4467	Threatened
Short-tailed Albatross *Phoebastria (=Diomedea) albatrus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/433	Endangered
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: East Pacific DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
San Francisco Garter Snake *Thamnophis sirtalis tetrataenia* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5956	Endangered

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened
Tidewater Goby *Eucyclogobius newberryi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Hickman's Potentilla *Potentilla hickmanii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6343	Endangered
San Mateo Woolly Sunflower *Eriophyllum latilobum* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7791	Endangered
White-rayed Pentachaeta *Pentachaeta bellidiflora* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7782	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Inventory of Rare and Endangered Plants of California

California Native Plant Society

Search Results

44 matches found. Click on scientific name for details

Search Criteria: County is one of [**SMT**], Quad is one of [**3712254:3712244**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK
Agrostis blasdalei	Blasdale's bent grass	Poaceae	perennial rhizomatous herb	May-Jul	None	None	G2	S2	1B.2
Allium peninsulare var. *franciscanum*	Franciscan onion	Alliaceae	perennial bulbiferous herb	(Apr)May-Jun	None	None	G5T2	S2	1B.2
Arabis blepharophylla	coast rockcress	Brassicaceae	perennial herb	Feb-May	None	None	G4	S4	4.3
Arctostaphylos montaraensis	Montara manzanita	Ericaceae	perennial evergreen shrub	Jan-Mar	None	None	G1	S1	1B.2
Arctostaphylos regismontana	Kings Mountain manzanita	Ericaceae	perennial evergreen shrub	Dec-Apr	None	None	G2	S2	1B.2
Astragalus nuttallii var. *nuttallii*	ocean bluff milk-vetch	Fabaceae	perennial herb	Jan-Nov	None	None	G4T4	S4	4.2
Astragalus pycnostachyus var. *pycnostachyus*	coastal marsh milk-vetch	Fabaceae	perennial herb	(Apr)Jun-Oct	None	None	G2T2	S2	1B.2
Castilleja ambigua var. *ambigua*	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	Mar-Aug	None	None	G4T4	S3S4	4.2
Centromadia parryi ssp. *parryi*	pappose tarplant	Asteraceae	annual herb	May-Nov	None	None	G3T2	S2	1B.2
Chorizanthe cuspidata var. *cuspidata*	San Francisco Bay spineflower	Polygonaceae	annual herb	Apr-Jul(Aug)	None	None	G2T1	S1	1B.2
Cirsium andrewsii	Franciscan thistle	Asteraceae	perennial herb	Mar-Jul	None	None	G3	S3	1B.2
Collinsia multicolor	San Francisco collinsia	Plantaginaceae	annual herb	(Feb)Mar-May	None	None	G2	S2	1B.2
Cypripedium fasciculatum	clustered lady's-slipper	Orchidaceae	perennial rhizomatous herb	Mar-Aug	None	None	G4	S4	4.2
Dirca occidentalis	western leatherwood	Thymelaeaceae	perennial deciduous shrub	Jan-Mar(Apr)	None	None	G2	S2	1B.2
Elymus californicus	California bottle-brush grass	Poaceae	perennial herb	May-Aug(Nov)	None	None	G4	S4	4.3
Eriophyllum latilobum	San Mateo woolly sunflower	Asteraceae	perennial herb	May-Jun	FE	CE	G1	S1	1B.1
Erysimum franciscanum	San Francisco wallflower	Brassicaceae	perennial herb	Mar-Jun	None	None	G3	S3	4.2
Fritillaria biflora var. *ineziana*	Hillsborough chocolate lily	Liliaceae	perennial bulbiferous herb	Mar-Apr	None	None	G3G4T1	S1	1B.1

Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	Feb-Apr	None	None	G2	S2	1B.2
Grindelia hirsutula var. *maritima*	San Francisco gumplant	Asteraceae	perennial herb	Jun-Sep	None	None	G5T1Q	S1	3.2
Horkelia cuneata var. *sericea*	Kellogg's horkelia	Rosaceae	perennial herb	Apr-Sep	None	None	G4T1?	S1?	1B.1
Horkelia marinensis	Point Reyes horkelia	Rosaceae	perennial herb	May-Sep	None	None	G2	S2	1B.2
Hosackia gracilis	harlequin lotus	Fabaceae	perennial rhizomatous herb	Mar-Jul	None	None	G3G4	S3	4.2
Hypogymnia schizidiata	island tube lichen	Parmeliaceae	foliose lichen		None	None	G2G3	S2	1B.3
Iris longipetala	coast iris	Iridaceae	perennial rhizomatous herb	Mar-May(Jun)	None	None	G3	S3	4.2
Lasthenia californica ssp. *macrantha*	perennial goldfields	Asteraceae	perennial herb	Jan-Nov	None	None	G3T2	S2	1B.2
Leptosiphon croceus	coast yellow leptosiphon	Polemoniaceae	annual herb	Apr-Jun	None	CE	G1	S1	1B.1
Leptosiphon latisectus	broad-lobed leptosiphon	Polemoniaceae	annual herb	Apr-Jun	None	None	G4	S4	4.3
Leptosiphon rosaceus	rose leptosiphon	Polemoniaceae	annual herb	Apr-Jul	None	None	G1	S1	1B.1
Lessingia arachnoidea	Crystal Springs lessingia	Asteraceae	annual herb	Jul-Oct	None	None	G2	S2	1B.2
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	Jun-Oct	None	None	G2G3	S2S3	3
Limnanthes douglasii ssp. *ornduffii*	Ornduff's meadowfoam	Limnanthaceae	annual herb	Nov-May	None	None	G4T1	S1	1B.1
Lupinus arboreus var. *eximius*	San Mateo tree lupine	Fabaceae	perennial evergreen shrub	Apr-Jul	None	None	G2Q	S2	3.2
Malacothamnus arcuatus	arcuate bush-mallow	Malvaceae	perennial deciduous shrub	Apr-Sep	None	None	G2Q	S2	1B.2
Monolopia gracilens	woodland woollythreads	Asteraceae	annual herb	(Feb)Mar-Jul	None	None	G3	S3	1B.2
Pentachaeta bellidiflora	white-rayed pentachaeta	Asteraceae	annual herb	Mar-May	FE	CE	G1	S1	1B.1
Plagiobothrys chorisianus var. *chorisianus*	Choris' popcornflower	Boraginaceae	annual herb	Mar-Jun	None	None	G3T1Q	S1	1B.2
Plagiobothrys chorisianus var. *hickmanii*	Hickman's popcornflower	Boraginaceae	annual herb	Apr-Jun	None	None	G3T3Q	S3	4.2
Polemonium carneum	Oregon polemonium	Polemoniaceae	perennial herb	Apr-Sep	None	None	G3G4	S2	2B.2
Potentilla hickmanii	Hickman's cinquefoil	Rosaceae	perennial herb	Apr-Aug	FE	CE	G1	S1	1B.1
Silene scouleri ssp.	Scouler's	Caryophyllaceae	perennial herb	(Mar-	None	None	G5T4T5	S2S3	2B.2

scouleri	catchfly			May)Jun-Aug(Sep)					
Silene verecunda ssp. *verecunda*	San Francisco campion	Caryophyllaceae	perennial herb	(Feb)Mar-Jul(Aug)	None	None	G5T1	S1	1B.2
Triphysaria floribunda	San Francisco owl's-clover	Orobanchaceae	annual herb	Apr-Jun	None	None	G2?	S2?	1B.2
Triquetrella californica	coastal triquetrella	Pottiaceae	moss		None	None	G2	S2	1B.2

Showing 1 to 44 of 44 entries

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APPENDIX C

Definitions for Special Status Species

DEFINITIONS FOR SPECIAL STATUS SPECIES DESIGNATIONS

Federal Endangered Species Act

The following are the standard definitions for the status designations under the federal Endangered Species Act (ESA), implementing regulations and relevant notices (as published in the Federal Register). The ESA is administered by the U.S. Fish and Wildlife Service (USFWS).

