Appendix K

Biological Resources Supporting Information

- India Basin Open Space and 700 Innes Ave – Biological Resources Assessment
- India Basin Shoreline Park and 900 Innes Ave – Biological Resources Assessment

Biological Resources Assessment

INDIA BASIN OPEN SPACE AND 700 INNES AVENUE
CITY AND COUNTY OF SAN FRANCISCO, CALIFORNIA

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October 2015

Revised January 2017

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LIST OF ACRONYMS AND ABBREVIATIONS

BCDC	San Francisco Bay Conservation and Development Commission
CCR	California Code of Regulations
CCR	California clapper rail
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife (formerly CDFG)
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Corps	U.S. Army Corps of Engineers
EFH	Essential Fish Habitat
ESA	Federal Endangered Species Act
Inventory	CNPS Inventory of Rare and Endangered Plants
MBTA	Migratory Bird Treaty Act of 1918
MMPA	Marine Mammal Protection Act
NAVD	North American Vertical Datum
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OWHM	Ordinary High Water Mark
Rank	California Rare Plant Rank
RWQCB	Regional Water Quality Control Board
SFIA	San Francisco International Airport
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WRA	WRA, Inc.

EXECUTIVE SUMMARY

The purpose of this report is to provide an analysis of natural community and special-status species issues at the 51.63-acre Study Area which encompasses the India Basin Open Space and 700 Innes properties in the City and County of San Francisco, California.

On April 2 and 18, 2014, WRA, Inc. (WRA) conducted a biological resources assessment within the India Basin Open Space and 700 Innes Study Area. WRA observed 12 biological communities, 61 plant species and eight wildlife species. Six sensitive biological community types were identified: developed open water, open water, seasonal wetland, wetland swale, tidal marsh, and non-wetland waters. Three special-status wildlife species have a moderate potential to occur within the Study Area, and one non-special-status species fishery managed under California Department of Fish and Wildlife (CDFW) has potential to spawn within the Study Area. No special-status plant species have a moderate or high potential to occur within the Study Area.

In January of 2017, this report was updated to reflect new project information, updated Study Area boundaries, potential changes in special-status species listings, and to incorporate the results of other biological studies that have been conducted in the Study Area since the report was initially produced in 2014.

1.0 INTRODUCTION

On April 2 and 18, 2014, WRA, Inc. performed an assessment of biological resources (BRA) in the Study Area. The Study Area consists of 51.63 acres near the intersection of Innes Avenue and Arelious Walker Drive in San Francisco, California (Figure 1). The Study Area consists of disturbed, vacant lots, and is bounded on the north by India Basin (San Francisco Bay), by industrial and commercial development to the west, an undeveloped lot to the east, and Innes Avenue and residential development to the south. The Study Area is bisected by Arelious Walker Drive, which terminates at a cul-de-sac and public access to the San Francisco Bay Trail (Bay Trail), which extends along two sides of the property.

The purpose of the assessment was to gather information necessary to complete a review of biological resources under the California Environmental Quality Act (CEQA) for the Study Area. This report describes the results of the site visit, which assessed the Study Area for the: (1) potential to support special-status species; and (2) presence of other sensitive biological resources protected by local, state, and federal laws and regulations. If special-status species were observed during the site visit, they were recorded. Specific findings on the habitat suitability or presence of special-status species or sensitive habitats may require that protocol-level surveys be conducted. This report also contains an evaluation of potential impacts to special-status species and sensitive biological resources that may occur as a result of the proposed project and potential mitigation measures to compensate for those impacts.

A BRA provides general information on the potential presence of sensitive species and habitats. The BRA is not an official protocol-level survey for listed species that may be required for project approval by local, state, or federal agencies. This assessment is based on information available at the time of the study and on site conditions that were observed on the date of the site visit.

Figure 1. Study Area Location Map

India Basin
San Francisco County, California

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0 0.25 0.5 1
Miles

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Map Prepared Date: 11/30/2016
Map Prepared By: czumwalt
Base Source: Esri Streaming Imagery
Data Source(s): WRA, USGS

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2.0 REGULATORY BACKGROUND

The following sections explain the regulatory context of the biological resources assessment, including applicable laws and regulations that were applied to the field investigations and analysis of potential project impacts.

2.1 Special-Status Species

Special-status species include those plants and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA). These acts afford protection to both listed species and those that are formal candidates for listing. The federal Bald and Golden Eagle Protection Act also provides broad protections to both eagle species that are roughly analogous to those of listed species. Additionally, CDFW Species of Special Concern, CDFW California Fully Protected species, USFWS Birds of Conservation Concern, and CDFW Special-status Invertebrates are all considered special-status species. Although CDFW Species of Special Concern generally have no special legal status, they are given special consideration under the CEQA. Bat species are also evaluated for conservation status by the Western Bat Working Group (WBWG), a non-governmental entity; bats named as a "High Priority" or "Medium Priority" species for conservation by the WBWG are typically considered special-status and also considered under CEQA. In addition to regulations for special-status species, most birds in the United States, including non-status species, are protected by the Migratory Bird Treaty Act of 1918 (MBTA) and the California Fish and Game Code (CFGC), i.e., sections 3503, 3503.5 and 3513. Under these laws legislation, destroying active nests, eggs, and young is illegal. Although not all marine mammals are considered special-status species, all marine mammals are protected under the Marine Mammal Protection Act of 1972 as amended (MMPA), and unauthorized take including harassment is prohibited.

Plant species on the California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (Inventory) with California Rare Plant Ranks (Rank) of 1 and 2 are also considered special-status plant species and must be considered under CEQA. Rank 3 and Rank 4 species are afforded little or no protection under CEQA, but are included in this analysis for completeness. A description of the CNPS Ranks is provided below in Table 1.

Table 1. Description of CNPS Ranks and Threat Codes

California Rare Plant Ranks (formerly known as CNPS Lists)	
Rank 1A	Presumed extirpated in California and either rare or extinct elsewhere
Rank 1B	Rare, threatened, or endangered in California and elsewhere
Rank 2A	Presumed extirpated in California, but more common elsewhere
Rank 2B	Rare, threatened, or endangered in California, but more common elsewhere
Rank 3	Plants about which more information is needed - A review list
Rank 4	Plants of limited distribution - A watch list
Threat Ranks	
0.1	Seriously threatened in California
0.2	Moderately threatened in California
0.3	Not very threatened in California

Critical Habitat

Critical habitat is a term defined in the ESA as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The ESA requires federal agencies to consult with the USFWS to conserve listed species on their lands and to ensure that any activities or projects they fund, authorize, or carry out will not jeopardize the survival of a threatened or endangered species. In consultation for those species with critical habitat, federal agencies must also ensure that their activities or projects do not adversely modify critical habitat to the point that it will no longer aid in the species' recovery. In many cases, this level of protection is similar to that already provided to species by the ESA jeopardy standard. However, areas that are currently unoccupied by the species but which are needed for the species' recovery are protected by the prohibition against adverse modification of critical habitat.

2.2 Sensitive Biological Communities

Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, or riparian habitat. These habitats are protected under federal regulations such as the Clean Water Act (CWA); state regulations such as the Porter-Cologne Act, the CDFW Streambed Alteration Program, and CEQA; or local ordinances or policies such as city or county tree ordinances, Special Habitat Management Areas, and General Plan Elements.

Waters of the United States

The U.S. Army Corps of Engineers (Corps) regulates "Waters of the United States" under Section 404 of the CWA. Waters of the U.S. are defined in the Code of Federal Regulations (CFR) as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands as defined in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Areas that are inundated at a sufficient depth and for a sufficient duration to exclude growth of hydrophytic vegetation are subject to Section 404 jurisdiction as "other waters" and are often characterized by an ordinary high water mark (OHWM). Other waters, for example, generally include lakes, rivers, and streams. The placement of fill material into Waters of the U.S generally requires an individual or nationwide permit from the Corps under Section 404 of the CWA.

Waters of the State

The term "Waters of the State" is defined by the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." The Regional Water Quality Control Board (RWQCB) protects all waters in its regulatory scope and has special responsibility for wetlands, riparian areas, and headwaters. These waterbodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. RWQCB jurisdiction includes "isolated" wetlands and waters that may not be regulated by the Corps under Section 404. Waters of the State are regulated by the RWQCB under the State Water Quality Certification Program which regulates discharges of fill and dredged material under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. Projects that require a Corps permit, or fall under other federal jurisdiction, and have the potential to impact Waters of the State, are required to comply with the terms of the Water Quality Certification

determination. If a proposed project does not require a federal permit, but does involve dredge or fill activities that may result in a discharge to Waters of the State, the RWQCB has the option to regulate the dredge and fill activities under its state authority in the form of Waste Discharge Requirements.

Streams, Lakes, and Riparian Habitat

Streams and lakes, as habitat for fish and wildlife species, are subject to jurisdiction by CDFW under Sections 1600-1616 of California Fish and Game Code. Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term "stream", which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life [including] watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (14 CCR 1.72). In addition, the term "stream" can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG 1994). "Riparian" is defined as "on, or pertaining to, the banks of a stream." Riparian vegetation is defined as "vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself" (CDFG 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

San Francisco Bay and Shoreline

The San Francisco Bay Conservation and Development Commission (BCDC) has regulatory jurisdiction, as defined by the McAteer-Petris Act, over the Bay and its shoreline, which generally consists of the area between the shoreline and a line 100 feet landward of and parallel to the shoreline. Within the Study Area, BCDC has two areas of jurisdiction: San Francisco Bay and the Shoreline Band. Definitions of these areas, as described in the McAteer-Petris Act (PRC Section 66610), are given below. The Study Area is also located within an area designated in BCDC's San Francisco Bay Plan as a Waterfront Park.

> **San Francisco Bay:** all areas that are subject to tidal action from the south end of the Bay to the Golden Gate (Point Bonita-Point Lobos) and to the Sacramento River line (a line between Stake Point and Simmons Point, extending northeasterly to the mouth of Marshall Cut), including all sloughs, and specifically, the marshlands lying between mean high tide and five feet above mean sea level; tidelands (land lying between mean high tide and mean low tide); and submerged lands (land lying below mean low tide).
>
> **Shoreline Band:** all territory located between the shoreline of San Francisco Bay as defined above and a line 100 feet landward of and parallel with that line, but excluding any portions of such territory which are included in other areas of BCDC jurisdiction, provided that the Commission may, by resolution, exclude from its area of jurisdiction any area within the shoreline band that it finds and declares is of no regional importance to the Bay.

Essential Fish Habitat

Essential Fish Habitat (EFH) is regulated through the National Marine Fisheries Service (NMFS), a division of the National Oceanic and Atmospheric Administration (NOAA). Protection

of EFH is mandated through changes implemented in 1996 to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) to protect the loss of habitat necessary to maintain sustainable fisheries in the United States. The Magnuson-Stevens Act defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" [16 USC 1802(10)]. NMFS further defines EFH as areas that "contain habitat essential to the long-term survival and health of our nation's fisheries" (NMFS 2016). Essential Fish Habitat can include the water column, certain bottom types such as sandy or rocky bottoms, vegetation such as eelgrass or kelp, or structurally complex coral or oyster reefs. Under regulatory guidelines issued by NMFS, any federal agency that authorizes, funds, or undertakes action that may affect EFH is required to consult with NMFS (50 CFR 600.920).

Other Sensitive Biological Communities

Other sensitive biological communities not discussed above include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in its California Natural Diversity Database (CNDDB; CDFW 2016). Sensitive plant communities are also identified by CDFW (CDFG 2003, 2007, 2009). CNDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2010) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or USFWS must be considered and evaluated under CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G). Specific habitats may also be identified as sensitive in city or county general plans or ordinances.

3.0 METHODS

On April 2, 2014, the Study Area was traversed on foot to determine: (1) plant communities present within the Study Area; (2) if existing conditions provided suitable habitat for any special-status plant or wildlife species; and (3) if sensitive habitats are present. A subsequent site visit was conducted on April 18, 2014. All plant and wildlife species encountered were recorded, and are summarized in Appendix A. Plant nomenclature follows Baldwin et al. (2012) and subsequent revisions by the Jepson Flora Project (2014), except where noted. Because of recent changes in classification for many of the taxa treated by Baldwin et al. and the Jepson Flora Project, relevant synonyms are provided in brackets. For cases in which regulatory agencies, CNPS, or other entities base rarity on older taxonomic treatments, precedence was given to the treatment used by those entities.

3.1 Biological Communities

Prior to the site visit, the Soil Survey of San Francisco County, California [Web Soil Survey 2014), aerial photographs (Google Earth 2014) and USGS 7.5 minute quadrangles for Hunter's Point (USGS 1947-2012) were examined to determine if any unique soil types that could support sensitive plant communities and/or aquatic features were present in the Study Area. Biological communities present in the Study Area were classified based on existing plant community descriptions described in the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). However, in some cases it is necessary to identify variants of community types or to describe non-vegetated areas that are not described in the

literature. Biological communities were classified as sensitive or non-sensitive as defined by CEQA and other applicable laws and regulations.

3.1.1 Non-sensitive Biological Communities

Non-sensitive biological communities are those communities that are not afforded special protection under CEQA, and other state, federal, and local laws, regulations and ordinances. These communities may, however, provide suitable habitat for some special-status plant or wildlife species and are identified or described in Section 4.1.1 below.

3.1.2 Sensitive Biological Communities

Sensitive biological communities are defined as those communities that are given special protection under CEQA and other applicable federal, state, and local laws, regulations and ordinances. Applicable laws and ordinances are discussed above in Section 2.0. Special methods used to identify sensitive biological communities are discussed below.

Wetlands and Waters

A jurisdictional delineation was conducted to determine if any wetlands and waters potentially subject to jurisdiction by the Corps and RWQCB were present. The assessment was based primarily on the presence of wetland plant indicators, but may also include any observed indicators of wetland hydrology or wetland soils. Any potential wetland areas were identified as areas dominated by plant species with a wetland indicator status[1] of OBL, FACW, or FAC as given on the U.S. Army Corps of Engineers National Wetlands Plant List (Lichvar et al. 2016). Evidence of wetland hydrology can include direct evidence (primary indicators), such as visible inundation or saturation, algal mats, and oxidized root channels, or indirect (secondary) indicators, such as a water table within two feet of the soil surface during the dry season. Some indicators of wetland soils include dark colored soils, soils with a sulfidic odor, and soils that contain redoximorphic features as defined by the Corps Manual (Environmental Laboratory 1987) and Field Indicators of Hydric Soils in the United States (NRCS 2010).

The elevation of the HTL was determined based on a combination of field observations and data reported by the National Oceanic Administration (NOAA) for San Francisco Pier 22 ½ (Station ID #9414317), correlated to correspond with North American Vertical Datum (NAVD) 1988. The elevation of the HTL was determined to be approximately 7.63 feet NAVD88. The elevation of the MHW was determined to be approximately 5.62 feet NAVD88 based on data reported by NOAA for San Francisco Pier Station 22 ½.

Other Sensitive Biological Communities

The Study Area was evaluated for the presence of other sensitive biological communities, including riparian areas and sensitive plant communities recognized by CDFW. Prior to the site visit, aerial photographs, local soil maps, the *List of Vegetation Alliances* (CDFG 2009), and *A Manual of California Vegetation* (Sawyer et al. 2009) were reviewed to assess the potential for

[1] OBL = Obligate, always found in wetlands (> 99% frequency of occurrence); FACW = Facultative wetland, usually found in wetlands (67-99% frequency of occurrence); FAC = Facultative, equal occurrence in wetland or non-wetlands (34-66% frequency of occurrence).

sensitive biological communities to occur in the Study Area. All alliances within the Study Area with a ranking of 1 through 3 were considered sensitive biological communities and mapped. These communities are described in Section 4.1.2 below.

3.2 Special-Status Species

3.2.1 Literature Review

Potential occurrence of special-status species in the Study Area was evaluated by first determining which special-status species occur in the vicinity of the Study Area through a literature and database search. Database searches for known occurrences of special-status species focused on the Hunter's Point 7.5 minute USGS quadrangle and the two surrounding USGS quadrangles. The following sources were reviewed to determine which special-status plant and wildlife species have been documented to occur in the vicinity of the Study Area:

- California Natural Diversity Database (CNDDB) records (CDFW 2016)
- USFWS IPaC Resource List (USFWS 2016)
- NMFS quadrangle EFH and species list (NMFS 2016)
- CNPS Inventory records (CNPS 2016)
- CDFG publication "California's Wildlife, Volumes I-III" (Zeiner et al. 1990)
- CDFW and University of California Press publication *California Amphibian and Reptile Species of Special Concern* (Thomson et al. 2016)
- A Field Guide to Western Reptiles and Amphibians (Stebbins 2003)
- California Bird Species of Special Concern (Shuford and Gardali 2008)
- University of California at Davis Information Center for the Environment Distribution Maps for Fishes in California (2016)
- San Francisco Pacific Herring Spawn Potential Map (WRA 2016)

3.2.2 Site Assessment

A site visit was made to the Study Area to search for suitable habitats for special-status species. Habitat conditions observed at the Study Area were used to evaluate the potential for presence of special-status species based on these searches and the professional expertise of the investigating biologists. The potential for each special-status species to occur in the Study Area was then evaluated according to the following criteria:

- No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- Present. Species is observed on the site or has been recorded (i.e. CNDDB, other reports) on the site recently.

The site assessment is intended to identify the presence or absence of suitable habitat for each special-status species known to occur in the vicinity in order to determine its potential to occur in the Study Area. The site visit does not constitute a protocol-level survey and is not intended to determine the actual presence or absence of a species; however, if a special-status species is observed during the site visit, its presence will be recorded and discussed.

In cases where little information is known about species occurrences and habitat requirements, the species evaluation was based on best professional judgment of WRA biologists with experience working with the species and habitats. If necessary, recognized experts in individual species biology were contacted to obtain the most up to date information regarding species biology and ecology. If a special-status species was observed during the site visit, its presence is recorded and discussed below in Section 4.2. For some species, a site assessment visit at the level conducted for this report may not be sufficient to determine presence or absence of a species to the specifications of regulatory agencies. In these cases, a species may be assumed to be present or further protocol-level special-status species surveys may be necessary. Special-status species for which further protocol-level surveys may be necessary are described below in Section 5.0.

4.0 RESULTS

The Study Area consists of 51.63 acres of infill land and open water within India Basin (San Francisco Bay). The Study Area includes the properties at India Basin Open Space and 700 Innes Avenue. Currently, the site is bordered by commercial uses and residences on Innes Avenue to the south, undeveloped land and the Hunter's Point Shipyard to the east (formerly the U.S. Naval Reservation), and 900 Innes and the India Basin Shoreline Park to the northwest. The San Francisco Bay Trail (Bay Trail) extends on two sides of the property, wrapping around the shoreline. Elevations range from approximately 0 to 40 feet NAVD88. Through the 1940s, the site was open Bay water and was used for recreational and commercial boat access. By 1956, the Study Area was partially infilled and was subsequently surrounded by a mix of commercial, industrial, and residential developments. The site appears to have remained largely vacant and used for stockpiling soils and other construction purposes.

As part of the approval of the San Francisco International Airport (SFIA) Master Plan in 1999, the RWQCB required SFIA to mitigate for a total of 31.21 acres of jurisdictional wetlands and open waters (RWQCB Order No. 99-037). As part of this mitigation effort, 2.8 acres of wetlands were to be created along the Bay-side edges of the India Basin Open Space area. In 2009, Order Number R2-2009-0019 was issued by the RWQCB which documented an approximately 0.3-acre shortfall in the wetland mitigation creation. As such, approximately 2.1-acres of created tidal marsh and 0.4-acre of enhanced tidal marsh (totaling 2.5-acres) were documented as meeting the specified performance standards at the India Basin Open Space area. This area is currently a mix of vegetated tidal marsh, bare ground, areas of elevated sand, and some concrete debris.

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Potential Jurisdictional Feature	IBOS Acres	700 Innes Acres	Total
Bare	0.53	0.00	0.53
Beach	0.11	0.00	0.11
Concrete Debris/Upland	0.18	0.00	0.18
Developed	0.47	5.39	5.86
Developed Open Water	0.01	0.03	0.04
Disturbed Infill	0.23	14.72	14.95
Maintained Landscaping	2.33	0.74	3.07
Mixed Landscaping	0.00	0.58	0.58
Native Coastal Scrub	0.21	0.33	0.54
Open Waters	22.59	0.39	22.98
Sand	0.55	0.00	0.55
Seasonal Wetland	0.00	0.26	0.26
Swale	0.00	0.04	0.04
Tidal Marsh	1.91	0.02	1.93
Waters	0.00	0.01	0.01

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India Basin Open Space and 700 Innes, San Francisco County, California

Figure 2.
Biological Communities

N
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Feet

Map Prepared Date: 12/30/2016
Map Prepared By: czumwalt
Base Source: Esri Streaming Imagery
Data Source(s): WRA, USGS, NOAA

Path: L:\Acad 2000 Files\24000\24080\GIS\ArcMap\Update Biocomms and Delineation 2016\IBOS and 700 Innes\BioComms IBOS 700 Innes.mxd

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4.1 Biological Communities

Six non-sensitive biological communities were observed within the Study Area: disturbed infill (including areas of concrete debris), developed land, maintained landscaping, mixed landscaping, native coastal scrub, and sand. Six sensitive biological communities are found in the Study Area: developed open water, open waters, seasonal wetland, wetland swale, tidal marsh (including areas of bare ground and beach), and non-wetland waters. Descriptions for each biological community are contained in the following sections. Biological communities within the Study Area are shown in Figure 2. Table 3 provides a breakdown of acreage for each community in the overall Study Area and at the India Basin Open Space and 700 Innes properties.

Table 2. Summary of Biological Communities in the Study Area

Community Type	India Basin Open Space Study Area (acres)	700 Innes Avenue Study Area (acres)	Overall Study Area (acres)
Bare ground*	0.53	--	0.53
Beach*	0.11	--	0.11
Concrete debris**	0.18	--	0.18
Developed Land	0.47	5.39	5.86
Developed Open Water	0.01	0.03	0.04
Disturbed Infill	0.23	14.72	14.95
Maintained Landscaping	2.33	0.74	3.07
Mixed Landscaping	--	0.58	0.58
Native Coastal Scrub	0.21	0.33	0.54
Non-wetland Waters	--	0.01	0.01
Open Water	22.59	0.39	22.98
Sand	0.55	--	0.55
Seasonal Wetland	--	0.26	0.26
Tidal Marsh	1.91	0.02	1.93
Wetland Swale	--	0.04	0.04
Total	**29.12**	**22.51**	**51.63**

* Description of bare ground and beach included in description of tidal marsh (Section 4.1.1)
** Description of concrete debris is included in description of disturbed infill (Section 4.1.1)

4.1.1 Non-Sensitive Biological Communities

Developed Land

Developed land within the Study Area consisted of paved areas along Arelious Walker Drive and the Bay Trail, developed properties adjacent to Innes Avenue, and a solid concrete pad located in the northwest region of the Study Area. There are approximately 5.86 acres of developed land within the Study Area. No wildlife was observed in this community during the site visit.

Disturbed Infill

Disturbed infill within the Study Area consisted primarily of bare, compacted, disturbed soils and scattered ruderal, non-native grass and herbaceous species. The dominant vegetation in disturbed infill included wild oats (*Avena* sp., NL), ripgut brome (*Bromus diandrus*, NL), cut leaf plantain (*Plantago coronopus*, FAC), foxtail chess (*Bromus madritensis*, UPL), soft chess (*Bromus hordeaceus*, FACU), and sea fig (*Carpobrotus chilensis*, FACU). Approximately 14.95 acres of disturbed infill is present in the Study Area. Wildlife observed in this community includes Canada goose (*Branta canadensis*). An additional 0.18-acre of rock and concrete debris and infill soils are located near the shoreline on the northwestern portion of the Study Area. While not considered a sensitive biological community for the purpose of this assessment, the portion of rock and concrete debris that falls below the elevation of the HTL is potentially subject to the jurisdiction of the Corps and RWQCB as a Waters of the U.S.

Maintained Landscaping

Maintained landscaping is located along Arelious Walker Drive, an existing utility station, and the Bay Trail. Vegetation within these areas consists predominantly of mixed native and non-native trees and shrubs including toyon (*Heteromeles arbutifolia*, NL), sticky monkey flower (*Mimulus aurantiacus* var. *aurantiacus*, FACU), common yarrow (*Achillea millefolium*, FACU), French broom (*Genista monspessulana*, NL), Fremont cottonwood (*Populus fremontii* ssp. *fremontii*, FAC), and coast live oak (*Quercus agrifolia*, NL). Approximately 3.07 acres of maintained landscaping is present in the Study Area. Wildlife observed in this biological community includes Western tiger swallowtail (*Papilio rutulus*), American crow (*Corvus brachyrhynchos*), Anna's hummingbird (*Calypte anna)*, and Northern mockingbird (*Mimus polyglottos*).

Mixed Landscaping

Mixed landscaping is located in the southwest corner of the Study Area, adjacent to existing residential and commercial uses. Vegetation consists of toyon, French broom, narrowleaf firethorn (*Pyracantha angustifolia*, NL), and coyote brush (*Baccharis pilularis*, NL). Approximately 0.58 acre of mixed landscaping is present in the Study Area. Wildlife observed in this community includes red-winged blackbird (*Agelaius phoeniceus*) and mockingbird.

Native Coastal Scrub

Native coastal scrub is located on deposited sand adjacent to the Bay Trail within the northeastern portion of the Study Area. This is not a remnant coastal scrub community as the site was previously open water. The native coastal scrub onsite appears to have established subsequent to the deposition of a large quantity of sandy fill material some time before 2000 based on an analysis of aerial photographs (Google Earth 2014). Vegetation consists predominantly of yellow bush lupine (*Lupinus arboreus*, NL), silver bush lupine (*Lupinus albifrons* var. *albifrons*, NL), and telegraph weed (*Heterotheca grandiflora*, NL) on the sand feature, with arroyo willow (*Salix lasiolepsis*, FACW) and California buckeye (*Aesculus californicus*, NL) at the base of the sand feature. Approximately 0.54 acre of native coastal scrub is present in the Study Area. No wildlife species were observed in this portion of the Study Area, although several small burrows were observed.

Sand

Approximately 0.55 acre of sand is located in the northern portion of the Study Area, adjacent to tidal marsh habitat. Although not described in the literature, the sand community on-site is resultant from sand deposition and subsequent enhancement as part of the SFIA Mitigation Project. Located at a higher elevation than the tidal marsh, the sand is dominated by non-native species, including sea rocket (*Cakile* sp.). While not considered a sensitive biological community for the purpose of this assessment, the portion of areas mapped as sand that fall below the elevation of the HTL is potentially subject to the jurisdiction of the Corps and RWQCB as a Waters of the U.S.

4.1.2 Sensitive Biological Communities

Developed Open Water

Developed open water within the Study Area consisted of a pile supported pier near the terminus of Hudson Avenue and the Bay Trail. No vegetation is present in this area. There is approximately 0.04 acre of developed open water within the Study Area. No wildlife was observed in this community during the site visit.

Open Water

Open water within the Study Area is part of India Basin (San Francisco Bay) and forms the north and west boundaries of the Study Area. There are approximately 22.98 acres of open water within the Study Area.

A survey was conducted in the summer of 2016 to map the potential presence of eelgrass (*Zostera marina*) within areas mapped as open waters within the India Basin embayment (WRA 2016b). A side-scan sonar survey was conducted by boat on July 27, 2016 and a subsequent land-based survey was conducted on August 2, 2016. Both surveys were conducted within the active eelgrass growing season, which in the San Francisco Bay is generally April through October. Eelgrass was not observed within the Study Area during these surveys. A majority of the shoreline and shallow water areas was observed as containing rock debris covered with several macro algae species.

Previous Bay-wide eelgrass surveys have shown an eelgrass bed occurring offshore in the southern region of the India Basin Open Space property (Merkel and Associates 2003); however, this eelgrass bed did not appear in the most recent Bay-wide surveys (Merkel and Associates 2010 and 2015). The distribution and cover by eelgrass can fluctuate significantly in the San Francisco Bay from year to year. The absence of eelgrass in one year does not preclude the potential for eelgrass to appear in future years. There is also a level of inherent uncertainty in eelgrass survey techniques. Given that eelgrass has not been documented in India Basin since 2003, the likelihood of future eelgrass occurrences is low unless bathymetric or other physical changes occur within the embayment.

Seasonal Wetland and Seasonal Wetland Swale

Seasonal wetlands and seasonal wetland swales comprise 0.30 acre. Seasonal wetland plant communities are not described in Holland (1986), but occur in swales and depressions that are ponded during the rainy season for sufficient duration to support vegetation adapted to wetland conditions. Seasonal wetlands in California are highly variable in plant composition, depending

on the length of ponding or inundation. They also generally lack the plant community assemblage typical of defined marshes and vernal pools. Seasonal wetlands in the Study Area consist of depressions resultant from past construction and earth moving activities; these areas lack the species assemblage of vernal pools. Typical plant species observed in seasonal wetlands in the Study Area include cut leaf plantain, water starwort (*Callitriche heterophylla* var. *heterophylla*, OBL), curly dock (*Rumex crispus*, FAC), and salt grass (*Distichlis spicata*, FAC). Approximately 0.26 acre of seasonal wetland habitat and 0.04 acre of seasonal wetland swale are present in the Study Area. A great blue heron (*Ardea herodias*) was observed in one of the ponded seasonal wetlands during the site visit.

Tidal Marsh and Mudflats

Tidal marsh and mudflats are located in a band along the west and north portions of the Study Area, bounded by rip-rap on the landward side and open water on the Bay-ward side. This is not a remnant tidal marsh community as the site was previously open water. The tidal marsh habitat onsite appears to have established subsequent to the deposition of a large quantity of sandy fill material some time before 1993 based on an analysis of aerial photographs (Google Earth 2014) and was modified in the early 2000s as part of the SFIA Mitigation Project. Referred to as northern coastal salt marsh in Holland (1986), this community is highly productive and comprised of herbaceous hydrophytes. Typically found along sheltered inland margins of bays and estuaries, this marsh is subject to regular tidal inundation by salt water for at least part of the year. Within the Study Area, tidal marsh vegetation was dominated by red brome (*Festuca rubra,* FAC), alkali sea heath (*Frankenia salina*, FACW), jaumea (*Jaumea carnosa*, OBL), sea rocket, and pickleweed (*Salicornia pacifica*, OBL). Approximately 1.93 acres of tidal marsh habitat is located within the Study Area. In addition, approximately 0.53 acre of bare soil and 0.11 acre of beach are interspersed throughout tidal marsh habitat. Substrates in this community were composed of fine sandy sediments but also contained large quantities of mixed fill including brick, concrete, and other debris. No wildlife species were observed in this portion of the Study Area.

Waters

Approximately 0.01 acre of unvegetated waters was observed within the Study Area: a linear drainage ditch which runs perpendicular to Arelious Walker Drive. Water was present in the ditch at the time of the field visit and appears to be indirectly (via surface and/or subsurface flows) connected to the San Francisco Bay. No wildlife species were observed in the unvegetated waters within the Study Area during the site visit.

4.2 Special-Status Species

4.2.1 Plants

Based upon a review of the resources and databases given in Section 3.2.1, 60 special-status plant species have been documented in the vicinity of the Study Area. Appendix B summarizes the potential for occurrence for each of these 60 special-status plant species. The Study Area was determined to have no potential or unlikely to support any of the special-status plant species documented in the vicinity primarily due to a lack of suitable habitat. For instance, the Study Area does not support serpentine soils, coniferous forest, or valley and foothill grassland. Special-status species documented in the vicinity of the Study Area with potential to occur in tidal marsh habitats were determined unlikely to occur within the Study Area due to relatively low-quality habitat and disturbed fill soils found within the Study Area.

WRA conducted a survey of the Study Area for the federally endangered California seablite (*Suaeda californica*) on May 24, 2016. There are previously documented occurrences of this perennial shrub on the India Basin Open Space property, as well as at Heron's Head Park to the north (CDFW 2016). This species is typically found at the transition between coastal salt marsh and upland communities. It blooms between July and October, but is readily identifiable outside of its blooming period. The targeted plant survey was conducted during a low tide event and focused on areas supporting wetland vegetation and transitional areas. No California seablite were found on the India Basin Open Space or 700 Innes properties during the initial site visits in April of 2014 or during the targeted plant survey on May 24, 2016.

4.2.2 Wildlife

Thirty-six special-status wildlife species have been recorded in the vicinity of the Study Area. Appendix B summarizes the potential for each of these species to occur in the Study Area. Of these 36 species, none have potential to nest, spawn, or breed within the Study Area. However, three fish species have potential to be present: green sturgeon (*Acipenser medirostris*), steelhead (Central California Coast ESU; *Oncorhynchus mykiss irideus*), and longfin smelt (*Spirinchus thaleichtys*). Both open water and developed open water habitats within the Study Area are also EFH and designated critical habitat for green sturgeon and Central California Coast steelhead. No special-status wildlife species were observed in the Study Area during the site assessment. In addition, one fishery, Pacific herring (*Clupea pallasii*), a non-special-status fish managed by CDFW has potential to spawn within the developed open water habitats (under the pile-supported pier). Although no special-status fish species have potential to spawn in the Study Area, the Study Area may be used for foraging, cover, migration, and rearing. All of the wildlife observed in the Study Area are commonly found species, and many are adapted to occupying disturbed or urban areas.

Habitat suitability for salt marsh-associated species in the Study Area is low due to the marginal quality of tidal marsh habitat onsite which established subsequent to the site being filled in the 1940s. The existing marsh habitat is fragmented from other salt marsh habitats, and the salt marsh vegetation present is not extensive, dense, or tall enough to provide suitable cover for listed species such as the salt marsh harvest mouse (*Reithrodontomys raviventris*), California black rail (*Laterallus jamaicensis),* or California Ridgway's [clapper] rail (*Rallus obsoletus obsoletus*). The lack of suitable cover renders the site unsuitable for salt marsh harvest mouse and black rail foraging and breeding. Further, California black rail is rarely seen south of the Richmond-San Rafael Bridge and is not known to nest in this area (Evens et al. 1991, and Saputz et al. 2005).

The Study Area is also unsuitable for the federal-listed Callippe silverspot butterfly (*Speyeria callippe callippe*) and Bay checkerspot butterfly (*Euphydryas editha bayensis*) because the site does not support the host plants that these species depend on. Host plants for Bay checkerspot include foothill plantain (*Plantago erecta*; blooms March and April), denseflower Indian paintbrush (*Castilleja densiflora*; blooms March - May) and exserted Indian paintbrush (*C. exserta*; blooms March - June), and the host plant for Callippe silverspot is Johnny jump up (*Viola pedunculata*; blooms February - April). The site visit was conducted during the blooming period for all of these species, and none were observed. Therefore, the Bay checkerspot and Callippe silverspot butterflies are unlikely to occur within the Study Area. One host plant for the federal-endangered Mission blue butterfly (*Icaricia icaroides missionensis*), was observed in the Native Coastal Scrub community within the Study Area. However, the species is unlikely to

occur within the Study Area based upon isolation and low elevation of the Study Area. This species is discussed further in the following section.

The Study Area contains no suitable aquatic habitat for special-status amphibians or reptiles, and there are no suitable trees or structures to support roosting bats. No burrows large enough to support Western burrowing owl (*Athene cunicularia*) or American badger (*Taxidea taxus*) were observed within the Study Area, and the prevalence of fill and/or compacted soils in the vicinity likely deters large fossorial species. In addition, the Study Area and vicinity are not known haul out areas for marine mammals and the shoreline, tidal marsh, and developed open water habitats do not provide typical characteristics for haul out locations. Species with potential to occur are discussed further below. Although unlikely to occur within the Study Area, two federally listed species and one non-special-status fishery species are known in the vicinity of the Study Area. These species are discussed in more detail in the following section.

Green sturgeon (*Acipenser medirostris*); Federal Threatened. The southernmost spawning population of green sturgeon is in the Sacramento River, with the principal spawning area located in the lower Feather River (Moyle 2002). Spawning populations of green sturgeon in the San Joaquin River are presumed to have been lost in the past 25-30 years. Green sturgeon are primarily marine species, entering into fresh water rivers mainly to spawn, although early life stages may reside in fresh water for up to two years (Moyle 2002). Adults typically migrate into fresh water from late February through late July. The spawning period occurs from March to July, with peak spawning occurring from mid-April to mid-June (Emmett et al. 1991). Green sturgeon prefer deep pools in large, turbulent, freshwater river mainstreams to spawn (Moyle et al. 1992). Juvenile green sturgeon emigrate out to sea primarily during the summer and fall before the end of their second year (Emmett et al. 1991). The Study Area does not contain spawning habitat and is out of the spawning range of green sturgeon; however, sturgeon may be present in Bay waters throughout the year and use open water habitat within the Study Area for cover and foraging or pass through during migration. The Study Area is also designated Critical Habitat for green sturgeon (71 FR 17757).

Steelhead - Central California Coast ESU (*Oncorhynchus mykiss irideus*), Federal Threatened. The Central California Coast ESU includes all naturally spawned populations of steelhead (and their progeny) in California streams from the Russian River to Aptos Creek, and the drainages of San Francisco and San Pablo Bays eastward to the Napa River (inclusive), excluding the Sacramento-San Joaquin River Basin. Steelhead typically migrate to marine waters after spending two years in freshwater, though they may stay up to seven. They then reside in marine waters for 2 or 3 years prior to returning to their natal stream to spawn as 4-or 5-year-olds. Steelhead adults typically spawn between December and June. In California, females typically spawn two times before they die. Preferred spawning habitat for steelhead is in perennial streams with cool to cold water temperatures, high dissolved oxygen levels and fast flowing water. Abundant riffle areas (shallow areas with gravel or cobble substrate) for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding. The Study Area does not contain spawning habitat; however, steelhead may be present in Bay waters throughout the year and use open water habitat within the Study Area for cover and foraging or pass through during migration to spawn in creeks and rivers of the South San Francisco Bay. The Study Area is also designated Critical Habitat for the Central California Coast steelhead ESU (70 FR 52630).

Longfin Smelt (*Spirinchus thaleichthys*), Federal Candidate, State Threatened, CDFW Species of Special Concern. Longfin smelt is a pelagic, estuarine fish that ranges from Monterey Bay northward to Hinchinbrook Island, Prince William Sound Alaska. As this species

matures in the fall, adults found throughout the San Francisco Bay migrate to brackish or freshwater in Suisun Bay, Montezuma Slough, and the lower reaches of the Sacramento and San Joaquin Rivers. Spawning is believed to take place in freshwater. In April and May, juveniles are believed to migrate downstream to San Pablo Bay. Juveniles tend to inhabit the middle and lower portions of the water column. This species tends to be abundant near freshwater outflow, where higher-quality nursery habitat occurs and potential feeding opportunities are greater (CDFG 2009b). The Study Area does not contain spawning habitat and is out of the spawning range of longfin smelt; however, smelt may be present in Bay waters throughout the year and use open water habitat within the Study Area for cover and foraging or pass through during migration. Presence of longfin smelt within the Study Area is likely dependent upon temperature and salinity conditions (CDFG 2009b); therefore, presence is likely seasonal.

Special-status species that are documented to occur within the vicinity of the Study Area and may require additional avoidance and minimization measures, but are unlikely to occur within the Study Area include: California Ridgway's rail (CRR; *Rallus obsoletus obsoletus*), Mission blue butterfly (*Icaricia icarioides missionensis*), and Pacific herring (*Clupea pallasii*). These species are discussed below.

Ridgway's (California clapper) rail (*Rallus [longirostris] obsoletus obsoletus*), Federal Endangered, State Endangered, CDFW Fully Protected. Nesting occurs predominantly in the low portions of coastal wetlands and tidal sloughs dominated by cordgrass (*Spartina* spp.), pickleweed (*Salicornia* spp.), and gumplant (*Grindelia cuneifolia*). Factors important for breeding are well-developed sloughs and secondary tidal channels; extensive (dense, tall, lush) cordgrass (*Spartina* spp.) stands; dense salt marsh vegetation for cover, nest sites, and brooding areas; intertidal mudflats, gradually sloping banks of tidal channels, and cordgrass beds for foraging; abundant invertebrate food resources; and transitional vegetation at the upland edge of the salt marsh as a refuge during high tides (Harvey 1988). Nests are placed to avoid flooding by tides, yet in dense enough cover to be hidden from predators and to support a relatively large nest. The tidal marsh within the Study Area does not contain suitable habitat for CRR nesting and minimal foraging habitat. Tidal mudflats for foraging are largely nonexistent within the Study Area, and pickleweed and gumplant is not of sufficient height or extent to provide cover for nesting. The nearest potential nesting habitat is at Heron's Head Park approximately 500 feet north of the northern edge of Study Area. Typical disturbance buffers surrounding CRR nesting habitat are approximately 700 feet, and a disturbance buffer may encroach upon the northern Study Area dependent upon nest location. The Study Area lacks suitable CRR habitat; however, dependent upon the final location of the proposed Project, the proposed Project may disturb nesting CRR at Heron's Head Park if Project activities in the northern portion of the Study Area are conducted within the nesting season. Consultation with the USFWS may be necessary dependent upon project activities and schedule to analyze impacts and determine avoidance and minimization measures.

Mission blue butterfly (*Icaricia icarioides missionensis*), Federal Endangered, CDFW Special-Status Invertebrate. One of the host plants for the federal-endangered Mission blue butterfly, the silver bush lupine, was observed in the native coastal scrub community within the Study Area. The Mission blue butterfly inhabits coastal chaparral and coastal grasslands in the fog belt of the coastal range from approximately 690 to 1,180 feet elevation, which is greater than the elevation of the Study Area. Additionally, the majority of the remaining Mission blue butterflies are found on San Bruno Mountain in San Mateo County; the only known population in San Francisco County occurs in the Twin Peaks Natural Area (USFWS 2010; CDFW 2016), approximately 4.5 miles away. The Mission blue butterfly is unlikely to occur within the Study

Area due to (1) the distance between the Study Area and the nearest documented population site, (2) the low elevation of the Study Area, (3) the small quantity of potential habitat within or adjacent to the Study Area, and (4) the short amount of time that this area has provided potentially suitable habitat. The greatest distance that a Mission blue butterfly has been documented to travel is approximately 1.5 miles (USFWS 2010), and the patch of silver bush lupine that occurs within the Study Area is approximately 1.6 miles away from the nearest documented occurrence of this species (CDFW 2016). Although this distance does not far exceed this species' distance record, it is likely that only a small percentage of butterflies actually fly the maximum known distance. Most Mission blue butterflies likely only travel short distances around known population centers. Additionally, this species would have to cross dense urban development and open water to reach the Study Area from the closest known population area. The Study Area occurs at 0 to 40 feet NGVD, which is well below the known lower elevation limit of this species (690 feet; USFWS 2010). Since silver bush lupine, this species' host plant, is a common species found throughout California, it is unlikely that the elevation limitations of the Mission blue butterfly are related to the occurrence of the host plant. It is likely that the elevation limitations are because of climate or other physical conditions found at suitable elevations. Because the Study Area occurs at a low elevation, it is unlikely to provide the appropriate physical conditions required to support the Mission blue butterfly.

Finally, the quantity of potential habitat in the Study Area and surrounding areas is also very likely too small to support a viable population, and no patches of lupine were visible adjacent to the Study Area from within the Study Area or on aerial photographs. The lupine patch occurs on a man-made feature created some time prior to 1993 through the deposition of a large quantity of sand. Thus, it is highly unlikely that a remnant population from a time prior to the development of the site has endured. Based on the Study Area's distance from documented habitat, the low elevation of the Study Area, the recent creation of habitat for silver bush lupine, and the disturbed, fragmented quality of potential habitat, this species is unlikely to occur within the Study Area.

Pacific herring (*Clupea pallasii*). Pacific herring is a coastal marine fish that uses large estuaries for spawning and early rearing habitat. Though this species is not listed as a sensitive species, it is of note because it is an important commercial fishery species in San Francisco Bay. On the basis of spawning biomass (i.e., an estimate of the number of spawning fish), the San Francisco Bay estuary is the most important spawning area for eastern Pacific populations of the species and is the largest herring fishery in California (CDFW 2016). Pacific herring supports a commercial fishery, primarily for roe (herring eggs) but also for fresh fish, bait and pet food. In the Bay, the Pacific herring fishery is the last remaining commercial finfish fishery (BIES 2003). The peak spawning period in San Francisco Bay and Tomales Bay is from January to March (Miller and Schmidtke 1956), and CDFW regulates in-water work which may negatively impact spawning. The concrete debris and piles present within developed open water in the Study Area may provide suitable spawning habitat. Based upon past data (CDFW 2016, WRA 2016), spawning appears unlikely in most years and has not been documented in the vicinity; however, spawning may occur within the Study Area when conditions are suitable.

5.0 SUMMARY AND RECOMMENDATIONS

Sensitive biological communities were identified within the Study Area. No special-status plant species and three special-status wildlife species have a moderate potential to occur within the Study Area. Designated critical habitat and EFH are also present within the Study Area and one

fishery (Pacific herring) managed by CDFW is present. The following sections present recommendations for future studies and/or measures to avoid or reduce impacts to these species and sensitive habitats during potential activities, such as ground disturbance, construction, or vegetation removal.

5.1 Biological Communities

The Study Area contains sensitive habitat potentially subject to the jurisdiction of the Corps under Section 404 of the Clean Water, the RWQCB under the Porter Cologne Act and Section 401 of the Clean Water Act, and BCDC under the McAteer-Petris Act. Potentially jurisdictional features include areas of developed open water, open water, non-wetland waters, seasonal wetlands and swales, and tidal marsh/mudflat/intertidal areas (which includes tidal marsh as well as those portions of the biological communities described in this assessment that are located below the elevation of the HTL, including some areas of beach, sand, bare ground, and concrete debris). The Bay shoreline, as measured 100 feet from the edge of tidal marsh areas, is also regulated by BCDC, in particular with regard to the provision of public access and creation of a waterfront park.

The following permits would be required:

- Corps Section 404 permit and letter of permission;
- RWQCB Section 401 Water Quality Certification;
- BCDC permit; and
- Possible Section 7 Consultation with NMFS.

As part of the permitting process, these agencies may require mitigation for temporary and/or permanent impacts to jurisdictional waters and wetland communities.

5.2 Special-Status Plant Species

Of the 60 special-status plant species known to occur in the vicinity of the Study Area, none were determined to have moderate or high potential to occur within the Study Area. The Study Area is unlikely to support any of the special-status plant species documented in the vicinity primarily due to a lack of suitable habitat; the site is disturbed and the soils are comprised predominantly of infill material. A targeted survey for the federally endangered California seablite was conducted; no California seablite plants were found within the Study Area. Therefore, no impacts to special-status plant species are anticipated.