Endangered – A species that is in danger of extinction throughout all or a significant portion of its range.

Threatened – A species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Proposed for Listing – Taxa formally noticed as being under review to determine whether listing as threatened or endangered is warranted.

Candidate – Taxa for which USFWS has on file sufficient information on biological vulnerability and threat to support a proposed rule to list the species as endangered or threatened. Proposals to list have not yet been issued because this action is precluded by other listing activity. Species in this category are assigned a listing priority in order to assist the FWS in determining those species most in need of protection.

[Note: As of February 1996, the USFWS eliminated the differing categories of candidate species and now has only one category of candidate species as defined above.]

California Endangered Species Act

The following are the standard definitions for the status classifications under the California Endangered Species Act (CESA), administered by the California Department of Fish and Game (CDFG), now renamed the California Department of Fish and Wildlife (CDFW).

Endangered species – A native California bird, mammal, fish, amphibian, reptile or plant (species or subspecies) is endangered when it is in serious danger of becoming extinct throughout all, or a significant portion of, its range due to one or more causes, including loss of habitat, change of habitat, over-exploitation, predation, competition or disease (CDFW Code, Section 2062).

Threatened species – A native bird, mammal, fish, amphibian, reptile or plant (subspecies or species) is threatened when, although not presently threatened with extinction, it is likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts. Any animal listed as "rare" by the Commission on or before January 1, 1985, is a threatened species (CDFW Code, Section 2067).

Candidate species – A native California species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant is a candidate when the Fish and Wildlife Commission (Commission) has formally noticed it as being under review by the CDFW to determine whether listing as threatened or endangered is warranted, or when it is the subject of a proposed rulemaking by the Commission to list as threatened or endangered (CDFW Code, Section 2068).

California Department of Fish and Wildlife

Fully Protected – Fully Protected species may not be taken or possessed without a permit from the Fish and Wildlife Commission. Information of Fully Protected species can be found in the CDFW Code, (birds at §3511, mammals at §4700, reptiles and amphibians at §5050, and fish at §5515). Additional information on Fully Protected fish can be found in the California Code of Regulations, Title 14, Division 1, Subdivision 1, Chapter 2, Article 4, §5.93. The category of Protected Amphibians and reptiles in Title 14 has been repealed.

Species of Special Concern – A California species of special concern is a plant or animal species or subspecies that is possibly declining or is vulnerable to extirpation and may be considered for listing or for special management and protection measures. These species, although not legally protected under the CESA, are monitored by the CDFW.

It is the goal and responsibility of the CDFW to maintain viable populations of all native species. To this end, the CDFW has designated certain species as “Species of Special Concern” because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. The goal of designating species as “Species of Special Concern” is to halt or reverse their decline by calling attention to their plight and addressing the issues of concern early enough to secure their long term viability. Not all “Species of Special Concern” have declined equally; some species may be just starting to decline, while others may have already reached the point where they meet the criteria for listing as a “Threatened” or “Endangered” species under the State and/ or Federal Endangered Species Acts.

California Native Plant Protection Act

The California Native Plant Protection Act (CNPPA), administered by the CDFW, protects "rare" plant species.

Rare – A native California plant (species, subspecies or variety) is rare when, although not presently threatened with extinction, it is in such small numbers throughout its range that it may become endangered if its present environment worsens (CDFW Code, Section 1901).