5.3 Special-Status Wildlife Species

Of the 36 special-status wildlife species known to occur in the vicinity of the Study Area, three fish were determined to have a moderate potential to occur within the Study Area, although none have potential to spawn, breed, or nest in the Study Area. EFH and designated critical habitat are also present in the open water and developed open water habitats. Pacific herring, a managed fishery, requires in-water work windows, although it is unlikely to spawn within the Study Area. Special-status wildlife species which may pass over or through the Study Area are highly mobile and are not anticipated to be impacted by proposed project activities. Most of the species found in the review of background literature occur in habitats not found in the Study Area. Any proposed activities in the main portion of the Study Area (landward of the Bay Trail) are not anticipated to impact aquatic habitat or any of the degraded tidal marsh present outboard of the Bay Trail levee. The Study Area is highly disturbed, and areas that are likely to

be impacted are not suitable for special-status nesting birds, amphibians, reptiles or mammals including marine mammals.

Although suitable marsh habitat for the federal-listed CRR is not present within the Study Area, potential nesting habitat is within 500 feet of the northern, open water portion of the Study Area, and within disturbance buffers for CRR. Any project activities within 700 feet of suitable nesting habitat to the north should avoid the nesting season (February 1 – August 31). Project activities within the breeding season and within 700 feet of potential nesting habitat may require consultation with the USFWS to assess impacts and determine avoidance and minimization measures.

5.3.1 Special-status Fish Species, Pacific Herring, and EFH

Three special-status fish species, green sturgeon, steelhead (Central California Coast ESU), and longfin smelt, have potential to occur within the Study Area. The open water, developed open water, and tidal marsh habitats within the Study Area are EFH and designated critical habitat for steelhead and green sturgeon. In addition, Pacific herring, a non-special-status fish species but a managed fishery, has potential to spawn in the developed open water habitats within the Study Area. Any in-water work or work outboard of the levee with potential to impact open water habitats may require consultation with NMFS for impacts to designated critical habitat (green sturgeon and steelhead) and EFH. If in-water work occurs outside of work windows for federal-listed species (green sturgeon and steelhead), then consultation shall also analyze potential to impact individuals of each species. Consultation with CDFW will be necessary for impacts to longfin smelt and Pacific herring dependent upon timing and proposed work. Work windows are not anticipated to be necessary for longfin smelt because of the location of the project south of the Bay Bridge and outside of the spawning range. No wildlife species with potential to occur within the Study Area fall under the jurisdiction of the USFWS; therefore, no consultation with USFWS is anticipated. Consultation with agencies will determine final habitat mitigation (if necessary), avoidance, and minimization measures, but measures may include:

- In-water work shall only occur within designated work windows for species, if work occurs outside of existing work windows, consultation with appropriate agencies is required
    - Green sturgeon and steelhead (Central California Coast ESU) work between June 1 and November 30
    - Pacific herring work between March 1 and November 30
- In-water work shall be restricted to low tides, if feasible
- Turbidity curtains shall be used if work occurs in-water
- If pile driving or removal is to occur, measures may include restriction of equipment used, turbidity curtains, and noise reduction methods such as cushions or air bubble curtains.

5.3.2 Birds protected under the Migratory Bird Treaty Act

Although no special-status bird species have potential to nest within or near the Study Area, common nesting birds protected by the MBTA and CFGC may find suitable nesting habitat within and adjacent to the Study Area. Common birds may find nesting habitat in trees, shrubs, grasses and emergent wetland vegetation throughout vegetated portions of the Study Area. Ground-nesting birds which are not sensitive to disturbance may also find nesting habitat on

dry, open and unvegetated ground. Construction noise and activity have the potential to disturb avian species during nesting, with potential for reduced fecundity or nest abandonment.

It is recommended that potential impacts to nesting birds be mitigated through avoiding disturbance to active nests.

- Construction during the active nesting season (February 16 – August 15) should be avoided as much as feasible to avoid potential delays in construction schedule due to nesting activity.

- If construction during the nesting season cannot be avoided, pre-construction breeding bird surveys should be conducted within 14 days of ground disturbance to avoid disturbance to active nests, eggs, and/or young of nesting birds. An exclusion zone where no construction would be allowed should be established around any active nests of any avian species found in the Study Area until a qualified biologist has determined that all young have fledged. Suggested exclusion zone distances differ depending on species, location, and placement of nest, and will be at the discretion of the biologist and, if necessary, USFWS and CDFW.

6.0 CONCLUSION

Based on the results of the BRA, it is anticipated that potential project activities may result in impacts to wetlands and waters potentially subject to regulatory jurisdiction. Additional impacts are anticipated within BCDC's area of jurisdiction, which includes open waters, tidal marsh, and a 100-foot wide shoreline band. Three special-status fish species, designated critical habitat, Pacific herring spawning habitat, and EFH may be impacted by in-water work in the tidal marsh, open water, and developed open water habitats. Any in-water work or work occurring outboard of the levee will require consultation with NMFS to determine avoidance and minimization measures and any habitat mitigation required for potential impacts of designated critical habitat and EFH present within the Study Area. Avoidance measures may include in-water work windows and working during low tides. If in-water work occurs outside of Pacific herring work windows, consultation with CDFW will be required. Avoidance measures including breeding bird surveys will be utilized to avoid potential impacts to non-special-status breeding birds. It is not anticipated that the project activities will result in impacts to special-status plant species. No special-status plants were observed during the site visit, and none are expected to occur within the Study Area; accordingly, no avoidance measures are required. No special-status wildlife species were observed during the site visit.

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APPENDIX A

LIST OF OBSERVED PLANT AND WILDLIFE SPECIES

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Appendix A. Wildlife and plant species observed by WRA biologists during the April 2, 2014 site visit.

SCIENTIFIC NAME	COMMON NAME
Birds	
Agelaius phoeniceus	red-winged blackbird
Ardea herodias	Great blue heron
Branta canadensis	Canada goose
Calypte anna	Anna's hummingbird
Corvus brachyrhynchos	American crow
Mimus polyglottos	mocking bird
Insects	
Papilio rutulus	Western tiger swallowtail
Plants	
SCIENTIFIC NAME	**COMMON NAME**
Acacia dealbata	silver wattle
Achillea millefolium	common yarrow
Aesculus californica	California buckeye
Agoseris heterophylla var. heterophylla	annual agoseris
Artemisia californica	coast sagebrush
Avena barbata	slender oat
Avena fatua	wild oat
Baccharis pilularis	coyote brush
Bromus catharticus var. elatus	Chilean brome
Bromus diandrus	ripgut brome
Bromus hordeaceus	soft chess
Bromus madritensis	foxtail chess
Cakile maritima	European searocket
Callitriche heterophylla var. heterophylla	water starwort
Carpobrotus chilensis	sea fig
Carpobrotus edulis	iceplant
Centranthus ruber	red valerian
Cortaderia jubata	pampas grass
Distichlis spicata	saltgrass
Erodium botrys	longbeak stork's bill
Erodium cicutarium	redstem stork's bill
Eucalyptus globulus	blue gum
Festuca myuros	rattail fescue
Festuca rubra	red fescue
Foeniculum vulgare	fennel
Fragaria vesca	woodland strawberry
Frankenia salina	alkali heath
Genista monspessulana	French broom

Geranium dissectum	cutleaf geranium
Geranium molle	woodland geranium
Glebionis coronaria	corndaisy
Grindelia stricta var. stricta	Oregon gumweed
Helminthotheca echioides	bristly ox-tongue
Heteromeles arbutifolia	toyon
Heterotheca grandiflora	telegraph weed
Hordeum marinum ssp. gussoneanum	Mediterranean barley
Hordeum murinum	foxtail
Iris douglasiana	Douglas' iris
Jaumea carnosa	marsh jaumea
Juncus sp.	rush
Liliaceae sp.	Lily (not in bloom)
Limosella australis	Welsh mudwort
Lotus corniculatus	bird's-foot trefoil
Lupinus albifrons var. albifrons	silver bush lupine
Lupinus arboreus	yellow bush lupine
Malva parviflora	cheeseweed mallow
Medicago polymorpha	bur medic
Mimulus aurantiacus var. aurantiacus	sticky monkey
Oxalis pes-caprae	Bermuda buttercup
Phytolacca icosandra	tropical pokeweed
Plantago coronopus	buckhorn plantain
Plantago lanceolata	English plantain
Populus fremontii ssp. fremontii	Fremont cottonwood
Pyracantha angustifolia	narrowleaf firethorn
Quercus agrifolia var. agrifolia	coast live oak
Raphanus sativus	wild radish
Rubus armeniacus	Himalayan blackberry
Rumex crispus	curly dock
Salicornia pacifica	Pacific swampfire
Salix lasiolepis	arroyo willow
Silybum marianum	milk thistle
Trifolium dubium	shamrock clover
Vicia sativa ssp. sativa	pubescent common vetch

APPENDIX B

POTENTIAL FOR SPECIAL-STATUS SPECIES TO OCCUR IN THE STUDY AREA

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Appendix B. Evaluation of Special Status Plant and Wildlife Species Documented in the Vicinity of the Study Area. Rank compiled from the California Department of Fish and Wildlife (CDFW) Natural Diversity Database (CDFW 2016), U.S. Fish and Wildlife Service (USFWS 2016) Species Rank, National Marine Fisheries Service (NMFS 2016) Species Rank, and California Native Plant Society (CNPS 2016) Electronic Inventory search of the Hunter's Point, North San Francisco and South San Fransisco USGS 7.5 minute quadrangles and a review of other CDFW Ranks and publications (Zeiner et al. 1990, Shuford and Gardali 2008).

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
MAMMALS				
Townsend's big-eared bat *Corynorhinus townsendii*	SSC, WBWG High	This species is associated with a wide variety of habitats from deserts to mid-elevation mixed coniferous-deciduous forest. Females form maternity colonies in buildings, caves and mines and males roost singly or in small groups. Foraging occurs in open forest habitats where they glean moths from vegetation.	**Unlikely.** These areas are highly disturbed, and the fragmented habitat leaves roosting bats open to predation. No observations of this species have occurred within 5 miles of the Study Area (CDFW 2016).	No further surveys or avoidance measures are recommended.
Western red bat *Lasiurus blossevillii*	SSC,WBWG High	This species is typically solitary, roosting primarily in the foliage of trees or shrubs. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores).	**Unlikely.** These areas are highly disturbed, and the fragmented habitat leaves roosting bats open to predation. No observations of this species have occurred within 5 miles of the Study Area (CDFW 2016).	No further surveys or avoidance measures are recommended.
Hoary bat *Lasiurus cinereus*	WBWG Medium	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	**Unlikely.** These areas are highly disturbed, and the fragmented habitat leaves roosting bats open to predation. The last observation of this species was in 1969 at a location approximately 1.5 miles away (CDFW 2016).	No further surveys or avoidance measures are recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
American badger *Taxidea taxus*	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	**No Potential.** The habitat is likely too low in elevation and flooded too often to support badger. No badger burrows were observed in the Study Area.	No further surveys or avoidance measures are recommended.
Guadalupe fur seal *Arctocephalus townsendi*	FT, ST, CFP, MMPA	Breed on Isla de Guadalupe off the coast of Mexico, occasionally found on San Miguel, San Nicolas, and San Clemente islands. Prefers shallow, nearshore island water with cool and sheltered rocky areas for haul-outs.	**No Potential.** The Bay waters adjacent to the Study Area are not typical habitat for this species which lives in the open ocean and rarely comes to land. The nearest recorded sighting is over 30 miles away on the Faralon Islands (CDFW 2014).	No further surveys or avoidance measures are recommended.
Steller (=Northern) sea lion *Eumetopias jubatus*	FD, MMPA	Breeds on Año Nuevo, San Miguel and Farallon islands, Point Saint George, and Sugarloaf. Hauls-out on islands and rocks. Needs haul-out and breeding sites with unrestricted access to water, near aquatic food supply and with no human disturbance.	**No Potential.** The Study Area is outside the known range for this species, which generally does not occur within San Francisco Bay.	No further surveys or avoidance measures are recommended.
Pacific harbor seal *Phoca vitulina*	MMPA	Broadly distributed in coastal areas of the northern hemisphere. Most significant haul-out site in south San Francisco Bay is at Mowry Slough. Pups are born in March and April in Northern California.	**Unlikely.** The Study Area is not an established or known haul-out area and potential haul-out sites are extremely limited within the Study Area. This species is common within San Francisco Bay, and it may forage or move through the Study Area.	No further surveys or avoidance measures are recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
California sea lion *Zalophus californianus*	MMPA	Ranges along the coast from southern Baja California north to Vancouver Island. Breeding is mainly southern California south to southern Baja California. In San Francisco Bay area haul out sites include sandy beaches, docks, jetties, and buoys.	**Unlikely.** The Study Area is not an established or known haul-out area and potential haul-out sites are extremely limited within the Study Area. This species is common within San Francisco Bay, and it may forage or move through the Study Area on occasion.	No further surveys or avoidance measures are recommended.
Salt Marsh Harvest Mouse *Reithrodontomys raviventris*	FE, SE, CFP, RP	Found only in the saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is the primary habitat. Does not burrow, but builds loosely organized nests and requires higher areas for flood escape.	**No Potential.** Vegetation is generally sparse and short-stature, meaning not much cover for this species; overall area of salt marsh is relatively limited and would not support a population, and there are no corridors for a source population to spill over and colonize the Study Area	No further surveys or avoidance measures are recommended.
BIRDS				
Ashy storm-petrel *Oceanodroma homochroa*	BCC, SSC	(Rookery site) colonial nester on off-shore islands. Usually nests on driest part of islands. Forages over open ocean. Nest sites on islands are in crevices beneath loosely piled rocks or driftwood, or in caves.	**No Potentail.** The Study Area does not contain any habitat suitable for nesting or foraging. This species inhabits ocean waters and is not common within San Francisco Bay waters.	No further surveys or avoidance measures are recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
California black rail *Laterallus jamaicensis coturniculus*	ST, BCC, CFP	Resident in marshes (saline to freshwater) with dense vegetation below four inches in height. Prefers larger, undisturbed marshes close to a major water source.	**Unlikely.** This species has not been documented to occur within 5 miles of the Study Area (CDFW 2014). Black rails are less tolerant of disturbance than California clapper rails and would likely bypass the Study Area as it is surrounded on three sides by development. Tidal marsh habitat in the Study Area is very limited in area and likely too disturbed to support this species. Additionally, this species is not known to nest in the vicinity.	No further surveys or avoidance measures are recommended.
California Ridgway's [clapper] rail *Rallus [longirostris] obsoletus obsoletus*	FE, SE, CFP, RP	Resident in tidal marshes of the San Francisco Bay Estuary. Requires tidal sloughs and mud flats for foraging, and dense vegetation for nesting. Associated with abundant growth of cordgrass and pickleweed. Largest populations in south San Francisco Bay.	**Unlikely.** This species has been documented to potentially nest within 700 feet north of the Study Area (CDFW 2016). However, salt marsh within the Study Area is shallow, narrow and fragmented, and large portions of it are lined with rip-rap, which has eliminated tidal influence over most of the marsh. It is unlikely that this species would forage or breed within the Study Area.	Consultation with USFWS will be necessary for Project activities within 700 feet of potential nesting habitat to the north.
Burrowing owl *Athene cunicularia*	BCC, SSC	(Burrow sites and wintering observations) open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	**No Potential.** No suitable burrows were observed within the Study Area, and the site is outside the known breeding range for this species.	No further surveys or avoidance measures are recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Bank swallow *Riparia riparia*	ST	Migrant in riparian and other lowland habitats in western California. Colonial nester in riparian areas with vertical cliffs and bands with fine-textured or fine-textured sandy soils near streams, rivers, lakes or the ocean.	**Unlikely.** The Study Area provides no suitable vertical faces for nesting. May be present incidentally over the Study Area during migration.	No further surveys or avoidance measures are recommended.
San Francisco common yellowthroat *Geothlypis trichas sinuosa*	BCC, SSC	Resident of the San Francisco Bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	**Unlikley.** Limited tall vegetation is present along the marsh edge adjacent to the Bay, but the Study Area is outside the known breeding range for this species.	No further surveys or avoidance measures are recommended.
Alameda song sparrow *Melospiza melodia pusillula*	BCC, SSC	Resident of salt marshes bordering south arm of San Francisco Bay. Inhabits *Salicornia* marshes; nests low in *Grindelia* bushes (high enough to escape high tides) and in *Salicornia*.	**Unlikely.** This species prefers tidally influenced habitat and the extent of tidally influenced marsh is extremely limited in the Study Area. It also requires perches and vegetation tall enough to keep nests out of tidal waters. These resources are highly limited in and adjacent to the Study Area.	No further surveys or avoidance measures are recommended.
Western snowy plover *Charadrius alexandrinus nivosus*	FT, SSC, BCC, RP	Federal Ranking applies only to the Pacific coastal population. Found on sandy beaches, dry salt ponds, mudflats and adjacent levees, and shores of large alkali lakes. Requires sandy, gravelly or friable soils for nesting.	**No potential.** The Study site does not contain sandy beach habitat, and the levee/bay trail is regularly disturbed by human traffic and non-native predators.	No further surveys or avoidance measures are recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
California least tern *Sterna antillarum browni*	FE, SE, CFP	Summer resident. Breeds along the California coast from San Francisco Bay south. Nests colonially on barren or sparsely vegetated, flat substrates near water. Forages for small fish, typically in shallow shoreline habitats. San Francisco Bay colonies usually located on dry/abandoned salt ponds and along estuarine shores.	**No Potential.** The levee is regularly disturbed by human traffic and non-native predators; additionally, breeding sites are tracked closely by CDFW and no breeding occurs in the vicinity of the Study Area [CDFW 2012].	No further surveys or avoidance measures are recommended.
California brown pelican *Pelecanus occidentalis californicus*	FD, SD, CFP	Generally a winter visitor to the region (though present nearly year-round). Nests colonially on offshore islands; nearest rookeries are on the Channel Islands. San Francisco Bay provides important foraging and loafing habitat.	**Unlikely.** This species may occur in open water adjacent to the Study Area, though it does not nest in the area. The Study Area does not include open waters of the Bay, and no impacts to waters of the Bay are anticipated.	No further surveys or avoidance measures are recommended.
AMPHIBIANS				
California red-legged frog *Rana draytonii*	FT, SSC, RP	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development. Must have access to estivation habitat.	**No Potential.** This species has not been documented to occur within 5 miles of the Study Area (CDFW 2016), and there is no suitable habitat present for this species, and the Study Area is effectively isolated from all surrounding populations by development.	No further surveys or avoidance measures are recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
San Francisco gartersnake *Thamnophis sirtalis tetrataenia*	FE, SE, RP, CFP	Vicinity of freshwater marshes, ponds and slow moving streams in San Mateo County and extreme northern Santa Cruz County. Prefers dense cover and water depths of at least one foot. Upland areas near water are also very important.	**No Potential.** The Study Area contains developed, tidal, and Bay water habitats. Suitable habitat such as freshwater is not present in the Study Area or vicinity.	No further surveys or avoidance measures are recommended.
Pacific (=Western) pond turtle *Actinemys marmorata*	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Require basking sites such as partially submerged logs, vegetation mats, or open mud banks, and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	**No Potential**. The Study site contains no long term sources of fresh water which eliminates the major habitat requirement for this species.	No further surveys or avoidance measures are recommended.
FISHES				
Green sturgeon *Acipenser medirostris*	FT, SSC, CH	Spawn in the Sacramento River and the Klamath River. Spawn at temperatures between 8-14 degrees C. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.	**Moderate Potential.** The waters of San Francisco Bay are included in the Critical Habitat designation for this species. The Study Area includes open waters and designated critical habitat for green sturgeon.	In-water work windows and consultation with NMFS.
Steelhead - Central CA Coast ESU *Oncorhynchus mykiss irideus*	FT, CH	Occurs from the Russian River south to Soquel Creek and Pajaro River. Also in San Francisco and San Pablo Bay Basins. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean.	**Moderate Potential.** The Study Area includes open waters of the Bay which are included in designated critical habitat for Central California Coast ESU of steelhead. Steelhead may use the waters during migration, foraging, or rearing.	In-water work windows and consultation with NMFS.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Steelhead - Central Valley ESU *Oncorhynchus mykiss irideus*	FT, CH	The Central Valley ESU includes all naturally spawned populations (and their progeny) in the Sacramento and San Joaquin Rivers and their tributaries, excluding San Francisco and San Pablo bays and their tributaries. Preferred spawning habitat for steelhead is in cool to cold perennial streams with high dissolved oxygen levels and fast flowing water. Abundant riffle areas for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding.	**Unlikely.** The portion of San Francisco Bay north of the Bay Bridge is included in the Critical Habitat designation for this species. However, the Study Area is south of the Bay Bridge. A wandering migrant of this steelhead ESU may on occasion pass through the Study Area during migration, but is unlikely to be present.	No further surveys or avoidance measures are recommended.
Longfin smelt *Spirinchus thaleichthys*	ST, SSC, RP	Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15 to 30 ppt, but can be found in completely freshwater to almost pure seawater.	**Moderate Potential.** The Study Area is not within the spawning range for longfin smelt; however, this species may be seasonally present in open waters of the Bay dependent upon water salinity and temperatures.	In-water work windows and work during low tide. Consultation with CDFW may be necessary.
Hardhead *Mylopharodon conocephalus*	SSC	Low to mid-elevation streams in the Sacramento-San Joaquin drainage. Clear, deep pools with sand-gravel-boulder bottoms and slow water velocity. Not found where exotic Centrarchids predominate.	**No Potential.** The Study Area provide no suitable freshwater habitat for this species.	No further surveys or avoidance measures are recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Tidewater goby *Eucyclogobius newberryi*	FE, SSC, CH	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	**No Potential**. The Study Area and its Bay waters provide no suitable habitat for this species as the water is both too dynamic and lacks suitable lagoon habitat.	No further surveys or avoidance measures are recommended.
Chinook salmon - California Coastal ESU *Oncorhynchus tshawytscha*	FT, CH	California Coastal Chinook Salmon ESU includes all naturally spawned populations of Chinook salmon from rivers and streams south of the Klamath River (exclusive) to the Russian River (inclusive). Adult numbers depend on pool depth and volume, amount of cover, and proximity to gravel. Water temps >27 degrees C lethal to adults.	**Unlikely.** The waters of San Francisco Bay are included in the Critical Habitat designation for this species. However, the Study Area is south of the Bay Bridge. A wandering migrant may on occasion pass through the Study Area during migration, but is unlikely to be present.	In-water work windows and consultation with NMFS for in-water work for critical habitat.
Chinook salmon - Central Valley spring-run ESU *Oncorhynchus tshawytscha*	FT, ST, CH	Occurs in the Feather River and the Sacramento River and its tributaries. Adults enter the Sacramento River from late March through September. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams from mid-August through early October. Juveniles migrate soon after emergence as young-of-the-year, or remain in freshwater and migrate as yearlings.	**Unlikely.** The waters of San Francisco Bay are included in the Critical Habitat designation for this species. However, the Study Area is south of the Bay Bridge and not within the major migration path. A wandering migrant may on occasion pass through the Study Area during migration, but is unlikely to be present.	In-water work windows and consultation with NMFS for in-water work for critical habitat.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Chinook salmon – Sacramento River winter-run ESU *Oncorhynchus tshawytscha*	FE, SE, CH	Occurs in the Sacramento River below Keswick Dam. Spawns in the Sacramento River but not in tributary streams. Requires clean, cold water over gravel beds with water temperatures between 6 and 14 degrees C for spawning. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles typically migrate to the ocean soon after emergence from the gravel.	**Unlikely.** The waters of San Francisco Bay are included in the Critical Habitat designation for this species. However, the Study Area is south of the Bay Bridge and not within the major migration path. A wandering migrant may on occasion pass through the Study Area during migration, but is unlikely to be present.	In-water work windows and consultation with NMFS for in-water work for critical habitat.
Pacific herring *Clupea pallasii*	None	Coastal marine fish that uses large estuaries for spawning and early rearing habitat. It is not listed as a sensitive species, but is an important and regulated commercial fishery species in San Francisco Bay. The peak spawning period in San Francisco Bay and Tomales Bay is from January to March	**Unlikely.** The Study Area has extremely limited spawning substrate and spawning is infrequent in the southern San Francisco Bay.	In-water work windows.
INVERTEBRATES				
monarch butterfly *Danaus plexippus*	SSI	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, Monterey cypress), with nectar and water sources nearby.	**Unlikely.** The Study Area does not contain tree groves and does not provide winter roost habitat. However, this species may be observed in the Study Area during migration.	No further surveys or avoidance measures are recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Bay checkerspot butterfly *Euphydryas editha bayensis*	FT, SSI, RP	Restricted to native grasslands on outcrops of serpentine soil in the vicinity of San Francisco Bay. *Plantago erecta* is the primary host plant; *Castilleja densiflora* and *C. exserta* are the secondary host plants.	**No Potential.** This species has been documented within 4.5 miles of the Study Area (CDFW 2016). However, presence is entirely dependant on food resources which are not present within the Study Area. No serpentine soil, native grasslands or hostplants are present.	No further surveys or avoidance measures are recommended.
Mission blue butterfly *Icaricia icarioides missionensis*	FE, SSI, RP	Inhabits grasslands of the SanFrancisco peninsula. Three larval host plants: *Lupinus albifrons, L. variicolor*, and *L. formosus*, of which *L. albifrons* is favored.	**Unlikely.** This species has been sighted within 1.5 miles of the Study Area (CDFW 2016), and this species' hostplant, *Lupinus albifrons*, was observed within the Study Area. However, there are currently only two known populations of this species, one on San Bruno Mountain and the other at Twin Peaks Natural Area. In addition, the site is below the known elevation range for this species (690 – 1,180 feet; USFWS 2010).	No further surveys or avoidance measures are recommended.
Callippe silverspot butterfly *Speyeria callippe callippe*	FE, SSI	Restricted to the northern coastal scrub of the San Franciscopeninsula. Hostplant is *Viola pedunculata*. Most adults found on east-facing slopes; males congregate on hilltops in search of females.	**No Potential.** The Study Area is at the limit of the dispersal capabilities from nearby observations, and this species depends on its host plant *Viola pendunculata.* No host plants were observed and the extreme dispersal distance over fully developed land between occurrences and the Study Area make it unlikely this species will disperse and use the Study Area for foraging.	No further surveys or avoidance measures are recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
western bumble bee *Bombus occidentalis*	SSI	Occurs in a wide variety of habitat types. Nests are constructed annually in pre-existing cavities, usually on the ground (e.g. mammal burrows). Many plant species are visited and pollinated.	**Unlikely.** The Study Area contains developed, tidal, and Bay water habitats. Developed habitats are paved or landscaped and do not provide cavities for this species. Suitable habitat is not present.	No further surveys or avoidance measures are recommended.
PLANTS				
Allium peninsulare var. franciscanum Franciscan onion	Rank 1B.2	Cismontane woodland and valley and foothill grassland. Elevation range 52 to 300 meters. Blooms: April through June.	**Unlikely.** The Study Area does not contain cismontane woodland or valley and foothill grassland to support this species. Grassy areas that do occur in the Study Area are highly disturbed, impacted, and dominated by highly invasive, non-native species that would outcompete this species.	No further surveys or avoidance measures are recommended.
Amsinckia lunaris bent-flowered fiddleneck	Rank 1B.2	Coastal bluff scrub, cismontane woodland, valley and foothill grassland. Elevation range: 3 to 500 meters. Blooms: March through June.	**Unlikely.** The Study Area does not contain coastal bluff scrub, cismontane woodland, or valley and foothill grassland habitat to support this species. Grassy areas that do occur in the Study Area are highly disturbed, impacted, and dominated by highly invasive, non-native species that would outcompete this low-lying forb.	This species was not observed during the April 2014 site visit. No additional action is recommended.
Arabis blepharophylla coast rock cress	Rank 4.3	Broadleafed upland forest, coastal bluff scrub, coastal prairie, and coastal scrub. Elevation range 3 to 1,100 meters. Blooms: February to May.	**Unlikely.** The Study Area does not contain broadleafed upland forest, coastal bluff scrub, coastal prairie, or undisturbed coastal scrub. Furthermore, this species is typically found on chert soils which do not occur in the Study Area	No further surveys or avoidance measures are recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Arctostaphylos franciscana Franciscan manzanita	FE, Rank 1B.1	Serpentine coastal scrub. Elevation range: 60-300 meters. Associated with Presidio manzanita. Blooms: March through June.	**Unlikely.** The Study Area does not contain serpentine coastal scrub. This plant was considered extinct until a single plant was rediscovered in 2009 in Presidio National Recreation Area.	No further surveys or avoidance measures are recommended.
Arctostaphylos imbricata San Bruno Mountain manzanita	SE, Rank 1B.1	Rocky substrates in chaparral and coastal scrub. Elevation range: 275-365 meters. Blooms: February-May	**Unlikely.** Known from fewer than five occurrences on San Bruno Mountain.	This species was not observed during the April 2014 site visit. No additional action is recommended.
Arctostaphylos montana ssp. *ravenii [Arctostaphylos hookeri ssp. revenii]* Presidio manzanita	SE, Rank 1B.1	Serpentine outcrops in chaparral, coastal prairie and coastal scrub habitat. Elevation range: 45-215 meters. Blooms: February-March.	**Unlikely.** Known from only one extant native occurrence at the Presidio in San Francisco (greater than 5 miles away). The Study Area does not contain serpentine substrates, chaparral or coastal prairie habitats suitable to support this species.	No further surveys or avoidance measures are recommended.
Arctostaphylos montaraensis Montara manzanita	Rank 1B.2	Maritime chaparral and coastal scrub. Elevation range: 150-500 meters. Blooms: Janurary through March.	**Unlikely**. The Study Area does not contain maritime chaparral or coastal scrub habitat to support this species.	No further surveys or avoidance measures are recommended.
Arctostaphylos pacifica Pacific manzanita	SE, Rank 1B.1	Chaparral and coastal scrub. Elevation range: 280-370 meters. Blooms: February- April.	**Unlikely.** The Study Area does not contain suitable undisturbed maritime chaparral or coastal scrub habitat to support this species and is out of the elevation range for this species. The nearest occurrence is near the summit of San Bruno Mountain.	No further surveys or avoidance measures are recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Arenaria paludicola Marsh sandwort	FE, SE, Rank 1B.1	Sandy, open areas in freshwater or brackish marshes and swamps. Elevation range: 3-70 meters. Blooms May-August.	**Unlikely.** Current range is known from only two natural occurrences in Black Lake Canyon and Oso Flaco Lake along the California central coast.	This species was not observed during the April 2014 site visit. No additional action is recommended.
Aspidotis carlotta-halliae Carlotta Hall's lace fern	Rank 4.2	Foothill woodland, chaparral. Elevation ranges: 100 to 1,400 meters. Blooms: January to December.	**Unlikely.** The Study Area does not support chaparral or cismontane suitable to support this species. Furthermore, this species usually occurs on serpentine soils which are not found in the Study Area.	No further surveys or avoidance measures are recommended.
Astragalus nuttallii var. *nuttallii* ocean bluff milk-vetch	Rank 4.2	Coastal bluff scrub and coastal dunes. Elevation ranges: 3 to 120 meters. Blooms: January to November.	**Unlikely.** The Study Area does contain coastal dune habitat that may be suitable to support this species. However, the highly disturbed nature of the site makes it unlikely for this species to occur.	No further surveys or avoidance measures are recommended.
Astragalus tener var. *tener* alkali milk-vetch	Rank 1B.2	Alkali playa, valley and foothill grassland, vernal pools. Low ground, alkali flats, and flooded lands. Elevation range: 1 to 170 meters. Blooms: March through June.	**Unlikely.** While the Study Area contains low ground and alkali habitat which may be suitable for this species, there is no suitable playa or vernal pool habitat for this species. Considered likely extirpated from San Francisco due to destruction fo habitat.	This species was not observed during the April 2014 site visit. No additional action is recommended.
Carex comosa Bristly sedge	Rank 2B.1	Coastal prairie, marshes and swamps and valley and foothill grasslands. This species is typically found from 0 to 625 meters. Blooms: May-September.	**Unlikely.** The Study Area is highly disturbed and may not provide moist enough soils for this species to establish. Most recent collection in San Francisco area is 1866.	No further surveys or avoidance measures are recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Carex praticola Northern meadow sedge	Rank 2B.2	Meadows and seeps (mesic). Elevation ranges from 0 to 10500 feet (0 to 3200 meters). Blooms May-Jul.	**Unlikely.** The Study Area is highly disturbed and may not provide moist enough soils for this species to establish.	No further surveys or avoidance measures are recommended.
Castilleja ambigua var. *ambigua* johnny-nip	Rank 4.2	Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pool margins. Elevation range: 0 – 435 meters. Blooms: March to August.	**Unlikely.** Coastal scrub, marshes, and marginal grasslands in the Study Area are highly disturbed and do not provide suitable habitat for this species. Most recent collection in San Francisco area is 1866.	No further surveys or avoidance measures are recommended.
Centromadia parryi ssp. *parryi* pappose tarplant	Rank 1B.2	Chaparral, coastal prairie, meadows and seeps, marshes and swamps (coastal salt), valley and foothill grassland (vernally mesic)/often alkaline. Elevation ranges from 0 to 1380 feet (0 to 420 meters). Blooms May-Nov.	**Unlikely.** The Study Area contains marginal grassland habitats; it does not contain alkali or clayey substrates, and due to the highly-developed nature of the Study Area and regular maintenance of ruderal areas, this species is not anticipated to occur.	No further surveys or avoidance measures are recommended.
Chloropyron maritimum ssp. *palustre* Point Reyes bird's beak	Rank 1B.2	Coastal salt marshes and swamps. Elevation range: 0 to 15 meters. Blooms: June through October	**Unlikely.** The Study Area contains tidal marsh habitat seaward of the Bay Trail. However, the highly disturbed nature of the site makes it unlikely for this species to occur. The nearest documented occurrence is eight miles to the north.	No further surveys or avoidance measures are recommended.
Chorizanthe cuspidata var. *cuspidata* San Francisco Bay spineflower	FE, Rank 1B.2	Coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub, often on sandy soils. Elevation range: 3 to 215 meters. Blooms: April through August.	**Unlikely.** The Study Area does contain coastal scrub habitat that may be suitable to support this species. However, the highly disturbed nature of the site makes it unlikely for this species to occur. The nearest documented occurrence is eight miles to the west.	This species was not observed during the April 2014 site visit. No additional action is recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Chorizanthe robusta var. *robusta* robust spineflower	FE, Rank 1B.1	Sandy or gravelly substrate in maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub. Elevation range: 3-300 meters. Blooms: April-September.	**Unlikely.** The Study Area does contain coastal scrub, and coastal dune habitat that may be suitable to support this species. However, the highly disturbed nature of the site makes it unlikely for this species to occur. The nearest documented occurrence is eight miles to the west.	This species was not observed during the April 2014 site visit. No additional action is recommended.
Cirsium andrewsii Franciscan thistle	Rank 1B.2	Mesic, sometimes serpentine substrates in broadleafed upland forest, coastal bluff scrub, coastal prairie, and coastal scrub. Elevation range: 0-150 meters. Blooms March-July.	**Unlikely.** The Study Area does not contain serpentine substrates, broadleafed upland forest, coastal bluff scrub, or coastal prairie. The nearest documented occurrence of this species are 10 miles north in Marin County.	No further surveys or avoidance measures are recommended.
Cirsium hydrophilum var. vaseyi Mt. Tamalpais thistle	Rank 1B.2	Broadleafed upland forest, chaparral, meadows and seeps/serpentine seeps. Elevation ranges from 790 to 2030 feet (240 to 620 meters).	**Unlikley.** The Study Area does not contain broadleafed upland forest, chaparral, or meadows and seeps with serpentine seeps.	No further surveys or avoidance measures are recommended.
Cirsium occidentale var. *compactum* compact cobwebby thistle	Rank 1B.2	Chaparral, coastal dunes, coastal prairie, and coastal scrub. Elevation range: 5-150 meters. Blooms: April-June.	**Unlikely.** Known from fewer than twenty occurrences. The highly disturbed nature of the site makes it unlikely for this species to occur. The nearest documented occurrence is from 1908 in an area that has been subsequently developed; considered possibly extirpated.	No further surveys or avoidance measures are recommended.
Clarkia franciscana Presidio clarkia	FE, SE, Rank 1B.1	Coastal scrub and serpentine substrates in valley and foothill grassland. Elevation range: 25-335 meters. Blooms: May-July.	**Unlikely.** Known from fewer than five occurrences, all within the Presidio area (greater than five miles away) of the Golden Gate National Recreation Area.	No further surveys or avoidance measures are recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Collinsia corymbosa round-headed Chinese houses	Rank 1B.2	Coastal dunes. Elevation range: 0-20 meters. Blooms April-June.	**Unlikely.** The Study Area contains disturbed and marginal habitat for this species. All documented occurrences are at least eight miles north. Most recent occurrences limited to the Presidio area of the Golden Gate National Recreation Area.	This species was not observed during the April 2014 site visit. No additional action is recommended.
Collinsia multicolor San Francisco collinsia	Rank 1B.2	Closed cone coniferous forest, coastal scrub, sometimes on serpentine soils. Elevation range: 30 to 250 meters. Blooms: March through May.	**Unlikely.** The Study Area does not contain forest habitat underlain by serpentine substrate to support this species and is largely out of the elevation range for this species. Nearest documented occurrences are located in the San Bruno Mountain range.	This species was not observed during the April 2014 site visit. No additional action is recommended.
Equisetum palustre Marsh horsetail	Rank 3	Marshes and swamps. Elevation range: 45-200 meters.	**Unlikely.** Study Area does not contain freshwater marsh or swamp habitat and and is largely out of the elevation range for this species.	This species was not observed during the April 2014 site visit. No additional action is recommended.
Eriophorum gracile Slender cottongrass	Rank 4.3	Bogs and fens, meadows and seeps, under montane coniferous forest/acidic. Elevation ranges from 4200 to 9510 feet (1280 to 2900 meters). Blooms May-Sep.	**Unlikely.** Study Area does not contain bogs, fens, meadows, or montane coniferous forest.	No further surveys or avoidance measures are recommended.
Erysimum franciscanum San Francisco wallflower	Rank 4.2	Chaparral, coastal dunes, coastal scrub, valley and foothill grassland/often serpentine or granitic, sometimes roadsides. Elevation ranges from 0 to 1800 feet (0 to 550 meters). Blooms Mar-Jun.	**Unlikely.** Study Area does not contain serpentine or granitic habitat.	No further surveys or avoidance measures are recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Fritillaria liliacea fragrant fritillary	Rank 1B.2	Coastal scrub, valley and foothill grassland, coastal prairie. Often on serpentine; various soils reported though usually clay, in grassland. Elevation range: 3 to 410 meters. Blooms: February through April.	**Unlikely.** The Study Area does not contain scrub, grassland, or prairie habitat underlain by volcanic or serpentine clay substrate to support this species.	This species was not observed during the April 2014 site visit. No further surveys or avoidance measures are recommended.
Gilia capitata ssp. *chamissonis* blue coast gilia	Rank 1B.1	Coastal dunes, coastal scrub. Elevation range: 2-200 meters. Blooms: April – July.	**Unlikely.** Marginal, disturbed, man-made dune and native scrub habitat is present in the Study Area. However, all documented occurrences are at least eight miles north. Most recent occurrences limited to the Crissy Field area of the Golden Gate National Recreation Area.	This species was not observed during the April 2014 site visit. No additional action is recommended.
Gilia millefoliata dark-eyed gilia	Rank 1B.2	Coastal dunes. Elevation range: 2-30 meters. Blooms April-July.	**Unlikely.** Marginal, disturbed, man-made dune and native scrub habitat is present in the Study Area. However, all documented occurrences are at least eight miles north. Most recent occurrences limited to the Crissy Field area of the Golden Gate National Recreation Area; considered possibly extirpated.	This species was not observed during the April 2014 site visit. No additional action is recommended.
Grindelia hirsutula var. *maritima* San Francisco gumplant	Rank 3.2	Sandy or serpentine substrates in sea bluffs, coastal bluff scrub, coastal scrub, valley and foothill grassland. 15-400 meters. Blooms: June-September.	**Unlikely.** The Study Area does not contain serpentine substrates, coastal bluff scrub, or valley and foothill grassland. The highly disturbed nature of the site makes it unlikely for this species to occur. Documented occurrences are in the Golden Gate National Recreation Area.	This species was not observed during the April 2014 site visit. No additional action is recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Helianthella castanea Diablo helianthella	Rank 1B.2	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Elevation range: 60-1300 meters. Blooms: March-June.	**Unlikely.** The Study Area does not contain forest/woodland or shrubland habitat. The existing grassland habitat in the Study Area is heavily disturbed and of low quality.	No further action recommended for this species.
Hemizonia congesta ssp. *congesta* white seaside tarplant	Rank 1B.2	Valley and foothill grassland, coastal scrub. Often in grassy valleys and fallow fields. Elevation range: 20 – 560 meters. Blooms: April-November.	**Unlikely.** The Study Area does not contain grassland, grassy valley or fallow field habitat. All documented occurrences appear to be extirpated by urban development. While some native scrub habitat is present. The highly disturbed nature of the site makes it unlikely for this species to occur.	This species was not observed during the April 2014 site visit. No additional action is recommended.
Hesperevax sparsiflora var. *brevifolia* short-leaved evax	Rank 1B.2	Sandy coastal bluff scrub, coastal dunes, coastal prairie. Elevation range: 0 to 215 meters. Blooms: March through June.	**Unlikely.** The Study Area does not contain coastal bluff scrub or coastal prairie habitat. The highly disturbed nature of the site makes it unlikely for this species to occur. No documented occurrences within the Study Area vicinity.	This species was not observed during the April 2014 site visit. No additional action is recommended.
Hesperolinon congestum Marin western flax	FT, ST, Rank 1B.1	Chaparral and valley and foothill grassland on serpentine soils. Elevation range: 5 to 370 meters. Blooms: April through July.	**Unlikely.** The Study Area does not contain chaparral or grassland habitat underlain by serpentine substrate to support this species.	No further surveys or avoidance measures are recommended.
Heteranthera dubia water star-grass	Rank 2B.2	Requires alkaline, still or flowing, slightly eutrophic waters in marshes and swamps. Elevation range: 30-1495 meters. Blooms: July-October.	**Unlikely.** The Study Area does not contain alkaline marsh or swamp habitat. Sole occurrence is from 1897 collection.	No further surveys or avoidance measures are recommended