California Native Plant Society (CNPS) List of Rare, Threatened and Endangered Vascular Plants of California

The CNPS maintains a list of rare, threatened and endangered vascular plants of California which summarizes the distribution, rarity, endangerment, and ecology of these plants. CNPS updates this list approximately every four years. The most recent edition (8th ed.) was published in December 2010. The CNPS listing designations are as follows:

California Rare Plant Rank (CRPR) 1A – The plants Ranked as 1A are presumed extinct because they have not been seen or collected in the wild in California for many years. All of the List 1A plants meet the definitions of "rare", "endangered", or "threatened" contained in Fish and Game Code Section 1901 (Native Plant Protection Act), and Sections 2062 and 2067 (CESA).

CRPR 1B – The plants Ranked as 1B are rare throughout their range, and all but a few are endemic to California. List 1B plants are considered vulnerable under present circumstances or have a high potential for becoming so because of their limited or vulnerable habitat, low numbers of individuals per population, or their limited number of populations. As with List 1A plants, all of the 1B plants meet the definitions of "rare", "endangered", or "threatened" contained in Sections 1901, 2062 and 2067 of the Fish and Game Code.

CRPR 2 – Except for being common outside California, Rank 2 plants are defined similarly to List 1B plants.

CRPR 3 – Rank 3 contains plants about which more information is needed to assign them to one of the other lists or reject them. Some List 3 plants meet the definitions of "rare", "endangered", or "threatened" contained in Sections 1901, 2062 and 2067 of the Fish and Game Code.

CRPR 4 – The plants in Rank 4 are of limited distribution or infrequent throughout a broader area in California, and their susceptibility to threat appears low at this time. These plants are uncommon enough that their status should be monitored regularly. Very few List 4 plants meet the definitions of "rare", "endangered", or "threatened" contained in Sections 1901, 2062 and 2067 of the Fish and Game Code, and few, if any, are eligible for state listing.

CNPS Threat Code extensions and their meanings:

.1 – Seriously endangered in California

.2 – Fairly endangered in California

.3 – Not very endangered in California

CNPS Local Listings (Alameda and Contra Costa Counties)

***A1** or ***A2** – Species in Alameda and Contra Costa Counties listed as rare, threatened or endangered statewide by federal or state agencies or by the state level of CNPS.

A1x – Species previously known from Alameda or Contra Costa Counties, but now presumed extirpated here.

A1 – Species currently known from two or less regions in Alameda and Contra Costa Counties.

A2 – Species currently known from three to five regions in the two counties, or, if more, meeting other important criteria such as small populations, stressed or declining populations, small geographical range, limited or threatened habitat, etc.

A1? – Species with taxonomic or distribution problems that make it unclear if they actually occur here.

Special Animals

California Department of Fish and Wildlife (CDFW)

Special Animals – Special animals is a general term that refers to all of the taxa that the California Natural Diversity Database (CNDDB) is interested in tracking, regardless of their legal or protection status. This list is also referred to as the list of "species at risk" or "special status species". The CDFW considers the taxa on this list to be those of greatest conservation need and were used in the development of California's Wildlife Action Plan (CDFG 2009). Special animals includes a broad list of agency designations.
For more information see: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/SPAnimals.pdf

Watch List – The Watch List consists of taxa that were previously Species of Special Concern (SSC's) but no longer merit SSC status or which do not meet SSC criteria but for which there is concern and a need for additional information to clarify status.

Other "Special Animal" Status Codes:

The status of species on the Special Animals List according to other conservation organizations is provided. Taxa on these lists are reviewed for inclusion in the CNDDB Special Animals List, but are not automatically included. For example, taxa that are regionally rare within a portion of California may not be included, because they may be of lesser conservation concern across their full range in California.

These species, which are also tracked regardless of their legal or protection status, are provided below.

U.S Fish and Wildlife Service (USFWS)

Birds of Conservation Concern – The goal of the Birds of Conservation Concern report is to accurately identify the migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent the US Fish and Wildlife Service's highest conservation priorities and draw attention to species in need of conservation action.