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Horkelia cuneata var. *sericea* Kellogg's horkelia	Rank 1B.1	Sandy or gravelly openings in closed-cone coniferous forest, maritime chaparral, coastal dunes, coastal scrub. Elevation range: 10-200 meters. Blooms April-September.	**Unlikely.** No closed-cone coniferous forest, maritime chaparral habitat is present. Man-made dune and native scrub habitat is present in the Study Area. However, all documented occurrences are at least eight miles north. Most recent occurrences limited to the Golden Gate National Recreation Area.	This species was not observed during the April 2014 site visit. No additional action is recommended.
Horkelia marinensis Point Reyes horkelia	Rank 1B.2	Coastal dunes, coastal prairie, coastal scrub/sandy. Elevation ranges from 20 to 2480 feet (5 to 755 meters). Blooms May-Sep.	**Unlikely.** The Study Area does not contain coastal prairie. The highly disturbed nature of the site makes it unlikely for this species to occur. Most recent documented occurrence of this species is from 1909 in the vicinity of Colma.	No further surveys or avoidance measures are recommended.
Iris longipetala coast iris	Rank 4.2	Coastal prairie, lower montane coniferous forest, meadows and seeps. Elevation range: 0 to 600 meters. Blooms: March to May.	**Unlikely.** The Study Aarea does not support coastal prairie, lower montane coniferous forest, or meadows and seeps suitable to support this species.	No further surveys or avoidance measures are recommended
Layia carnosa Beach layia	FE, SE, Rank 1B.1	Coastal dunes and sandy coastal scrub. Elevation range: 0-60 meters. Blooms March through July.	**Unlikely.** Man-made dune and native scrub habitat is present in the Study Area. However, the sole recorded occurrence of this species in San Francisco is now extirpated by development.	This species was not observed during the April 2014 site visit. No additional action is recommended.
Leptosiphon rosaceus Rose leptosiphon	Rank 1B.1	Coastal bluff scrub. Elevation range: 0-100 meters. Blooms April-July.	**Unlikely.** The Study Area does not contain coastal bluff scrub habitat.	No further surveys or mitigation measures are recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Lessingia germanorum San Francisco lessingia	FE, SE, Rank 1B.1	Remnant dune coastal scrub. Elevation range: 25-110 meters. Blooms: June-November.	**Unlikely.** Known from only four occurrences at the Presidio (SFO Co.), and one on San Bruno Mtn. (SMT Co., 1877). No remnant dune coastal scrub habitat is present on the site.	No further surveys or mitigation measures are recommended.
Malacothamnus arcuatus arcuate bush mallow	Rank 1B.2	Chaparral. Elevation range: 15 to 355 meters. Blooms: April through September.	**Unlikely.** The Study Area does not contain chaparral habitat to support this species.	No further surveys or avoidance measures are recommended.
Micropus amphibolus [Stylocline amphibola] Mt. Diablo cottonweed	Rank 3.2	Broadleafed upland forest, chaparral, cismontane woodland, valley and foothill grassland on rocky substrates. Some populations on serpentine. Elevation range: 45-825 meters. Blooms: March through May.	**Unlikely.** The Study Area does not contain forest or chaparral habitats underlain by rocky and serpentine soils to support this species. Additionally, grassy areas that do occur in the Study Area are within small, fragmented areas that are highly disturbed, impacted, and dominated by highly invasive, non-native species that would outcompete this low-lying forb.	No further surveys or avoidance measures are recommended.
Microseris paludosa Marsh microseris	Rank 1B.2	Closed-cone coniferous forest, cismontane woodland, valley and foothill grassland, coastal scrub. Elevation range: 5-300 meters. Blooms April-July.	**Unlikely.** The Study Area does not contain forest or grassland habitats to support this species. Additionally, grassy areas that do occur in the Study Area are within small, fragmented areas that are highly disturbed, impacted, and dominated by highly invasive, non-native species that would outcompete this low-lying forb.	This species was not observed during the April 2014 site visit. No additional action is recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Monardella sinuata ssp. *nigrescens* northern curly-leaved monardella	Rank 1B.2	Sandy substrates in chaparral, coastal dunes, coastal scrub, lower montane coniferous forest. Elevation range: 0-300 meters. Blooms April-September.	**Unlikely.** No coniferous forest habitat is present. The sole recorded occurrence of this species in San Francisco is now considered likely extirpated by development.	This species was not observed during the April 2014 site visit. No additional action is recommended.
Pentachaeta bellidiflora white-rayed pentachaeta	FE, SE, Rank 1B.1	Cismontane woodland, valley and foothill grassland; often on serpentine soil. Elevation range: 35 to 620 meters. Blooms: March through May.	**Unlikely.** The Study Area does not contain woodland or grassland habitat underlain by serpentine substrate to support this species.	No further surveys or avoidance measures are recommended.
Plagiobothrys chorisianus var. *chorisanus* Choris' popcorn-flower	Rank 1B.2	Mesic chaparral, coastal prairie and coastal scrub. Elevation range: 15 to 160 meters. Blooms: March through June.	**Unlikely.** The Study Area does not contain chaparral, of coastal prairie habitats to support this species. Grassy and scrub areas that do occur in the Study Area are within small, fragmented areas that are highly disturbed, impacted, and dominated by highly invasive, non-native species that would outcompete this low-lying forb.	This species was not observed during the April 2014 site visit. No additional action is recommended.
Plagiobothrys diffusus San Francisco popcorn-flower	SE, Rank 1B.1	Coastal prairie and valley and foothill grassland. Elevation range: 60-360 meters. Blooms March-June.	**Unlikely.** Coastal prairie and valley and foothill grassland habitat are not present in the Study Area.	No further surveys or avoidance measures are recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Plagiobothrys glaber hairless popcorn-flower	Rank: 1B.1	Meadows and seeps, marshes and swamps; coastal salt marsh and alkali meadows. Elevation range: 15 to 180 meters. Blooms: March through May.	**Unlikely.** The Study Area does not contain alkali soils and marsh habitat, but does contain coastal salt marsh habitat. This species is presumed to be extinct and there are no known records of this species in San Mateo County. Sole recorded occurrences in north San Francisco County are considered likely extirpated. The nutlets from this small, low-lying forb do not disperse over long distances and it is unlikely that seeds would be able to move into the Study Area from these historic populations. Additionally, the Study Area is highly disturbed and would not provide suitable habitat for this species.	No further surveys or avoidance measures are recommended.
Polemonium carneum Oregon polemonium	Rank 2B.2	Coastal prairie, coastal scrub, and lower montane coniferous forest. Elevation range: 0-1830 meters. Blooms: April through September.	**Unlikely.** The Study Area does not contain coastal prairie, or coniferous forest habitats to support this species. Some man-made sand features are present onsite, but these features are highly disturbed and unlikely to provide suitable habitat.	This species was not observed during the April 2014 site visit. No additional action is recommended.
Polygonum marinense Marin knotweed	Rank 3.1	Coastal salt or brackish marshes and swamps. Elevation range: 0-10 meters. Blooms April-October.	**Unlikely.** Marginal marsh habitat is present but unlikely to support this species due to frequent disturbance. No documented occurrences in San Francisco or San Mateo County.	This species was not observed during the April 2014 site visit. No additional action is recommended.
Sanicula maritima Adobe sanicle	SR, Sank 1B.1	Clay and serpentine substates in chaparral, coastal prairie, meadows and seeps, and valley and foothill grassland. Elevation range: 30-240 meters. Blooms: February-May.	**Unlikely.** The Study Area does not contain clay and serpentine substrates, chaparral, coastal prairie, meadows and seeps, or valley and foothill grassland habitats.	No further surveys or avoidance measures are recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Silene verecunda ssp. *verecunda* San Francisco campion	Rank 1B.2	Sandy, coastal bluff scrub, chaparral, coastal prairie, coastal scrub, valley and foothill grassland. Elevation: 30 to 645 meters. Blooms: March through August.	**Unlikely.** The Study Area does not contain coastal bluff scrub, chaparral, coastal prairie or valley and foothill grassland to support this species. Small areas of natural scrub and grassy areas are highly disturbed, impacted, and dominated by highly invasive, non-native species that would out-compete this low-lying forb.	This species was not observed during the April 2014 site visit. No additional action is recommended.
Stebbinsoseris decipiens Santa Cruz microseris	Rank 1B.1	Open, serpentine or sandstone-derived areas within broadleafed upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland. Elevation range: 10-500 meters. Blooms: April-May.	**Unlikely.** The Study Area does not contain clay, sandstone or serpentine substrates, chaparral, coastal prairie, meadows and seeps, or valley and foothill grassland habitats.	No further surveys or avoidance measures are recommended.
Suaeda californica California seablite	FE, Rank 1B.1	Marshes and swamps; margins of coastal salt marsh. Elevation range: 0 to 15 meters. Blooms: July through October.	**Unlikely**. There is a reported occurrence of this species within the Study Area; however, recent visits reported by CDFW suggest occurrences in the Study Area are dead. Additionally, this species was not observed during a targeted rare plant survey conducted in the Study Area by WRA in June of 2016.	No further surveys or avoidance measures are recommended.
Trifolium amoenum showy rancheria clover	FE, Rank 1B.2	Valley and foothill grassland, coastal bluff scrub, swales, open sunny sites, with serpentine substrate. Elevation range: 15 – 1365 feet. Blooms: April – June.	**Unlikely.** Though The Study Area does contain swales, this species is associated with serpentine substrates, coastal bluffs, and valley and foothill grassland habitat, which are not present in the Study Area.	This species was not observed during the April 2014 site visit. No additional action is recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Triphysaria floribunda San Francisco owl's-clover	Rank 1B.2	Coastal prairie, coastal scrub, valley and foothill grassland; usually on serpentine sites. Elevation range: 1 to 160 meters. Blooms: April through June.	**Unlikely.** The Study Area does not contain coastal prairie, scrub or grassland habitat underlain by serpentine substrate to support this species. The nearest documented occurrence of this species is from 1957 in an area that has since been developed.	This species was not observed during the April 2014 site visit. No additional action is recommended.
Triquetrella californica Coastal triquetrella	Rank 1B.2	Coastal bluff scrub, coastal scrub. Elevation range: 10-100 meters.	**Unlikely.** The Study Area does not contain coastal bluff scrub.	This species was not observed during the April 2014 site visit. No additional action is recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS

*** Key to status codes:**

FE	Federal Endangered
FT	Federal Threatened
FD	Federal De-Ranked
BCC	USFWS Birds of Conservation Concern
RP	Sensitive species included in a USFWS Recovery Plan or Draft Recovery Plan
SE	State Endangered
ST	State Threatened
SR	State Rare
SSC	CDFW Species of Special Concern
CFP	CDFW Fully Protected Animal
SSI	CDFW Special Status Invertebrates
WBWG	Western Bat Working Group Priority species

CNPS Rare Plant Ranks:

Rank 1A – Plants presumed extinct in California
Rank 1B – Plants rare, threatened, or endangered in California and elsewhere
Rank 2A – Plants presumed extirpated in California, but more common elsewhere
Rank 2B – Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 3 – Plants about which CNPS needs more information (a review Rank)
Rank 4 – Plants of limited distribution (a watch Rank)

CNPS Threat Ranks:

0.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
0.2 – Fairly threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat)
0.3 – Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

APPENDIX C

SITE PHOTOGRAPHS

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Above: Disturbed infill community west of Arelious Walker Drive.

Below: Disturbed infill community east of Arelious Walker Drive.

Photographs taken April 2, 2014.

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Above: Bay Trail and tidal marsh community.

Below: Tidal marsh community along shoreline.

Photographs taken April 2, 2014.

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Above: Maintained landscaping habitat and inundated cul-de sac.

Below: Mixed landscaping habitat.

Photographs taken April 2, 2014.

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Above: Native coastal scrub.

Below: Native coastal scrub.

Photographs taken April 2, 2014.

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Above: Seasonal wetland 1 and Wetland Swale 1.

Below: Waters 1.

Photographs taken April 2, 2014.

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Above: Sample Point 1 (upland).

Below: Sample Point 2 (wetland) and waters.

Photographs taken April 2, 2014.

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Above: Sample Point 3 and wetland.

Below: Sample Point 4 (upland).

Photographs taken April 2, 2014.

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Above: Wetland Swale 1, two weeks after precipitation.

Below: Wetland 1, two weeks after precipitation.

Photographs taken April 18, 2014.

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Above: Wetland 4, two weeks after precipitation.

Below: Waters 1, two weeks after precipitation.

Photographs taken April 18, 2014.

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Biological Resources Assessment

INDIA BASIN SHORELINE PARK AND 900 INNES AVENUE
CITY AND COUNTY OF SAN FRANCISCO, CALIFORNIA

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LIST OF ACRONYMS AND ABBREVIATIONS

BCDC	San Francisco Bay Conservation and Development Commission
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRR	California Ridgway's rail (formerly California clapper rail)
Corps	U.S. Army Corps of Engineers
EFH	Essential Fish Habitat
ESA	Federal Endangered Species Act
FAC	Facultative, equal occurrence in wetland or non-wetlands (34-66% frequency of occurrence)
FACW	Facultative wetland, usually found in wetlands (67-99% frequency of occurrence)
HTL	High Tide Line
Inventory	CNPS Inventory of Rare and Endangered Plants
LEDPA	Least Environmentally Damaging Practicable Alternative
MHW	Mean High Water
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OBL	Obligate, always found in wetlands (>99% frequency of occurrence)
OWHM	Ordinary High Water Mark
Rank	California Rare Plant Rank
RWQCB	Regional Water Quality Control Board
UPL	Upland, always found outside of wetlands
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WRA	WRA, Inc.

EXECUTIVE SUMMARY

The purpose of this report is to provide an analysis of natural community and special-status species issues at the India Basin Shoreline Park and the property at 900 Innes Avenue in the City and County of San Francisco, California.

On March 11, 2015, WRA, Inc. (WRA) conducted a biological resources assessment within the India Basin Shoreline Park and the property at 900 Innes Avenue (Study Area). WRA observed eight biological communities, 51 plant species, and 31 wildlife species. Three sensitive biological community types covering approximately 3.06 acres of the Study Area were identified. Essential Fish Habitat (EFH) and designated critical habitat for six fish species including green sturgeon (*Acipenser medirostris*), steelhead (*Oncorhynchus mykiss irideus*), and Chinook salmon (*Oncorhynchus tshawytscha*) are present. Two special-status wildlife species have a moderate or high potential to occur within the Study Area. No special-status plant species have a moderate or high potential to occur within the Study Area.

1.0 INTRODUCTION

On March 11, 2015, WRA, Inc. performed an assessment of biological resources at the India Basin Shoreline Park and the property located at 900 Innes Avenue (Study Area). The Study Area consists of approximately 11.42 acres near the intersection of Innes Avenue and Griffin Street in the Hunter's Point/ Bayview neighborhood in the City of County San Francisco, California (Figure 1). The Study Area includes the India Basin Shoreline Park and the property at 900 Innes Avenue. Currently, the site is bordered by industrial, commercial, and residential uses to the west and south on Hunters Point Boulevard and Innes Avenue, the former Hunters Point Power Plant and Heron's Head Park to the north, and India Basin (San Francisco Bay) to the northeast.

The purpose of the assessment was to provide an inventory of the biological resources present on a group of parcels along the San Francisco waterfront, which will inform development of the Study Area into a park for both passive and active recreation. This report describes the results of the site visit, which assessed the Study Area for the potential to support special-status species and the presence of other sensitive biological resources protected by local, state, and federal laws and regulations. If special-status species were observed during the site visit, they were recorded. Specific findings on the habitat suitability or presence of special-status species or sensitive habitats may require that protocol-level surveys be conducted. This report also contains an evaluation of potential impacts to special-status species and sensitive biological resources that may occur as a result future activities in the Study Area.

A biological resources assessment provides general information on the potential presence of sensitive species and habitats. The biological assessment is not an official protocol-level survey for listed species that may be required for project approval by local, state, or federal agencies. This assessment is based on information available at the time of the study and on site conditions that were observed on the date of the site visit.

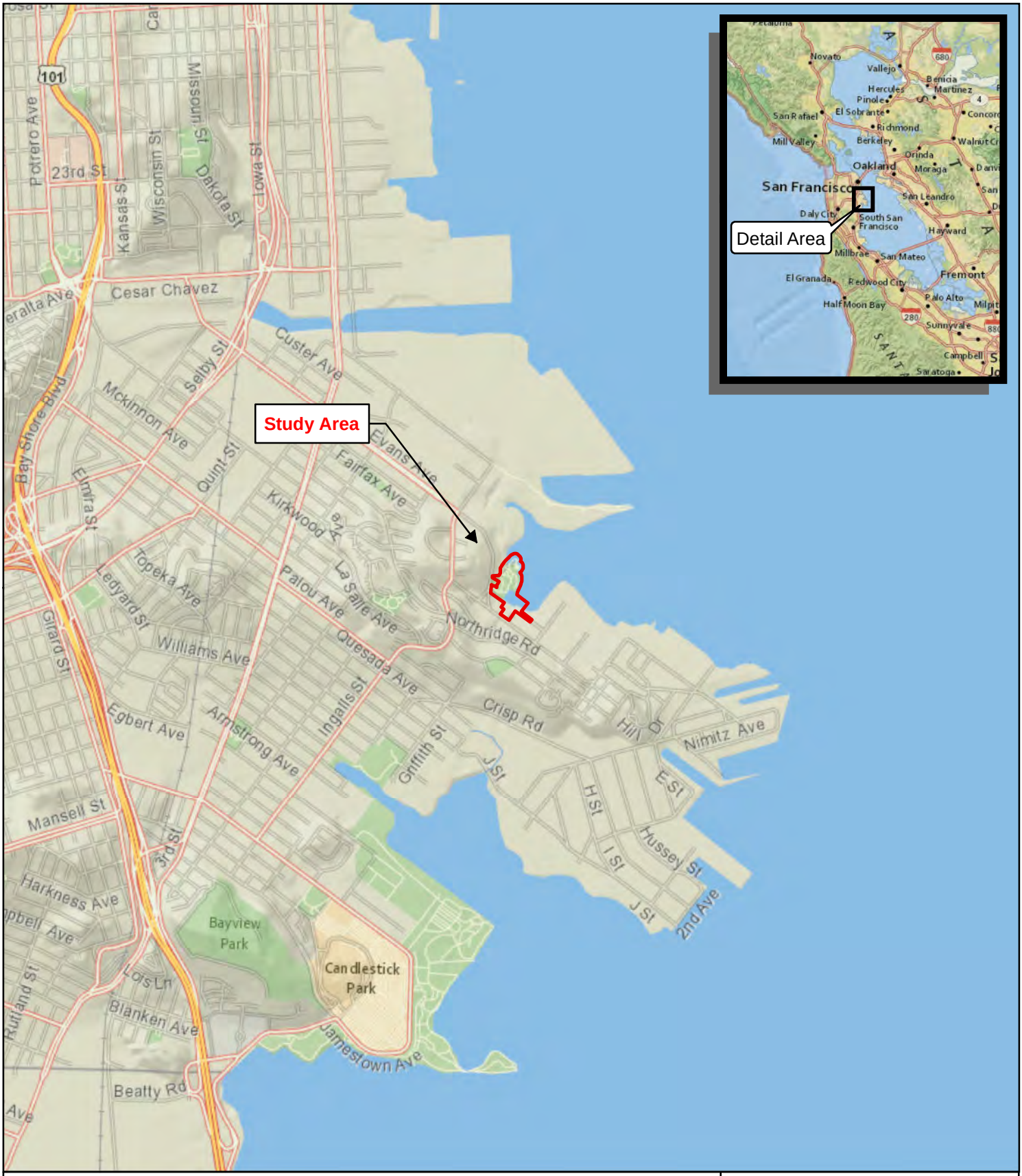

Figure 1. Study Area Location Map

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India Basin Shoreline Park and 900 Innes Ave.
City and County of San Francisco, California

0 1,000 2,000 4,000
Feet

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Map Prepared Date: 6/8/2015
Map Prepared By: pkobylarz
Base Source: Esri, National Geographic
Data Source(s): WRA

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2.0 REGULATORY BACKGROUND

The following sections explain the regulatory context of the biological assessment, including applicable laws and regulations that were applied to the field investigations and analysis of potential project impacts.

2.1 Special-Status Species

Special-status species include those plants and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA). These acts afford protection to both listed and proposed species. In addition, California Department of Fish and Wildlife (CDFW) Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, U.S. Fish and Wildlife Service (USFWS) Birds of Conservation Concern, and CDFW special-status invertebrates, are all considered special-status species. Although CDFW Species of Special Concern generally have no special legal status, they are given special consideration under the California Environmental Quality Act (CEQA). In addition to regulations for special-status species, most birds in the United States, including non-status species, are protected by the Migratory Bird Treaty Act of 1918. Under this legislation, destroying active nests, eggs, and young is illegal. Plant species on the California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (Inventory) with California Rare Plant Ranks (Rank) of 1 and 2 are also considered special-status plant species and must be considered under CEQA. Rank 3 and Rank 4 species are afforded little or no protection under CEQA, but are included in this analysis for completeness. A description of the CNPS Ranks is provided below in Table 1.

Table 1. Description of CNPS Ranks and Threat Codes

California Rare Plant Ranks (formerly known as CNPS Lists)	
Rank 1A	Presumed extirpated in California and either rare or extinct elsewhere
Rank 1B	Rare, threatened, or endangered in California and elsewhere
Rank 2A	Presumed extirpated in California, but more common elsewhere
Rank 2B	Rare, threatened, or endangered in California, but more common elsewhere
Rank 3	Plants about which more information is needed - A review list
Rank 4	Plants of limited distribution - A watch list
Threat Ranks	
0.1	Seriously threatened in California
0.2	Moderately threatened in California
0.3	Not very threatened in California

Critical Habitat

Critical habitat is a term defined in the ESA as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The ESA requires federal agencies to consult with the USFWS to conserve listed species on their lands and to ensure that any activities or projects they fund, authorize, or carry out will not jeopardize the survival of a threatened or endangered species. In consultation for those species with critical habitat, federal agencies must also

ensure that their activities or projects do not adversely modify critical habitat to the point that it will no longer aid in the species' recovery. In many cases, this level of protection is similar to that already provided to species by the ESA jeopardy standard. However, areas that are currently unoccupied by the species but which are needed for the species' recovery are protected by the prohibition against adverse modification of critical habitat.

2.2 Sensitive Biological Communities

Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, or riparian habitat. These habitats are protected under federal regulations such as the Clean Water Act; state regulations such as the Porter-Cologne Act, the CDFW Streambed Alteration Program, and CEQA; or local ordinances or policies such as city or county tree ordinances, Special Habitat Management Areas, and General Plan Elements.

Waters of the United States

The U.S. Army Corps of Engineers (Corps) regulates "Waters of the United States" under Section 404 of the Clean Water Act. Waters of the U.S. are defined in the Code of Federal Regulations (CFR) as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands as defined in the Corps *Wetlands Delineation Manual* (Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Other waters, for example, generally include lakes, rivers, and streams in addition to all areas below the high tide line (HTL) in areas subject to tidal influence. Jurisdiction in non-tidal areas extends to the ordinary high water mark (OHWM). The placement of fill material into Waters of the U.S generally requires an individual or nationwide permit from the Corps under Section 404 of the Clean Water Act.

Waters of the State

The term "Waters of the State" is defined by the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." The Regional Water Quality Control Board (RWQCB) protects all waters in its regulatory scope and has special responsibility for wetlands, riparian areas, and headwaters. These waterbodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. RWQCB jurisdiction includes "isolated" wetlands and waters that may not be regulated by the Corps under Section 404. Waters of the State are regulated by the RWQCB under the State Water Quality Certification Program which regulates discharges of fill and dredged material under Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act. Projects that require a Corps permit, or fall under other federal jurisdiction, and have the potential to impact Waters of the State, are required to comply with the terms of the Water Quality Certification determination. If a proposed project does not require a federal permit, but does involve dredge or fill activities that may result in a discharge to Waters of the State, the RWQCB has the option to regulate the dredge and fill activities under its state authority in the form of Waste Discharge Requirements.

Streams, Lakes, and Riparian Habitat

Streams and lakes, as habitat for fish and wildlife species, are subject to jurisdiction by CDFW under Sections 1600-1616 of California Fish and Game Code. Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term "stream", which includes creeks and rivers, is defined in the California

Code of Regulations (CCR) as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life [including] watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (14 CCR 1.72). In addition, the term “stream” can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG 1994). “Riparian” is defined as “on, or pertaining to, the banks of a stream.” Riparian vegetation is defined as “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself” (CDFG 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

San Francisco Bay and Shoreline

The San Francisco Bay Conservation and Development Commission (BCDC) has regulatory jurisdiction, as defined by the McAteer-Petris Act, over the San Francisco Bay and its shoreline, which generally consists of the area between the shoreline and a line 100 feet landward of and parallel to the shoreline. Within the Study Area, BCDC has two areas of jurisdiction: the San Francisco Bay and the 100-foot shoreline band. Definitions of these areas, as described in the McAteer-Petris Act (PRC Section 66610), are given below.

> **San Francisco Bay:** all areas that are subject to tidal action from the south end of the Bay to the Golden Gate (Point Bonita-Point Lobos) and to the Sacramento River line (a line between Stake Point and Simmons Point, extending northeasterly to the mouth of Marshall Cut), including all sloughs, and specifically, the marshlands lying between mean high water (MHW) and five feet above mean sea level; tidelands (land lying between MHW and mean low tide); and submerged lands (land lying below mean low tide).
>
> **100-foot Shoreline Band:** all territory located between the shoreline of San Francisco Bay as defined above and a line 100 feet landward of and parallel with that line, but excluding any portions of such territory which are included in other areas of BCDC jurisdiction, provided that the Commission may, by resolution, exclude from its area of jurisdiction any area within the shoreline band that it finds and declares is of no regional importance to the Bay.

Essential Fish Habitat

Essential Fish Habitat (EFH) is regulated through the National Marine Fisheries Service (NMFS), a division of the National Oceanic and Atmospheric Administration (NOAA). Protection of EFH is mandated through changes implemented in 1996 to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) to protect the loss of habitat necessary to maintain sustainable fisheries in the United States. The Magnuson-Stevens Act defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" [16 USC 1802(10)]. NMFS further defines EFH as areas that "contain habitat essential to the long-term survival and health of our nation's fisheries" (NMFS 2007). Essential Fish Habitat can include the water column, certain bottom types such as sandy or rocky bottoms, vegetation such as eelgrass or kelp, or structurally complex coral or oyster reefs. Under regulatory guidelines issued by NMFS, any federal agency that authorizes, funds, or undertakes action that may affect EFH is required to consult with NMFS (50 CFR 600.920).

Other Sensitive Biological Communities

Other sensitive biological communities not discussed above include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in its California Natural Diversity Database (CNDDB; CDFW 2013). Sensitive plant communities are also identified by CDFW (2010). CNDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2010) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or USFWS must be considered and evaluated under CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G). Specific habitats may also be identified as sensitive in city or county general plans or ordinances.

3.0 METHODS

On March 11, 2015, the Study Area was traversed on foot to determine (1) plant communities present within the Study Area, (2) if existing conditions provided suitable habitat for any special-status plant or wildlife species, and (3) if sensitive habitats are present. All plant and wildlife species encountered were recorded, and are summarized in Appendix A. Plant nomenclature follows Baldwin et al. (2012) and subsequent revisions by the Jepson Flora Project (2015), except where noted. Because of recent changes in classification for many of the taxa treated by Baldwin et al. and the Jepson Flora Project, relevant synonyms are provided in brackets. For cases in which regulatory agencies, CNPS, or other entities base rarity on older taxonomic treatments, precedence was given to the treatment used by those entities.

3.1 Biological Communities

Prior to the site visit, the Soil Survey of San Francisco County, California (Web Soil Survey 2014), aerial photographs (Google Earth 2015) and USGS 7.5 minute quadrangles for Hunter's Point (USGS 1947-2012) were examined to determine if any unique soil types that could support sensitive plant communities and/or aquatic features were present in the Study Area. Biological communities present in the Study Area were classified based on existing plant community descriptions described in the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). However, in some cases it is necessary to identify variants of community types or to describe non-vegetated areas that are not described in the literature. Biological communities were classified as sensitive or non-sensitive as defined by CEQA and other applicable laws and regulations.

3.1.1 Non-sensitive Biological Communities

Non-sensitive biological communities are those communities that are not afforded special protection under CEQA, and other state, federal, and local laws, regulations and ordinances. These communities may, however, provide suitable habitat for some special-status plant or wildlife species and are identified or described in Section 4.1.1 below.

3.1.2 Sensitive Biological Communities

Sensitive biological communities are defined as those communities that are given special protection under CEQA and other applicable federal, state, and local laws, regulations and ordinances. Applicable laws and ordinances are discussed above in Section 2.0. Special methods used to identify sensitive biological communities are discussed below.

Wetlands and Waters

The Study Area was surveyed to determine if any wetlands and waters potentially subject to jurisdiction by the Corps, RWQCB, or CDFW were present. The assessment was based primarily on the presence of wetland plant indicators, but may also include any observed indicators of wetland hydrology or wetland soils. Any potential wetland areas were identified as areas dominated by plant species with a wetland indicator status[1] of OBL, FACW, or FAC as given on the Corps National Wetlands Plant List (Lichvar 2014). Evidence of wetland hydrology can include direct evidence (primary indicators), such as visible inundation or saturation, algal mats, and oxidized root channels, or indirect (secondary) indicators, such as a water table within two feet of the soil surface during the dry season. Some indicators of wetland soils include dark colored soils, soils with a sulfidic odor, and soils that contain redoximorphic features as defined by the Corps Manual (Environmental Laboratory 1987) and Field Indicators of Hydric Soils in the United States (NRCS 2010).

The elevation of the MHW and the HTL was determined based on the data reported by the National Oceanic and Atmospheric Administration (NOAA) for the San Francisco Pier 22 ½ (Station ID #9414317), correlated to correspond with North American Vertical Datum (NAVD) 1988. The elevation of the MHW was determined to be approximately 5.62 feet NAVD88. The elevation of the HTL was determined to be approximately 7.63 feet NAVD88.

Other Sensitive Biological Communities

The Study Area was evaluated for the presence of other sensitive biological communities, including riparian areas and sensitive plant communities recognized by CDFW. Prior to the site visit, aerial photographs, local soil maps, the *List of Vegetation Alliances* (CDFG 2009), and *A Manual of California Vegetation* (Sawyer et al. 2009) were reviewed to assess the potential for sensitive biological communities to occur in the Study Area. All alliances within the Study Area with a ranking of 1 through 3 were considered sensitive biological communities and mapped. These communities are described in Section 4.1.2 below.

3.2 Special-Status Species

3.2.1 Literature Review

Potential occurrence of special-status species in the Study Area was evaluated by first determining which special-status species occur in the vicinity of the Study Area through a literature and database search. Database searches for known occurrences of special-status species focused on the Hunter's Point 7.5 minute USGS quadrangle and the two surrounding USGS quadrangles, North San Francisco and South San Francisco quadrangles. The following sources were reviewed to determine which special-status plant and wildlife species have been documented to occur in the vicinity of the Study Area:

- California Natural Diversity Database (CNDDB) records (CDFW 2015)
- USFWS quadrangle species lists (USFWS 2015)
- CNPS Inventory records (CNPS 2015)
- CDFG publication "California's Wildlife, Volumes I-III" (Zeiner et al. 1990)

[1] OBL = Obligate, always found in wetlands (> 99% frequency of occurrence); FACW = Facultative wetland, usually found in wetlands (67-99% frequency of occurrence); FAC = Facultative, equal occurrence in wetland or non-wetlands (34-66% frequency of occurrence).

- CDFG publication “Amphibians and Reptile Species of Special Concern in California” (Jennings 1994)
- A Field Guide to Western Reptiles and Amphibians (Stebbins 2003)
- California Bird Species of Special Concern (Shuford and Gardali 2008)

3.2.2 Site Assessment

A site visit was made to the Study Area to search for suitable habitats for special-status species. Habitat conditions observed in the Study Area were used to evaluate the potential for presence of special-status species based on these searches and the professional expertise of the investigating biologists. The potential for each special-status species to occur in the Study Area was then evaluated according to the following criteria:

- No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- Present. Species is observed on the site or has been recorded (i.e. CNDDB, other reports) on the site recently.

The site assessment is intended to identify the presence or absence of suitable habitat for each special-status species known to occur in the vicinity in order to determine its potential to occur in the Study Area. The site visit does not constitute a protocol-level survey and is not intended to determine the actual presence or absence of a species; however, if a special-status species is observed during the site visit, its presence will be recorded and discussed.

In cases where little information is known about species occurrences and habitat requirements, the species evaluation was based on best professional judgment of WRA biologists with experience working with the species and habitats. If necessary, recognized experts in individual species biology were contacted to obtain the most up to date information regarding species biology and ecology.

If a special-status species was observed during the site visit, its presence is recorded and discussed below in Section 4.2. For some species, a site assessment visit at the level conducted for this report may not be sufficient to determine presence or absence of a species to the specifications of regulatory agencies. In these cases, a species may be assumed to be present or further protocol-level special-status species surveys may be necessary. Special-status species for which further protocol-level surveys may be necessary are described below in Section 5.0.

4.0 RESULTS

The Study Area consists of an approximately 11.42-acre area adjacent to India Basin (San Francisco Bay), in the City and County of San Francisco. The Study Area includes the India Basin Shoreline Park and the property at 900 Innes Avenue. Currently, the site is bordered by industrial, commercial, and residential uses to the west and south on Hunters Point Boulevard and Innes Avenue, and the former Hunters Point Power Plant and Heron's Head Park to the north. Elevations range from approximately 0 to 40 feet. Through the 1940s, much of the site was open Bay water and was used for recreational and commercial boat access. By 1956, some areas of open Bay water in the Study Area were filled.

4.1 Biological Communities

Five non-sensitive biological communities were observed within the Study Area: developed land, disturbed infill, mixed landscaping, sand/gravel, and riprap. Three sensitive biological communities were observed in the Study Area: developed open water, open waters, and tidal marsh. Descriptions for each biological community are contained in the following sections. Biological communities within the Study Area are shown in Figure 2. Table 2 provides a breakdown of acreage for each community.

Table 1. Summary of Biological Communities in the Study Area

Community Type	**Area (acres)**
Non-sensitive Biological Communities	
Developed Land	4.07
Disturbed Infill	0.66
Mixed Landscaping	3.41
Sand/Gravel	0.05
Riprap*	0.17
Sensitive Biological Communities	
Developed Open Water	0.28
Open Waters	2.65
Tidal Marsh	0.13
Total	**11.42**

*Area of riprap located above the HTL

4.1.1 Non-Sensitive Biological Communities

Developed Land

Developed land within the Study Area consisted of paved areas within the India Basin Shoreline Park and south of the park in the southwest region of the Study Area. No vegetation is present in these areas. There are approximately 4.07 acres of developed land within the Study Area. Wildlife observed in this community includes Canada goose (*Branta canadensis*) and American crow (*Corvus brachyrhynchos*).

Figure 2. Biological Communities

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India Basin Shoreline Park and 900 Innes Ave.
City and County of San Francisco, California

0 50 100 200
Feet

Map Prepared Date: 6/9/2015
Map Prepared By: pkobylarz
Base Source: Esri Streaming Imagery 2010
Data Source(s):WRA

Path: L:\Acad 2000 Files\24000\24318\GIS\ArcMap\Figure 4 Biological Communities.mxd

Disturbed Infill

Disturbed infill within the Study Area consisted primarily of compacted, disturbed soils and scattered ruderal, non-native grass, herbaceous species, and shrubs. This area also contained scattered debris and rubble. The dominant vegetation in disturbed infill included wild oats (*Avena* sp., NL), ripgut brome (*Bromus diandrus*, NL), foxtail chess (*Bromus madritensis*, UPL), soft chess (*Bromus hordeaceus*, FACU), fennel (*Foeniculum vulgare*, NL), wild radish (*Raphanus sativus,* NL), coyote brush (*Baccharis pilularis*, NL), and Himalayan blackberry (*Rubus armeniacus*, FACU), among other species. Approximately 0.66 acre of disturbed infill is present in the Study Area. Wildlife observed in this community includes Canada goose.

Mixed Landscaping

Maintained landscaping is located throughout India Basin Shoreline Park. Vegetation within this area consists predominantly of mowed grasses and herbaceous species with mixed native and non-native shrubs and trees. Dominant shrub and tree species included silver wattle (*Acacia dealbata*, NL), California buckeye (*Aesculus californica*, NL), toyon (*Heteromeles arbutifolia*, NL), bush lupine (*Lupinus* sp., NL), Fremont cottonwood (*Populus fremontii* ssp. *fremontii*, FACW), and coast live oak (*Quercus agrifolia*, NL), among other species. Approximately 3.41 acres of mixed landscaping is present in the Study Area. Wildlife observed in this biological community includes western tiger swallowtail (*Papilio rutulus*), American crow, Anna's hummingbird (*Calypte anna)*, and northern mockingbird (*Mimus polyglottos*).

Sand/Gravel

Approximately 0.05 acre of sand and gravel are located in the southern portion of the Study Area. Although not described in the literature, the sand/gravel community consists of sand, coarse gravel, and some deposited debris material. There is little to no vegetation in this community.

Riprap

Approximately 0.17 acre of riprap is located on the shoreline of the India Basin Shoreline Park. This includes only the area of riprap located above the HTL. The portion of riprap below the HTL is accounted for as part of open water. In some areas, the riprap is engineered to provide a permanent shoreline, while in other areas the riprap appeared to be interspersed with gravel and rocky debris.

4.1.2 Sensitive Biological Communities

Developed Open Water

Approximately 0.28 acre of developed open water is located in the southern region of the Study Area. Developed open water includes areas bayward of the HTL that contain a concrete substructure or large debris material, or are located beneath existing docks and other pile-supported structures. Developed open water in the Study Area is largely unvegetated and subject to the tides. Wildlife observed in this biological community includes western gull (*Larus occidentalis*).

Open Waters

Open water (San Francisco Bay) within the Study Area comprises approximately 2.65 acres. Open water within the Study Area extends to approximately the HTL (7.63 feet NAVD88). Common shorebirds including American avocet (*Recurvirostra americana*), black-necked stilt (*Himantopus mexicanus*), and western gull were observed in the open waters habitat.

Tidal Marsh

Tidal marsh within the Study Area is located in two inlets in the northern part of India Basin Shoreline Park. These tidal marsh features are not remnant tidal marsh features as the site was previously open water. The tidal marsh habitat onsite appears to have established subsequent to the deposition of a large quantity of fill material placed for the creation of present-day India Basin Shoreline Park (Google Earth 2015). Referred to as northern coastal salt marsh in Holland (1986), this community is highly productive and comprised of herbaceous hydrophytes. Typically found along sheltered inland margins of bays and estuaries, this marsh is subject to regular tidal inundation by salt water for at least part of the year. Within the Study Area, tidal marsh vegetation was dominated by saltgrass (*Distichlis spicata*, FACW), alkali heath (*Frankenia salina*, FACW), marsh jaumea (*Jaumea carnosa*, OBL), and pickleweed (*Salicornia pacifica*, OBL). Approximately 0.13 acre of tidal marsh habitat is located within the Study Area. Wildlife observed in this biological community includes Sierran tree frog (*Pseudacris sierra*) and white-crowned sparrow (*Zonotrichia leucophrys*).

4.2 Special-Status Species

4.2.1 Plants

Based upon a review of the resources and databases given in Section 3.2.1, 61 special-status plant species have been documented in the vicinity of the Study Area. Of these, six special-status species have a low potential to occur within tidal marsh habitats. No special-status plant species have a moderate or high potential to occur. Given its location on fill soils placed in the Bay over the past 50 years, the existing tidal marsh within the Study Area is relatively young and low quality. As such, special-status plants typically found in salt marshes are unlikely to occur within the low-quality fill soils in this onsite community. Appendix B summarizes the potential for occurrence for each special-status plant species occurring within the Study Area. The Study Area is unlikely to support any of the special-status plant species documented in the vicinity primarily due to a lack of suitable habitat. For instance, the Study Area does not support serpentine soils, coniferous forest, or valley and foothill grassland. Habitats within the Study Area are based on fill soils and are highly disturbed; both of these features lower the potential for the site to support sensitive plant species. No special-status plant species were observed in the Study Area during the assessment site visit.

The site assessment occurred during the blooming period of 28 of the 61 special-status plant species with a potential to occur in the Study Area; however, none of the potentially blooming species were observed.

4.2.2 Wildlife

Thirty-two special-status species of wildlife have been recorded in the vicinity of the Study Area. Appendix B summarizes the potential for each of these species to occur in the Study Area. No special-status wildlife species were observed in the Study Area during the site assessment. No special-status wildlife species have a high potential to occur in the Study Area, and two special-status wildlife species have a moderate potential to occur in the Study Area. Both EFH and designated critical habitat are present in the Study Area. A majority of special-status species are precluded from occurring within the Study Area because of lack of suitable habitat including lack of suitable tidal marsh habitat, eelgrass or vegetated water habitats, and high levels of human disturbance. In addition, most structures within the Study Area do not provide suitable bat roost habitat because of structure material, the structure has become dilapidated and overly exposed to provide suitable thermal conditions, and high human disturbance in the area.

However, the abandoned house may provide suitable roost habitat for one species of special-status bat. Special-status wildlife species that were observed or have a moderate potential to occur in the Study Area and EFH are discussed below.

Hoary bat (*Lasiurus cinereus*), WBWG Medium Priority. Moderate Potential. Hoary bats are highly associated with forested habitats in the western United States, particularly in the Pacific Northwest. They are a solitary species and roost primarily in foliage of both coniferous and deciduous trees, near the ends of branches, usually at the edge of a clearing. Roosts are typically 10 to 30 feet above the ground. They have also been documented roosting in caves, beneath rock ledges, in woodpecker holes, in grey squirrel nests, under driftwood, and clinging to the side of buildings, though this behavior is not typical. Hoary bats are thought to be highly migratory, however, wintering sites and migratory routes have not been well documented. This species tolerates a wide range of temperatures and has been captured at air temperatures between 0 and 22 degrees Celsius. This species reportedly has a strong preference for moths, but is also known to eat beetles, flies, grasshoppers, termites, dragonflies, and wasps (WBWG 2015). The abandoned and shuttered house within the Study Area and an overgrown shed have the potential to support roost habitat for this species. This species has a moderate potential to occur within the Study Area.

Alameda (South Bay) song sparrow (*Melospiza melodia pusillula*), CDFW Species of Special Concern, USFWS Bird of Conservation Concern. Moderate Potential. This songbird nests in tidal marsh vegetation and adjacent weedy vegetation on levees. It occurs in the salt marshes of the south San Francisco Bay and requires low, dense vegetation such as Grindelia for cover and nesting. The majority of the Study Area does not contain suitable nesting habitat for this species, except for the tidal marsh along the eastern shore of India Basin Shoreline Park. The tidal marsh in the northern Study Area does not contain vegetation of suitable height or density to provide nesting habitat. Alameda song sparrow is known to nest at Heron's Head Park approximately 0.25 mile north which contains suitable tidal marsh habitat. Although suitable tidal marsh within the Study Area is limited, the proximity to suitable habitat results in a moderate potential for nesting by this species in the eastern tidal marsh.

Essential Fish Habitat and Designated Critical Habitat. Present. The open water habitat within the Study Area is EFH and designated critical habitat for green sturgeon (*Acipenser medirostris;* 74 FR 52300-52351) and salmonids (70 FR 52488-52586) including steelhead (*Oncorhynchus mykiss irideus*) and Chinook salmon (*Oncorhynchus tshawytscha*). The open water habitat is predominantly intertidal, shallow, unvegetated, and composed of mud substrate; therefore, fish species are unlikely to be present within the Study Area. Although special-status fish species including salmonids and green sturgeon are unlikely to be present in the Study Area, designated critical habitat and EFH are present. NMFS regulates both EFH and federally listed anadromous species including green sturgeon and salmonids.

Federally listed species that are documented to occur within the vicinity of the Study Area, but are unlikely to occur include: California Ridgway's Rail (CRR; *Rallus obsoletus obsoletus*). This species are discussed below.

Ridgway's (California clapper) rail (*Rallus [longirostris] obsoletus obsoletus*), Federal Endangered, State Endangered, CDFW Fully Protected. Nesting occurs predominantly in the low portions of coastal wetlands and tidal sloughs dominated by cordgrass (*Spartina* spp.), pickleweed (*Salicornia* spp.), and gumplant (*Grindelia cuneifolia*). Factors important for breeding are well-developed sloughs and secondary tidal channels; extensive (dense, tall, lush) cordgrass (*Spartina* spp.) stands; dense salt marsh vegetation for cover, nest sites, and

brooding areas; intertidal mudflats, gradually sloping banks of tidal channels, and cordgrass beds for foraging; abundant invertebrate food resources; and transitional vegetation at the upland edge of the salt marsh as a refuge during high tides (Harvey 1988). Nests are placed to avoid flooding by tides, yet in dense enough cover to be hidden from predators and to support a relatively large nest. The tidal marsh within the Study Area does not contain suitable habitat for CRR nesting and minimal foraging habitat. Tidal mudflats for foraging are largely nonexistent within the Study Area, and pickleweed and gumplant is not of sufficient height or extent to provide cover for nesting. The nearest potential nesting habitat is approximately 0.25 mile (1,000 feet) north of the Study Area at Heron's Head Park. Typical disturbance buffers surrounding CRR nesting habitat is approximately 700 feet. The Study Area lacks suitable CRR habitat and the proposed Project will not disturb nesting CRR at Heron's Head Park if Project activities are conducted within the nesting season because of distance from the Study Area from nesting habitat. No impacts are anticipated to CRR from the proposed Project.

All of the wildlife observed in the Study Area during the site visit are commonly found species, and many are adapted to occupying disturbed or urban areas. No special-status wildlife species were observed.

5.0 SUMMARY AND RECOMMENDATIONS

Three sensitive plant communities were identified within the Study Area. Two special-status wildlife species have a moderate or high potential to occur within the Study Area. No special-status plant species have moderate or high potential to occur within the Study Area. The following sections present recommendations for future studies and/or measures to avoid or reduce impacts to these species and sensitive habitats.

5.1 Biological Communities

Most of the Study Area is comprised of disturbed fill and landscaped areas, which are not sensitive biological communities. However, the Study Area does contain 0.28 acre of developed open water, 2.65 acres of open water, and 0.13 acre of tidal marsh, which are potentially within the jurisdiction of the Corps under Section 404 of the Clean Water Act and the RWQCB under the Porter Cologne Act and Section 401 of the Clean Water Act. A jurisdictional wetland delineation has been performed in the Study Area and has been recommended for submitting to the Corps for verification.

In addition, the Bay and shoreline are subject to BCDC's jurisdiction pursuant to the McAteer-Petris Act, as shown on Figure 3. BCDC's jurisdiction includes areas of Bay jurisdiction (up to MHW, or in areas where tidal marsh is present, to the inland edge of the tidal marsh) and shoreline band jurisdiction (all areas within 100 feet from the edge of the Bay).

5.2 Special-Status Plant Species

Of the 61 special-status plant species known to occur in the vicinity of the Study Area, none were determined to have moderate or high potential to occur within the Study Area. The Study Area is unlikely to support any of the special-status plant species documented in the vicinity primarily due to a lack of suitable habitat; the site is highly disturbed and the soils are comprised predominantly of infill material. No protocol-level rare plant surveys are recommended for any potential activities within the Study Area.

Figure 3. BCDC Jurisdiction

N
W E
S

ENVIRONMENTAL CONSULTANTS

India Basin Shoreline Park and 900 Innes Ave.
City and County of San Francisco, California

0 50 100 200
Feet

Map Prepared Date: 6/9/2015
Map Prepared By: pkobylarz
Base Source: Esri Streaming Imagery 2010
Data Source(s):WRA

Path: L:\Acad 2000 Files\24000\24318\GIS\ArcMap\Figure 5 BCDC.mxd

5.3 Special-Status Wildlife Species

Of the 32 special-status wildlife species known to occur in the vicinity of the Study Area, two were determined to have the potential to occur in the Study Area. Most of the species found in the review of background literature occur in habitats not found in the Study Area. Tidal marsh habitat is extremely limited within the Study Area and not suitable for most tidal marsh species. Suitable tidal marsh habitat is greater than 800 feet from the Study Area, and beyond disturbance buffers for listed species such as CRR. Open water habitat within the Study Area is unvegetated, shallow, and does not contain cover, spawning, rearing, or foraging habitats for fish species; however, open water habitat within the Study Area is still considered EFH and designated critical habitat. Any in-water work is proposed, it would require consultation with NMFS for potential effects to EFH, designated critical habitat, and listed species including green sturgeon and salmonids. Dependent upon proposed project activities, NMFS consultation may be informal or in the form of a Technical Assist.

Special-status and non-special-status nesting birds

This assessment determined that one bird species may use the Study Area for nesting and foraging, and birds protected under the Migratory Bird Treaty Act may also use the Study Area for nesting. If ground disturbance is initiated within the nesting bird season (February 15 through August 31), it is recommended that pre-construction nesting bird surveys be conducted within 14 days of ground disturbance to avoid disturbance to active nests, eggs, and/or young of ground-nesting birds. If active nests are observed, an appropriate buffer will be established by a qualified biologist to avoid impacts to the nest, and no work will be conducted within the buffer until the nest has been determined to be complete. It is also recommended that any trees, shrubs, or buildings in or adjacent to the Study Area that are proposed for removal, be removed during the non-breeding season (September through February 14).

Roosting bats

One bat species was determined to have potential to roost within the abandoned house and a shed within the Study Area. It is recommended if the house or shed are to be removed or impacted, within 14 days prior a bat roost assessment and/or emergence survey be conducted to determine if either structure is used for roosting by bats. If it is determined to be occupied by bats, then CDFW should be contacted for further mitigation measures and including an exclusion plan.

6.0 CONCLUSION

Based on the results of this assessment, it is anticipated that future activities within the Study Area may impact potentially jurisdictional features including developed open water, open water, and tidal marsh. Final determination regarding the jurisdictional status of these potentially jurisdictional features will be made by the Corps following site review. It is not anticipated that the project activities will result in impacts to special-status plant species or special-status wildlife species. No special-status plants were observed during the site visit, and none are expected to occur within the Study Area; accordingly, no avoidance measures are required. No special-status wildlife species were observed during the site visit. Two special-status wildlife species have a moderate potential to occur within the Study Area. Although special-status fish species are unlikely to occur within the Study Area, the open water habitat is considered EFH and is designated critical habitat. If in-water work is proposed, then consultation or assistance with

NMFS is necessary. Avoidance measures including nesting bird surveys and a bat roost assessment are recommended to avoid potential impacts to special-status birds, non-special-status nesting birds, and special-status bats.