National Marine Fisheries Service (NMFS) also known as NOAA Fisheries

Species of Concern – NOAA Fisheries is responsible for the management, conservation, and protection of living marine resources within the United States Exclusive Economic Zone. Species of Concern are those species about which we have some concerns regarding status and threats, but for which insufficient information is available to indicate a need to list the species under the Endangered Species Act (ESA). Though NMFS wishes to draw proactive attention and conservation action to these species, "Species of concern" status does not carry any procedural or substantive protections under the ESA.

Bureau of Land Management

Sensitive – According to BLM Manual 6840, a Bureau Sensitive Species must meet the following criteria to be considered for sensitive species listing:

- They must be native species found on BLM-administrated lands for which BLM has the capability to significantly affect the conservation status of the species through management.
- Information is available that a species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range.

- The species depends on ecological refugia or specialized or unique habitats on BLM-administrated lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk.
- All federally designated candidate species, proposed species, and delisted species in the 5 years following their delisting shall be conserved as Bureau Sensitive Species.

Once a species is declared sensitive by the BLM, it is their obligation to determine its distribution and manage the species' habitat.

California Dept. of Forestry & Fire Protection

CDF Sensitive **–** California Department of Forestry and Fire Protection classifies "sensitive species" as those species that warrant special protection during timber operations. The list of "sensitive species" is given in §895.1 (Definitions) of the California Forest Practice Rules.

International Union for Conservation of Nature (IUCN)

IUCN List **–** The IUCN assesses, on a global scale, the conservation status of species, subspecies, varieties and even selected subpopulations in order to highlight taxa threatened with extinction, and therefore promote their conservation. Detailed information on the IUCN and the Red List is available at: http://www.iucnredlist.org

Marine Mammal Commission

Species of Special Concern **–** Section 202 of the Marine Mammal Protection Act directs the Marine Mammal Commission, in consultation with its Committee of Scientific Advisors, to make recommendations to the Department of Commerce, the Department of the Interior, and other federal agencies on research and management actions needed to conserve species of marine mammals. To meet this charge, the Commission devotes special attention to particular species and populations that are vulnerable to various types of human-related activities, impacts, and contaminants. Such species may include marine mammals listed as Endangered or Threatened under the Endangered Species Act or as depleted under the Marine Mammal Protection Act. In addition, the Commission often directs special attention to other species or populations of marine mammals not so listed whenever special conservation challenges arise that may affect them.

More information on the Marine Mammal Protection Act and the Marine Mammal Species of Special Concern list is available at: http://www.mmc.gov/species/welcome.shtml

U.S Forest Service

Sensitive – USDA Forest Service defines sensitive species as plant and animal species identified by a regional forester that are not listed or proposed for listing under the Federal Endangered Species Act for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or density, or significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution. Regional Foresters identify sensitive species occurring within each region. California is the Pacific Southwest Region (Region 5).
More information is available at: http://www.fs.usda.gov/main/r5/plants-animals and at:
http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5435266.xlsx

North American Bird Conservation Initiative (NABCI)

North American Bird Conservation Initiative Watchlist – The North American Bird Conservation Initiative is a coalition of private organization and government agencies. They work to ensure the long-term health of North America's native bird populations and publish an annual State of the Birds report. The annual State of the Bird report includes a watch list of bird species in need of conservation help and classifies the birds as either Red Watch List or Yellow Watch List species. Species on the Red Watch List have extremely high vulnerability, and Yellow Watch List species are species that may be range restricted or may be widespread but with declines and high threats. More information is available at http://stateofthebirds.org.