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APPENDIX A

List of Observed Plant and Wildlife Species

Appendix A. Wildlife and plant species observed by WRA biologists during the March 11, 2015 site visit.

SCIENTIFIC NAME	COMMON NAME
Birds	
Egretta thula	snowy egret
Ardea alba	great egret
Ardea herodias	great blue heron
Numenius phaeopus	whimbrel
Tringa semipalmata	willet
Recurvirostra americana	American avocet
Himantopus mexicanus	black-necked stilt
Pelecanus occidentalis	brown pelican (offshore, not in Study Area)
Branta canadensis	Canada goose
Fulica americana	American coot
Aechmophorus occidentalis	western grebe
Anas americana	American wigeon
Oxyura jamaicensis	ruddy duck
Bucephala albeola	bufflehead
Larus occidentalis	western gull
Calypte anna	Anna's hummingbird
Mimus polyglottos	northern mocking bird
Haemorhous mexicanus	house finch
Columba livia	rock pigeon
Streptopelia decaocto	Eurasian collared dove
Euphagus cyanocephalus	Brewer's blackbird
Corvus brachyrhynchos	American crow
Corvus corax	common raven
Sturnus vulgaris	European starling
Melozone crissalis	California towhee
Zonotrichia leucophrys	white-crowned sparrow
Mammals	
Thomomys bottae	Botta's pocket gopher (mounds)
Procyon lotor	Raccoon (tracks and carcass)
Amphibians	
Pseudacris sierra	Sierran tree frog
Invertebrates	
Papilio rutulus	western tiger swallowtail
Hemigrapsus nudus	purple shoreline crab
Plants	
Acacia dealbata	silver wattle
Achillea millefolium	common yarrow

SCIENTIFIC NAME	COMMON NAME
Aesculus californica	California buckeye
Agoseris heterophylla var. *heterophylla*	annual agoseris
Artemisia californica	coast sagebrush
Avena barbata	slender oat
Avena fatua	wild oat
Baccharis pilularis	coyote brush
Bromus catharticus var. *elatus*	Chilean brome
Bromus diandrus	ripgut brome
Bromus hordeaceus	soft chess
Bromus madritensis	foxtail chess
Cakile maritima	European searocket
Callitriche heterophylla var. *heterophylla*	water starwort
Carpobrotus chilensis	sea fig
Carpobrotus edulis	iceplant
Centranthus ruber	red valerian
Cortaderia jubata	pampas grass
Distichlis spicata	saltgrass
Erodium botrys	longbeak stork's bill
Erodium cicutarium	redstem stork's bill
Eucalyptus globulus	blue gum
Festuca myuros	rattail fescue
Festuca rubra	red fescue
Foeniculum vulgare	fennel
Fragaria vesca	woodland strawberry
Frankenia salina	alkali heath
Genista monspessulana	French broom
Geranium dissectum	cutleaf geranium
Geranium molle	woodland geranium
Glebionis coronaria	corndaisy
Grindelia stricta var. *stricta*	Oregon gumweed
Helminthotheca echioides	bristly ox-tongue
Heteromeles arbutifolia	toyon
Heterotheca grandiflora	telegraph weed
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley
Hordeum murinum	foxtail
Iris douglasiana	Douglas' iris
Jaumea carnosa	marsh jaumea
Juncus sp.	rush

SCIENTIFIC NAME	COMMON NAME
Liliaceae sp.	lily (not in bloom)
Limonium perezii	sealavender
Limosella australis	Welsh mudwort
Lotus corniculatus	bird's-foot trefoil
Lupinus albifrons var. *albifrons*	silver bush lupine
Lupinus arboreus	yellow bush lupine
Malva parviflora	cheeseweed mallow
Medicago polymorpha	bur medic
Mimulus aurantiacus var. *aurantiacus*	sticky monkey
Oxalis pes-caprae	Bermuda buttercup
Phytolacca icosandra	tropical pokeweed
Plantago coronopus	buckhorn plantain
Plantago lanceolata	English plantain
Populus fremontii ssp. *fremontii*	Fremont cottonwood
Pyracantha angustifolia	narrowleaf firethorn
Quercus agrifolia var. *agrifolia*	coast live oak
Raphanus sativus	wild radish
Rubus armeniacus	Himalayan blackberry
Rumex crispus	curly dock
Salicornia pacifica	pickleweed
Salix lasiolepis	arroyo willow
Silybum marianum	milk thistle
Trifolium dubium	shamrock clover
Vicia sativa ssp. *sativa*	pubescent common vetch

APPENDIX B

Potential for Special-Status Species to Occur in the Study Area

Appendix B. Evaluation of Special-Status Plant and Wildlife Species Documented in the Vicinity of the Study Area. Rank compiled from the California Department of Fish and Wildlife (CDFW) Natural Diversity Database (CDFW 2015), U.S. Fish and Wildlife Service (USFWS 2015) Species Rank for San Francisco County, and California Native Plant Society (CNPS 2015) Electronic Inventory search of the Hunter's Point, North San Francisco and South San Fransisco USGS 7.5 minute quadrangles and a review of other CDFW Ranks and publications (Zeiner et al. 1990, Shuford and Gardali 2008).

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
MAMMALS				
Townsend's big-eared bat *Corynorhinus townsendii*	SC, SSC, WBWG High	This species is associated with a wide variety of habitats from deserts to mid-elevation mixed coniferous-deciduous forest. Females form maternity colonies in buildings, caves and mines and males roost singly or in small groups. Foraging occurs in open forest habitats where they glean moths from vegetation.	**Unlikely.** The majority of the Study Area is highly disturbed, and does not provide suitable roost habitat. The abandoned house could provide roost habitat; however, this species is sensitive to disturbance at roost sites and there is a high level of human disturbance in the vicinity.	No further surveys or avoidance measures are necessary.
Western red bat *Lasiurus blossevillii*	SSC,WBWG High	This species is typically solitary, roosting primarily in the foliage of trees or shrubs. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores).	**Unlikely.** These areas are highly disturbed, and there is no suitable open space habitat in the immediate vicinity. With limited foraging opportunity it is unlikely this species will be present in the area.	No further surveys or avoidance measures are necessary.
Hoary bat *Lasiurus cinereus*	WBWG Medium	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	**Moderate Potential.** The majority of the Study Area is highly disturbed, and does not provide suitable roost habitat. However, the abandoned shed and house may provide roost habitat.	Pre-construction roost survey or work windows.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
American badger *Taxidea taxus*	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Requires friable soils and open, uncultivated ground.	**No Potential.** The Study Area is fully developed and urbanized; no suitable habitat for this species is present. This species is not known to occur in the vicinity.	No further surveys or avoidance measures are necessary.
Guadalupe fur seal *Arctocephalus townsendi*	FT, ST, CFP	Breed on Isla de Guadalupe off the coast of Mexico, occasionally found on San Miguel, San Nicolas, and San Clemente islands. Prefers shallow, nearshore island water with cool and sheltered rocky areas for haul-outs.	**No Potential.** The Bay waters adjacent to the Study Area are not typical habitat for this species which lives in the open ocean and rarely comes to land. The nearest recorded sighting is over 30 miles away on the Faralon Islands (CDFW 2014).	No further surveys or avoidance measures are necessary.
Steller (=Northern) sea lion *Eumetopias jubatus*	FT	Breeds on Año Nuevo, San Miguel and Farallon islands, Point Saint George, and Sugarloaf. Needs haul-out and breeding sites with unrestricted access to water, near aquatic food supply and with no human disturbance.	**No Potential.** The Study Area is outside the known range for this species, which generally does not occur within San Francisco Bay.	No further surveys or avoidance measures are necessary.
Salt marsh harvest mouse *Reithrodontomys raviventris*	FE, SE, CFP, RP	Found only in the saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is the primary habitat. Does not burrow, but builds loosely organized nests and requires higher areas for flood escape.	**No Potential.** The Study Area is out of the species' known range; this species is not known in this region of San Francisco Bay.	No further surveys or avoidance measures are necessary.
BIRDS				
Ashy storm-petrel *Oceanodroma homochroa*	BCC, SSC	(Rookery site) colonial nester on off-shore islands. Usually nests on driest part of islands. Forages over open ocean. Nests on islands in crevices beneath loosely piled rocks or driftwood, or in caves.	**No Potential.** The Study Area does not contain any habitat suitable for nesting or foraging. The surrounding Bay waters may be used by the species for foraging and resting.	No further surveys or avoidance measures are necessary.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
California black rail *Laterallus jamaicensis coturniculus*	ST, BCC, CFP	Resident in marshes (saline to freshwater) with dense vegetation below four inches in height. Prefers larger, undisturbed marshes close to a major water source.	**No Potential.** This species has not been documented to occur within 5 miles of the Study Area (CDFW 2015), and suitable habitat for this species is not present.	No further surveys or avoidance measures are necessary.
California Ridgway's (clapper) rail *Rallus obsoletus obsoletus*	FE, SE, CFP, RP	Resident in tidal marshes of the San Francisco Bay Estuary. Requires tidal sloughs and mud flats for foraging, and dense vegetation for nesting. Associated with abundant growth of cordgrass and pickleweed. Largest populations in south San Francisco Bay.	**Unlikely.** This species has been documented to occur within 1,000 feet northeast of the Study Area (CDFW 2015). Salt marsh habitat within the Study Area is extremely limited and is not likely to be used for foraging. Nearest potential nesting habitat is over 850 feet northeast of the Study Area.	No further surveys or avoidance measures are necessary.
Burrowing owl *Athene cunicularia*	BCC, SSC	(Burrow sites and wintering observations) open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	**No Potential.** No suitable burrows or habitat were observed within the Study Area, and the site is outside the known breeding range for this species.	No further surveys or avoidance measures are necessary.
Bank swallow *Riparia riparia*	ST	Migrant in riparian and other lowland habitats in western California. Colonial nester in riparian areas with vertical cliffs and bands with fine-textured or fine-textured sandy soils near streams, rivers, lakes or the ocean.	**Unlikely.** The Study Area provides no suitable vertical faces for nesting. May be present incidentally over the Study Area during migration.	No further surveys or avoidance measures are necessary.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
San Francisco common yellowthroat *Geothlypis trichas sinuosa*	BCC, SSC	Resident of the San Francisco Bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	**Unlikely.** Tall vegetation is extremely limited and is only present in the unmowed area surrounding the wetland. This area is immediately adjacent to the trail which receives high levels of disturbance. In addition, this species is not known to breed in the vicinity.	No further surveys or avoidance measures are necessary.
Alameda song sparrow *Melospiza melodia pusillula*	BCC, SSC	Resident of salt marshes bordering south arm of San Francisco Bay. Inhabits *Salicornia* marshes; nests low in *Grindelia* bushes (high enough to escape high tides) and in *Salicornia*.	**Moderate Potential.** This species prefers tidally influenced habitat and the extent of tidally influenced marsh is limited to the tidal marsh in the central-east portion of the Study Area. The majority of the Study Area does not provide suitable habitat.	Work windows or pre-construction nest survey.
Western snowy plover *Charadrius alexandrinus nivosus*	FT, SSC, BCC, RP	Federal Ranking applies only to the Pacific coastal population. Found on sandy beaches, dry salt ponds, mudflats and adjacent levees, and shores of large alkali lakes. Requires sandy, gravelly or friable soils for nesting.	**Unlikely.** The Study site does not contain sandy beach habitat above the tide line.	No further surveys or avoidance measures are necessary.
California least tern *Sterna antillarum browni*	FE, SE, CFP	Summer resident. Breeds along the California coast from San Francisco Bay south. Nests colonially on barren or sparsely vegetated, flat substrates near water. Forages for small fish, typically in shallow shoreline habitats. San Francisco Bay colonies usually located on dry/abandoned salt ponds and along estuarine shores.	**No Potential.** The Study Area does not contain suitable habitat for this species. Additionally, breeding sites are tracked closely by CDFW and no breeding occurs in the vicinity of the Study Area [CDFW 2012].	No further surveys or avoidance measures are necessary.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
California brown pelican *Pelecanus occidentalis californicus*	FD, SD, CFP	Generally a winter visitor to the region (though present nearly year-round). Nests colonially on offshore islands; nearest rookeries are on the Channel Islands. San Francisco Bay provides important foraging and loafing habitat.	**Unlikely.** This species may occur in open water adjacent to the Study Area, though it does not nest in the area. The Study Area does not include open waters of the Bay, and no impacts to waters of the Bay are anticipated.	No further surveys or avoidance measures are necessary.
AMPHIBIANS				
California red-legged frog *Rana draytonii*	FT, SSC, RP	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development. Must have access to estivation habitat.	**No Potential.** This species has not been documented to occur within 5 miles of the Study Area (CDFW 2015). Additionally, there is no suitable habitat present for this species, and the Study Area is effectively isolated from all surrounding populations by development.	No further surveys or avoidance measures are necessary.
Pacific (=Western) pond turtle *Actinemys marmorata*	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Require basking sites such as partially submerged logs, vegetation mats, or open mud banks, and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	**No Potential**. The Study site contains no long term sources of fresh water which eliminates the major habitat requirement for this species and is disconnected from occupied habitat.	No further surveys or avoidance measures are necessary.
FISHES				