American Fisheries Society (AFS)

AFS List – Designations for freshwater and diadromous species were taken from the paper: Jelks,.L., S.J. Walsh, N.M. Burkhead, S.Contreras-Balderas, E. Díaz-Pardo, D.A. Hendrickson, J. Lyons, N.E. Mandrak, F. McCormick, J.S. Nelson, S.P. Platania, B.A. Porter, C.B. Renaud, J. J. Schmitter-Soto, E.B. Taylor, and M.L. Warren, Jr. 2008. Conservation status of imperiled North American freshwater and diadromous fishes. Fisheries 33(8):372-407. Available at:
http://www.fisheries.org/afs/docs/fisheries/fisheries_3308.pdf
Designations for marineand estuarine species were taken from the paper: Musick, J.T. et al. 2000. "Marine, Estuarine, and Diadromous Fish Stocks at Risk of Extinction in North America (Exclusive of Pacific Salmonids). Fisheries 25(11):6-30. Available at:
http://www.flmnh.ufl.edu/fish/sharks/sawfish/Reprint1390.pdf

Western Bat Working Group (WBWG)

WBWG List – The WBWG is comprised of agencies, organizations and individuals interested in bat research, management and conservation from the 13 western states and provinces. The goals are (1) to facilitate communication among interested parties and reduce risks of species decline or extinction; (2) to provide a mechanism by which current information on bat ecology, distribution and research techniques can be readily accessed; and (3) to develop a forum to discuss conservation strategies, provide technical assistance and encourage education programs. Species are ranked as High, Medium, or Low Priority in each of 10 regions in western North America. Because California includes multiple regions where a species may have different WBWG Priority ranks, the CNNDB includes categories for Medium-High, and Low-Medium Priority. The CNDDB tracks bat species that are at least Low-Medium Priority in California. More information is available at: http://www.wbwg.org

The Xerces Society

Red List – The Xerces Society is an international non-profit organization dedicated to protecting biological diversity through invertebrate conservation. The Society advocates for invertebrates and their habitatsby working with scientists, land managers, educators, and citizens on conservation and education projects. Their core programs focus on endangered species, native pollinators, and watershed health. More information on the Red List is available at:
http://www.xerces.org

Special Status Species Abbreviations

Federal Endangered Species Act

FE	Federally-listed as endangered
FT	Federally-listed as threatened
FPE	Federally proposed for listing as endangered or threatened
FC	Federal candidate for listing as endangered or threatened

State Endangered Species Act

SE	State-listed as endangered
ST	State-listed as threatened
SC	State candidate for listing as endangered or threatened

California Department of Fish and Wildlife

FP	Fully protected
SSC	California species of special concern
WL	Watch List

California Native Plant Protection Act

CNPPA: Rare	Rare plant

California Native Plant Society

CRPR	California Rare Plant Rank

SPECIAL ANIMALS (SA)

California Department of Fish and Wildlife

CDFW: WL Watch list

CDFW: SA Special Animal

US Fish and Wildlife Service

USFWS:BCC Birds of Conservation Concern

NMFS (NOAA Fisheries)

NMFS: SC Species of Concern

Bureau of Land Management

BLM:S Sensitive

California Dept. of Forestry & Fire Protection

CDFS:S Sensitive

International Union for Conservation of Nature

IUCN:CD Conservation Dependent

IUCN:CR Critically Endangered

IUCN:DD Data Deficient

IUCN:EN Endangered

IUCN:EW Extinct in the Wild

IUCN:EX Extinct

IUCN:LC Least Concern

IUCN:NE Not evaluated

IUCN:NT Near Threatened

IUCN:VU Vulnerable

Marine Mammal Commission

MMC:SSC Species of Special Concern

National Marine Fisheries Service

NMFS:SC Species of Special Concern

U.S Forest Service

USFS:S Sensitive

Western Bat Working Group

WBWG: H High priority

WBWG: LM low-medium priority

WBWG: M medium priority

WBWG: MH medium-high priority

Xerces Society Red List

X: CI Critically imperiled

X: DD Data deficient

X: IM Imperiled

X: VU Vulnerable

North American Bird Conservation Initiative

NABCI: RWL Red watch list

NABCI: YWL Yellow watch list

American Fisheries Society

AMS: EN Endangered

AMS: TH Threatened

AMS: VU Vulnerable