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Green sturgeon *Acipenser medirostris*	FT, SSC, CH	Spawn in the Sacramento River and the Klamath River. Spawn at temperatures between 8-14 degrees C. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.	**Unlikely.** The waters of San Francisco Bay are included in the Critical Habitat designation for this species. However, the Study Area does not contain feeding, rearing, spawning, or other habitats typically used during migration.	No further surveys or avoidance measures are necessary.
Steelhead - Central CA Coast ESU *Oncorhynchus mykiss irideus*	FT, CH	Occurs from the Russian River south to Soquel Creek and Pajaro River. Also in San Francisco and San Pablo Bay Basins. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean.	**Unlikely.** Portions of San Francisco Bay are included in the Critical Habitat designation for this species. However, the Study Area does not contain feeding, rearing, spawning, or other habitats typically used during migration.	No further surveys or avoidance measures are necessary.
Steelhead - Central Valley DPS *Oncorhynchus mykiss irideus*	FT, CH	The Central Valley ESU includes all naturally spawned populations (and their progeny) in the Sacramento and San Joaquin Rivers and their tributaries, excluding San Francisco and San Pablo bays and their tributaries. Preferred spawning habitat for steelhead is in cool to cold perennial streams with high dissolved oxygen levels and fast flowing water. Abundant riffle areas for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding.	**Unlikely.** Portions of San Francisco Bay are included in the Critical Habitat designation for this species. However, the Study Area does not contain feeding, rearing, spawning, or other habitats typically used during migration.	No further surveys or avoidance measures are necessary.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Chinook salmon - California Coastal ESU *Oncorhynchus tshawytscha*	FT, CH	California Coastal Chinook Salmon ESU includes all naturally spawned populations of Chinook salmon from rivers and streams south of the Klamath River (exclusive) to the Russian River (inclusive). Adult numbers depend on pool depth and volume, amount of cover, and proximity to gravel. Water temps >27 degrees C lethal to adults.	**No Potential.** The waters of San Francisco Bay are included in the Critical Habitat designation for this species. However, the Study Area does not contain feeding, rearing, spawning, or other habitats typically used during migration.	No further surveys or avoidance measures are necessary.
Chinook salmon - Central Valley spring-run ESU *Oncorhynchus tshawytscha*	FT, ST, CH	Occurs in the Feather River and the Sacramento River and its tributaries, including Butte, Mill, Deer, Antelope and Beegum Creeks. Adults enter the Sacramento River from late March through September. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams from mid-August through early October. Juveniles migrate soon after emergence as young-of-the-year, or remain in freshwater and migrate as yearlings.	**No Potential.** The waters of San Francisco Bay are included in the Critical Habitat designation for this species. However, the Study Area does not contain feeding, rearing, spawning, or other habitats typically used during migration.	No further surveys or avoidance measures are necessary.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Chinook salmon – Sacramento River winter-run ESU *Oncorhynchus tshawytscha*	FE, SE, CH	Occurs in the Sacramento River below Keswick Dam. Spawns in the Sacramento River but not in tributary streams. Requires clean, cold water over gravel beds with water temperatures between 6 and 14 degrees C for spawning. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles typically migrate to the ocean soon after emergence from the gravel.	**Unlikely.** The waters of San Francisco Bay are included in the Critical Habitat designation for this species. However, the Study Area does not contain feeding, rearing, spawning, or other habitats typically used during migration.	No further surveys or avoidance measures are necessary.
longfin smelt *Spirinchus thaleichthys*	ST, SSC, RP	Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15 to 30 ppt, but can be found in completely freshwater to almost pure seawater.	**Unlikely.** The Study Area and its adjacent Bay waters provide no suitable freshwater-estuarine interface habitat.	No further surveys or avoidance measures are necessary.
hardhead *Mylopharodon conocephalus*	SSC	Low to mid-elevation streams in the Sacramento-San Joaquin drainage. Clear, deep pools with sand-gravel-boulder bottoms and slow water velocity. Not found where exotic Centrarchids predominate.	**No Potential.** The Study Area and its adjacent Bay waters provide no suitable freshwater habitat for this species. The Study Area is outside of the known range of this species.	No further surveys or avoidance measures are necessary.
tidewater goby *Eucyclogobius newberryi*	FE, SSC, CH	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	**No Potential**. The Study Area does not contain coastal waters and this species is considered extirpated from San Francisco Bay. The adjacent Bay waters provide no suitable habitat for this species as the water is tidal rip-rap shoreline and lacks suitable lagoon habitat.	No further surveys or avoidance measures are necessary.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
INVERTEBRATES				
monarch butterfly *Danaus plexippus*	SSI	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, Monterey cypress), with nectar and water sources nearby.	**Unlikely.** The Study Area does not contain tree groves and does not provide winter roost habitat. However, this species may be observed in the Study Area during migration.	No further surveys or avoidance measures are necessary.
Bay checkerspot butterfly *Euphydryas editha bayensis*	FT, SSI, RP	Restricted to native grasslands on outcrops of serpentine soil in the vicinity of San Francisco Bay. *Plantago erecta* is the primary host plant; *Castilleja densiflora* and *C. exserta* are the secondary host plants.	**No Potential.** This species has been documented within 4.5 miles of the Study Area (CDFW 2015). However, presence is entirely dependant on food resources which are not present within the Study Area. No serpentine soil, native grasslands or hostplants are present.	No further surveys or avoidance measures are necessary.
Mission blue butterfly *Icaricia icarioides missionensis*	FE, SSI, RP	Inhabits grasslands of the San Francisco peninsula. Three larval host plants: *Lupinus albifrons, L. variicolor*, and *L. formosus*, of which *L. albifrons* is favored.	**Unlikely.** This species has been sighted within 1.5 miles of the Study Area (CDFW 2015), and this species' hostplant, *Lupinus albifrons*, was observed within the Study Area. However, the Study Area is below the known elevation range for this species (690 – 1,180 feet; USFWS 2010).	No further surveys or avoidance measures are necessary.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Callippe silverspot butterfly *Speyeria callippe callippe*	FE, SSI	Restricted to the northern coastal scrub of the San Francisco peninsula. Host plant is *Viola pedunculata*. Most adults found on east-facing slopes; males congregate on hilltops in search of females.	**No Potential.** Although within dispersal range of nearby observations, this species depends on its host plant *Viola pendunculata.* The larger dispersal distance and fully developed land between occurrences and the Study Area make it unlikely this species will disperse and use the Study Area for foraging. In addition, no host plants were observed.	No further surveys or avoidance measures are necessary.
PLANTS				
Allium peninsulare var. franciscanum Franciscan onion	Rank 1B.2	Clay and serpentine substrates in cismontane woodland and valley and foothill grassland. Elevation range: 52-300 meters. Blooms: April- June.	**No Potential.** The Study Area does not contain cismontane woodland or valley and foothill grassland habitat to support this species. Grassy areas that do occur in the Study Area are highly disturbed, impacted, and dominated by highly invasive, non-native species that would outcompete this low-lying forb.	No further surveys or avoidance measures are necessary.
Amsinckia lunaris bent-flowered fiddleneck	Rank 1B.2	Coastal bluff scrub, cismontane woodland, valley and foothill grassland. Elevation range: 3 to 500 meters. Blooms: March through June.	**Unlikely.** The Study Area does not contain coastal bluff scrub, cismontane woodland, or valley and foothill grassland habitat to support this species. Grassy areas that do occur in the Study Area are highly disturbed, impacted, and dominated by highly invasive, non-native species that would outcompete this low-lying forb.	No further surveys or avoidance measures are necessary.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Arabis blepharophylla coast rock cress	Rank 4.3	Rocky substrates in broadleafed upland forest, coastal bluff scrub, coastal prairie, and coastal scrub. Elevation range: Blooms: 3-1100 meters. February- May.	**Unlikely.** The Study Area does not contain coastal bluff scrub, cismontane woodland, or valley and foothill grassland habitat to support this species. Grassy areas that do occur in the Study Area are highly disturbed, impacted, and dominated by highly invasive, non-native species that would outcompete this low-lying forb.	No further surveys or avoidance measures are necessary.
Arctostaphylos franciscana Franciscan manzanita	Proposed Federal Listed, Rank 1B.1	Serpentine coastal scrub. Elevation range: 60-300 meters. Associated with Presidio manzanita. Blooms: March through June.	**Unlikely.** The Study Area does not contain serpentine coastal scrub. This plant was considered extinct until a single plant was rediscovered in 2009 in Presidio National Recreation Area.	No further surveys or avoidance measures are necessary.
Arctostaphylos imbricata San Bruno Mountain manzanita	SE, Rank 1B.1	Rocky substrates in chaparral and coastal scrub. Elevation range: 275-365 meters. Blooms: February-May	**Unlikely.** Known from fewer than five occurrences on San Bruno Mountain.	No further surveys or avoidance measures are necessary.
Arctostaphylos montana ssp. ravenii [Arctostaphylos hookeri ssp. revenii] Presidio manzanita	SE, Rank 1B.1	Serpentine outcrops in chaparral, coastal prairie and coastal scrub habitat. Elevation range: 45-215 meters. Blooms: February-March.	**Unlikely.** Known from only one extant native occurrence at the Presidio in San Francisco (greater than 5 miles away). The Study Area does not contain serpentine substrates, chaparral or coastal prairie habitats suitable to support this species.	No further surveys or avoidance measures are necessary.
Arctostaphylos montaraensis Montara manzanita	Rank 1B.2	Maritime chaparral and coastal scrub. Elevation range: 150-500 meters. Blooms: Janurary through March.	**Unlikely**. The Study Area does not contain maritime chaparral or coastal scrub habitat to support this species.	No further surveys or avoidance measures are necessary.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Arctostaphylos pacifica Pacific manzanita	SE, Rank 1B.1	Chaparral and coastal scrub. Elevation range: 280-370 meters. Blooms: February- April.	**Unlikely.** The Study Area does not contain suitable undisturbed maritime chaparral or coastal scrub habitat to support this species and is out of the elevation range for this species. The nearest occurrence is near the summit of San Bruno Mountain.	No further surveys or avoidance measures are necessary.
Arctostaphylos pallida Alameda manzanita	FT, SE, Rank 1B.1	Siliceous shale, sandy or gravelly substrates in broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub. 185-465 meters.Blooms: December-March.	**Unlikely.** The Study Area does not contain forest, woodland or chaparral habitat to support this species and is out of the elevation range for this species. This species is known from fewer than 10 occurrences in the Contra Costa Hills of the Diablo Range.	No further surveys or avoidance measures are necessary.
Arenaria paludicola Marsh sandwort	FE, SE, Rank 1B.1	Sandy, open areas in freshwater or brackish marshes and swamps. Elevation range: 3-70 meters. Blooms May-August.	**Unlikely.** Current range is known from only two natural occurrences in Black Lake Canyon and Oso Flaco Lake along the California central coast.	No further surveys or avoidance measures are necessary.
Aspidotis Carlotta-halliae Carlotta Hall's lace fern	Rank 4.2	Serpentine substrates in chaparral and cismontane woodland. Elevation range: Blooms: 100-1400 meters. January-December.	**No Potential.** The Study Area does not contain suitable serpentine substrates, chaparral, or cismontane woodland to support this species.	No further surveys or avoidance measures are necessary.
Astragalus nuttallii var. nuttallii ocean bluff milk-vetch	Rank 4.2	Coastal dunes and coastal bluff scrub. Elevation range: 3-120 meters. Blooms: January-November.	**Unlikely.** The Study Area does not contain suitable coastal dunes orcoastal bluff scrub to support this species.	No further surveys or avoidance measures are necessary.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Astragalus tener var. *tener* alkali milk-vetch	Rank 1B.2	Alkali playa, valley and foothill grassland, vernal pools. Low ground, alkali flats, and flooded lands. Elevation range: 1 to 170 meters. Blooms: March through June.	**Unlikely.** While the Study Area contains low ground which may be suitable for this species, there is no suitable playa or vernal pool habitat for this species. Considered likely extirpated from San Francisco due to destruction fo habitat.	No further surveys or avoidance measures are necessary.
Calochortus tiburonensis Tiburon mariposa lily	FT, ST, Rank 1B.1	Serpentine soils in valley and foothill grassland. Blooms: March-June.	**No Potential.** The Study Area does not contain serpentine soils necessary to support this species.	No further surveys or avoidance measures are necessary.
Carex comosa Bristly sedge	Rank 2B.1	Coastal prairie, marshes and swamps and valley and foothill grasslands. This species is typically found from 0 to 625 meters. Blooms: May-September.	**Unlikely.** The Study Area is highly disturbed and may not provide moist enough soils for this species to establish. Most recent collection in San Francisco area is 1866.	No further surveys or avoidance measures are necessary.
Castilleja affinis ssp. neglecta Tiburon paintbrush	FE, ST, Rank 1B.2	Serpentine substrates in valley and foothill grassland. Elevation range: 60- 400 meters. Blooms: April- June.	**No Potential.** The Study Area does not contain serpentine soils necessary to support this species.	No further surveys or avoidance measures are necessary.
Castilleja ambigua ssp. ambigua johnny-nip	Rank 4.2	Coastal bluff scrub, coastal prairie, coastal scrub, marshes, Valley and foothill grassland, vernal pools margins. Elevation range: 0-0435 meters.Blooms: March- August.	**Unlikely.** The Study Area does not contain coastal bluff scrub, coastal prairie, marsh, vernal pool, or valley and foothill grassland habitat to support this species. Grassy areas that do occur in the Study Area are highly disturbed, impacted, and dominated by highly invasive, non-native species that would outcompete this low-lying forb.	No further surveys or avoidance measures are necessary.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Centromadia parryi ssp. *congdonii* Congdon's tarplant	Rank 1B.1	Valley and foothill grassland; alkali substrate, sometimes on heavy white clay; often on margin between grassland and coastal salt / brackish marsh. Elevation range: 1 to 230 meters. Blooms: May through October, sometimes November.	**Unlikely.** The Study Area contains marginal grassland habitats; however, it does not contain alkali or clayey substrates or valley and due to the highly developed nature of the Study Area and regular maintenance of ruderal areas, this species is not anticipated to occur.	No further surveys or avoidance measures are necessary.
Chloropyron maritimum ssp. *palustre* Point Reyes bird's beak	Rank 1B.2	Coastal salt marshes and swamps. Elevation range: 0 to 15 meters. Blooms: June through October	**Unlikely.** The Study Area contains tidal marsh; however, the highly disturbed nature of the site makes it unlikely for this species to occur. The nearest documented occurrence is eight miles to the north.	No further surveys or avoidance measures are necessary.
Chorizanthe cuspidata var. *cuspidata* San Francisco Bay spineflower	FE, Rank 1B.2	Coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub, often on sandy soils. Elevation range: 3 to 215 meters. Blooms: April through August.	**Unlikely.** The Study Area does not contain coastal scrub habitat, coastal dunes, or coastal prairie that may be suitable to support this species. The nearest documented occurrence is eight miles to the west.	No further surveys or avoidance measures are necessary.
Chorizanthe robusta var. robusta Robust spineflower	FE, Rank 1B.1	Sandy or gravelly substrate in maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub. Elevation range: 3-300 meters. Blooms: April-September.	**Unlikely.** The Study Area does not contain coastal scrub and coastal dune habitat that may be suitable to support this species. The nearest documented occurrence is eight miles to the west.	No further surveys or avoidance measures are necessary.
Cirsium andrewsii Franciscan thistle	Rank 1B.1	Mesic, sometimes serpentine substrates in broadleafed upland forest, coastal bluff scrub, coastal prairie, and coastal scrub. Elevation range: 0-150 meters. Blooms March-July.	**Unlikely.** The Study Area does not contain serpentine substrates, broadleafed upland forest, coastal bluff scrub, or coastal prairie. The nearest documented occurrence of this species are 10 miles north in Marin County.	No further surveys or avoidance measures are necessary.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Cirsium occidentale var. compactum Compact cobwebby thistle	Rank 1B.2	Chaparral, coastal dunes, coastal prairie, and coastal scrub. Elevation range: 5-150 meters. Blooms: April-June.	**Unlikely.** Known from fewer than twenty occurrences. The highly disturbed nature of the site makes it unlikely for this species to occur. The nearest documented occurrence is from 1908 in an area that has been subsequently developed; considered possibly extirpated.	No further surveys or avoidance measures are necessary.
Clarkia franciscana Presidio clarkia	FE, SE, Rank 1B.1	Coastal scrub and serpentine substrates in valley and foothill grassland. Elevation range: 25-335 meters. Blooms: May-July.	**Unlikely.** Known from fewer than five occurrences, all within the Presidio area (greater than five miles away) of the Golden Gate National Recreation Area.	No further surveys or avoidance measures are necessary.
Collinsia corymbosa Round-headed Chinese houses	Rank 1B.2	Coastal dunes. Elevation range: 0-20 meters. Blooms April-June.	**Unlikely.** The Study Area contains disturbed and marginal habitat for this species. All documented occurrences are at least eight miles north. Most recent occurrences limited to the Presidio area of the Golden Gate National Recreation Area.	No further surveys or avoidance measures are necessary.
Collinsia multicolor San Francisco collinsia	Rank 1B.2	Closed cone coniferous forest, coastal scrub, sometimes on serpentine soils. Elevation range: 30 to 250 meters. Blooms: March through May.	**Unlikely.** The Study Area does not contain forest habitat underlain by serpentine substrate to support this species and is largely out of the elevation range for this species. Nearest documented occurrences are located in the San Bruno Mountain range.	No further surveys or avoidance measures are necessary.
Equisetum palustre Marsh horsetail	Rank 3	Marshes and swamps. Elevation range: 45-200 meters.	**Unlikely.** Study Area does not contain freshwater marsh or swamp habitat and and is largely out of the elevation range for this species.	No further surveys or avoidance measures are necessary.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Fritillaria liliacea fragrant fritillary	Rank 1B.2	Coastal scrub, valley and foothill grassland, coastal prairie. Often on serpentine; various soils reported though usually clay, in grassland. Elevation range: 3 to 410 meters. Blooms: February through April.	**Unlikely.** The Study Area does not contain scrub, grassland, or prairie habitat underlain by volcanic or serpentine clay substrate to support this species.	No further surveys or avoidance measures are necessary.
Gilia capitata ssp. chamissonis Blue coast gilia	Rank 1B.1	Coastal dunes, coastal scrub. Elevation range: 2-200 meters. Blooms: April – July.	**Unlikely.** The Study Area does not contain coastal dune and coastal scrub habitat that may support this species. All documented occurrences are at least eight miles north. Most recent occurrences limited to the Crissy Field area of the Golden Gate National Recreation Area.	No further surveys or avoidance measures are necessary.
Gilia millefoliata Dark-eyed gilia	Rank 1B.2	Coastal dunes. Elevation range: 2-30 meters. Blooms April-July.	**Unlikely.** The Study Area does not contain coastal dune habitat that may support this species. All documented occurrences are at least eight miles north. Most recent occurrences limited to the Crissy Field area of the Golden Gate National Recreation Area; considered possibly extirpated.	No further surveys or avoidance measures are necessary.
Grindelia hirsutula var. maritima San Francisco gumplant	Rank 3.2	Sandy or serpentine substrates in sea bluffs, coastal bluff scrub, coastal scrub, valley and foothill grassland. 15-400 meters. Blooms: June-September.	**Unlikely.** The Study Area does not contain serpentine substrates, coastal bluff scrub, or valley and foothill grassland. The highly disturbed nature of the site makes it unlikely for this species to occur. Documented occurrences are in the Golden Gate National Recreation Area.	No further surveys or avoidance measures are necessary.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Helianthella castanea Diablo helianthella	Rank 1B.2	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Elevation range: 60-1300 meters. Blooms: March-June.	**Unlikely.** The Study Area does not contain forest/woodland or shrubland habitat. The existing grassland habitat in the Study Area is heavily disturbed and of low quality.	No further action recommended for this species.
Hemizonia congesta ssp. congesta White seaside tarplant	Rank 1B.2	Valley and foothill grassland, coastal scrub. Often in grassy valleys and fallow fields. Elevation range: 20 – 560 meters. Blooms: April-November.	**Unlikely.** The Study Area does not contain grassland, grassy valley or fallow field habitat. All documented occurrences appear to be extirpated by urban development. While some native scrub habitat is present, The highly disturbed nature of the site makes it unlikely for this species to occur.	No further surveys or avoidance measures are necessary.
Hesperevax sparsiflora var. *brevifolia* short-leaved evax	Rank 1B.2	Sandy coastal bluff scrub, coastal dunes, coastal prairie. Elevation range: 0 to 215 meters. Blooms: March through June.	**Unlikely.** The Study Area does not contain coastal bluff scrub or coastal prairie habitat. The highly disturbed nature of the site makes it unlikely for this species to occur. No documented occurrences within the Study Area vicinity.	No further surveys or avoidance measures are necessary.
Hesperolinon congestum Marin western flax	FT, ST, Rank 1B.1	Chaparral and valley and foothill grassland on serpentine soils. Elevation range: 5 to 370 meters. Blooms: April through July.	**Unlikely.** The Study Area does not contain chaparral or grassland habitat underlain by serpentine substrate to support this species.	No further surveys or avoidance measures are necessary.
Heteranthera dubia Water star-grass	Rank 2B.2	Requires alkaline, still or flowing, slightly eutrophic waters in marshes and swamps. Elevation range: 30-1495 meters. Blooms: July-October.	**Unlikely.** The Study Area does not contain alkaline marsh or swamp habitat. Sole occurrence is from 1897 collection.	No further surveys or avoidance measures are necessary.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Holocarpha macradenia Santa Cruz tarplant	FT, Rank 1B.1	Clay, sandy substrates in coastal prairie, coastal scrub, and valley and foothill grassland. Elevation range: 10-220 meters. Blooms: June- October.	**Unliklely.** The Study Ara does not contain coastal prairie, coastal scrub, or valley and foothill grassland habitat. Grassy areas that do occur in the Study Area are highly disturbed, impacted, and dominated by highly invasive, non-native species that would outcompete this low-lying forb.	No further surveys or avoidance measures are necessary.
Horkelia cuneata var. sericea Kellogg's horkelia	Rank 1B.1	Sandy or gravelly openings in closed-cone coniferous forest, maritime chaparral, coastal dunes, coastal scrub. Elevation range: 10-200 meters. Blooms April-September.	**Unlikely.** No closed-cone coniferous forest, maritime chaparral, coastal dunes, or coastal scrub habitat is present. All documented occurrences are at least eight miles north. Most recent occurrences limited to the Golden Gate National Recreation Area.	No further surveys or avoidance measures are necessary.
Iris longipetala coast iris	Rank 4.2	Mesic areas in coastal prairie, lower montane coniferous forest, and meadows and seeps. Elevation range: 0-600 meters. Blooms: March – May.	**Unlikely.** The Study Area does not contain lower montane coniferous forest, meadow or seep habitat.	No further surveys or avoidance measures are necessary.
Layia carnosa Beach layia	FE, SE, Rank 1B.1	Coastal dunes and sandy coastal scrub. Elevation range: 0-60 meters. Blooms March through July.	**Unlikely.** The Study Area does not contain coastal dune or coastal scrub habitat. The sole recorded occurrence of this species in San Francisco is now extirpated by development.	No further surveys or avoidance measures are necessary.
Leptosiphon rosaceus Rose leptosiphon	Rank 1B.1	Coastal bluff scrub. Elevation range: 0-100 meters. Blooms April-July.	**Unlikely.** The Study Area does not contain coastal bluff scrub habitat.	No further surveys or mitigation measures are recommended.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Lessingia germanorum San Francisco lessingia	FE, SE, Rank 1B.1	Remnant dune coastal scrub. Elevation range: 25-110 meters. Blooms: June-November.	**Unlikely.** Known from only four occurrences at the Presidio (SFO Co.), and one on San Bruno Mtn. (SMT Co., 1877). No remnant dune coastal scrub habitat is present on the site.	No further surveys or mitigation measures are recommended.
Malacothamnus arcuatus arcuate bush mallow	Rank 1B.2	Chaparral. Elevation range: 15 to 355 meters. Blooms: April through September.	**Unlikely.** The Study Area does not contain chaparral habitat to support this species.	No further surveys or avoidance measures are necessary.
Micropus amphibolus [Stylocline amphibola] Mt. Diablo cottonweed	Rank 3.2	Broadleafed upland forest, chaparral, cismontane woodland, valley and foothill grassland on rocky substrates. Some populations on serpentine. Elevation range: 45-825 meters. Blooms: March through May.	**Unlikely.** The Study Area does not contain forest or chaparral habitats underlain by rocky and serpentine soils to support this species. Additionally, grassy areas that do occur in the Study Area are within small, fragmented areas that are highly disturbed, impacted, and dominated by highly invasive, non-native species that would outcompete this low-lying forb.	No further surveys or avoidance measures are necessary.
Microseris paludosa Marsh microseris	Rank 1B.2	Closed-cone coniferous forest, cismontane woodland, valley and foothill grassland, coastal scrub. Elevation range: 5-300 meters. Blooms April-July.	**Unlikely.** The Study Area does not contain forest or grassland habitats to support this species. Additionally, grassy areas that do occur in the Study Area are within small, fragmented areas that are highly disturbed, impacted, and dominated by highly invasive, non-native species that would outcompete this low-lying forb.	No further surveys or avoidance measures are necessary.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Monardella sinuata ssp. nigrescens Northern curly-leaved monardella	Rank 1B.2	Sandy substrates in chaparral, coastal dunes, coastal scrub, lower montane coniferous forest. Elevation range: 0-300 meters. Blooms April-September.	**Unlikely.** No coniferous forest habitat is present. The sole recorded occurrence of this species in San Francisco is now considered likely extirpated by development.	No further surveys or avoidance measures are necessary.
Pentachaeta bellidiflora white-rayed pentachaeta	FE, SE, Rank 1B.1	Cismontane woodland, valley and foothill grassland; often on serpentine soil. Elevation range: 35 to 620 meters. Blooms: March through May.	**Unlikely.** The Study Area does not contain woodland or grassland habitat underlain by serpentine substrate to support this species.	No further surveys or avoidance measures are necessary.
Plagiobothrys chorisianus var. *chorisanus* Choris' popcorn-flower	Rank 1B.2	Mesic chaparral, coastal prairie and coastal scrub. Elevation range: 15 to 160 meters. Blooms: March through June.	**Unlikely.** The Study Area does not contain chaparral, of coastal prairie habitats to support this species. Grassy areas that do occur in the Study Area are within small, fragmented areas that are highly disturbed, impacted, and dominated by highly invasive, non-native species that would outcompete this low-lying forb.	No further surveys or avoidance measures are necessary.
Plagiobothrys diffusus San Francisco popcorn-flower	SE, Rank 1B.1	Coastal prairie and valley and foothill grassland. Elevation range: 60-360 meters. Blooms March-June.	**Unlikely.** Coastal prairie and valley and foothill grassland habitat are not present in the Study Area.	No further surveys or avoidance measures are necessary.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Plagiobothrys glaber hairless popcorn-flower	Rank: 1B.1	Meadows and seeps, marshes and swamps; coastal salt marsh and alkali meadows. Elevation range: 15 to 180 meters. Blooms: March through May.	**Unlikely.** The Study Area does not contain alkali soils and marsh habitat, but does contain coastal salt marsh habitat. This species is presumed to be extinct and there are no known records of this species in San Mateo County. Sole recorded occurrence in north San Francisco County are considered likely extirpated. The nutlets from this small, low-lying forb do not disperse over long distances and it is unlikely that seeds would be able to move into the Study Area from these historic populations. Additionally, the Study Area is highly disturbed and would not provide suitable habitat for this species.	No further surveys or avoidance measures are necessary.
Polemonium carneum Oregon polemonium	Rank 2B.2	Coastal prairie, coastal scrub, and lower montane coniferous forest. Elevation range: 0-1830 meters. Blooms: April through September.	**Unlikely.** The Study Area does not contain coastal prairie, or coniferous forest habitats to support this species. Some sandy features are present onsite, but these features are highly disturbed and unlikely to provide suitable habitat.	No further surveys or avoidance measures are necessary.
Polygonum marinense Marin knotweed	Rank 3.1	Coastal salt or brackish marshes and swamps. Elevation range: 0-10 meters. Blooms April-October.	**Unlikely.** Marginal marsh habitat is present but unlikely to support this species due to frequent disturbance. No documented occurrences in San Francisco or San Mateo County.	No further surveys or avoidance measures are necessary.
Sanicula maritima Adobe sanicle	SR, Sank 1B.1	Clay and serpentine substates in chaparral, coastal prairie, meadows and seeps, and valley and foothill grassland. Elevation range: 30-240 meters. Blooms: February-May.	**Unlikely.** The Study Area does not contain clay and serpentine substrates, chaparral, coastal prairie, meadows and seeps, or valley and foothill grassland habitats.	No further surveys or avoidance measures are necessary.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Silene verecunda ssp. *verecunda* San Francisco campion	Rank 1B.2	Sandy, coastal bluff scrub, chaparral, coastal prairie, coastal scrub, valley and foothill grassland. Elevation: 30 to 645 meters. Blooms: March through August.	**Unlikely.** The Study Area does not contain coastal bluff scrub, chaparral, coastal prairie or valley and foothill grassland to support this species. Grassy areas are highly disturbed and dominated by highly invasive, non-native species that would out-compete this low-lying forb.	No further surveys or avoidance measures are necessary.
Stebbinsoseris decipiens Santa Cruz microseris	Rank 1B.1	Open, serpentine or sandstone-derived areas within broadleafed upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland. Elevation range: 10-500 meters. Blooms: April-May.	**Unlikely.** The Study Area does not contain clay, sandstone or serpentine substrates, chaparral, coastal prairie, meadows and seeps, or valley and foothill grassland habitats.	No further surveys or avoidance measures are necessary.
Streptanthus niger Tiburon jewelflower	FE, SE, Rank 1B.1	Serpentine substrates in valley and foothill grassland. Elevation range: 30-150 meters. Blooms: May- June.	**No Potential.** The Study Area does not contain the serpentine substrates necessary to support this species.	No further surveys or avoidance measures are necessary.
Suaeda californica California seablite	FE, Rank 1B.1	Marshes and swamps; margins of coastal salt marsh. Elevation range: 0 to 15 meters. Blooms: July through October.	**Unlikely**. The Study Area contains marginal, disturbed tidal salt marsh. The Study Area contains some wetland habitat, but these habitats are highly disturbed and degraded. Existing marsh habitats within the Study Area are highly disturbed and degraded.	No further surveys or avoidance measures are necessary.
Trifolium amoenum showy rancheria clover	FE, Rank 1B.2	Valley and foothill grassland, coastal bluff scrub, swales, open sunny sites, with serpentine substrate. Elevation range: 15 – 1365 feet. Blooms: April – June.	**Unlikely.** This species is associated with serpentine substrates, coastal bluffs, and valley and foothill grassland habitat, which are not present in the Study Area.	No further surveys or avoidance measures are necessary.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Triphysaria floribunda San Francisco owl's-clover	Rank 1B.2	Coastal prairie, coastal scrub, valley and foothill grassland; usually on serpentine sites. Elevation range: 1 to 160 meters. Blooms: April through June.	**Unlikely.** The Study Area does not contain coastal prairie, scrub or grassland habitat underlain by serpentine substrate to support this species.	No further surveys or avoidance measures are necessary.
Triquetrella californica Coastal triquetrella	Rank 1B.2	Coastal bluff scrub, coastal scrub. Elevation range: 10-100 meters.	**Unlikely.** The Study Area does not contain coastal bluff scrub.	No further surveys or avoidance measures are necessary.
Tropidocarpum capparideum Caper-fruited tropidocarpum	Rank 1B.1	Valley and foothill grassland on alkaline hills. Elevation range: 1-455 meters. Blooms: March through April.	**Unlikely.** The Study Area does not contain alkaline hills or valley and foothill grassland.	No further surveys or avoidance measures are necessary.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS

*** Key to status codes:**

FE	Federal Endangered
FT	Federal Threatened
FD	Federal De-Ranked
BCC	USFWS Birds of Conservation Concern
RP	Sensitive species included in a USFWS Recovery Plan or Draft Recovery Plan
SE	State Endangered
ST	State Threatened
SR	State Rare
SSC	CDFW Species of Special Concern
CFP	CDFW Fully Protected Animal
SSI	CDFW Special Status Invertebrates
WBWG	Western Bat Working Group Priority species

CNPS Rare Plant Ranks:

Rank 1A – Plants presumed extinct in California
Rank 1B – Plants rare, threatened, or endangered in California and elsewhere
Rank 2A – Plants presumed extirpated in California, but more common elsewhere
Rank 2B – Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 3 – Plants about which CNPS needs more information (a review Rank)
Rank 4 – Plants of limited distribution (a watch Rank)

CNPS Threat Ranks:

0.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
0.2 – Fairly threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat)
0.3 – Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

APPENDIX C

Study Area Photographs

Above: India Basin Shoreline Park landscaped and well-maintained park.

Below: Tidal marsh in the northern Study Area, very limited and disturbed marsh habitat.

Photographs taken March 11, 2015.

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Above: Tidal marsh habitat along the eastern edge of India Basin Shoreline Park with limited marsh habitat and abrupt change to maintained park.

Below: Study Area and shoreline within the 900 Innes parcel.

Photographs taken March 11, 2015.

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Above: Abandoned house and overgrown shed within the 900 Innes parcel.

Below: Filled and developed shoreline at the 900 Innes parcel.

Photographs taken March 11, 2015.

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