

APPENDIX E: BIOLOGICAL RESOURCES

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Table E-1. Special-Status or Otherwise Protected Plant Species That May Occur in the Study Area*

Common Name <i>Scientific Name</i>	Federal Status	State Status	CRPR Ranking	Habitat Description / Blooming Period	Potential to Occur in the Study Area
Plant Species Listed or Proposed for Listing					
Franciscan manzanita <i>Arctostaphylos franciscana</i>	FE	--	1B.1	Open, rocky, serpentine outcrops in chaparral. February – April	No Potential. No manzanita shrubs were observed during the reconnaissance survey of the Project Site, including Irish Hill where serpentine soils occur. This species was rediscovered in Presidio National Park in late 2009 after being believed to be extinct in the wild (although still extant through cultivation).
San Bruno Mountain manzanita <i>Arctostaphylos imbricata</i>	--	CE	1B.1	Chaparral and coastal scrub, usually on sandstone outcrops. February – May	No Potential. No manzanita shrubs were observed during the reconnaissance survey of the Project Site and the supportive vegetation community for this species is not found within the study area. Regional occurrences are restricted to San Bruno Mountain and the Santa Cruz Mountains; therefore this species is not expected on site.

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Common Name <i>Scientific Name</i>	Federal Status	State Status	CRPR Ranking	Habitat Description / Blooming Period	Potential to Occur in the Study Area
Presidio manzanita <i>Arctostaphylos montana</i> <i>ssp. ravenii</i>	FE	CE	1B.1	Open, rocky, serpentine slopes in chaparral, coastal scrub, and coastal prairie. February – March	No Potential. No manzanita shrubs were observed during the reconnaissance survey of the Project Site, including Irish Hill where serpentine soils occur; however, the supportive vegetation community for this species is not found within the study area and therefore this species is not expected on site.
Pacific manzanita <i>Arctostaphylos pacifica</i>	--	CE	1B.2	Coastal scrub and chaparral. February – April	No Potential. No manzanita shrubs were observed during the reconnaissance survey of the Project Site and the supportive vegetation community for this species is not found within the study area; therefore this species is not expected on site.
Marsh sandwort <i>Arenaria paludicola</i>	FE	CE	1B.1	Freshwater or brackish marshes and swamps. May – August	No Potential. No suitable habitat on site; species presumed extirpated in San Francisco.

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Common Name <i>Scientific Name</i>	Federal Status	State Status	CRPR Ranking	Habitat Description / Blooming Period	Potential to Occur in the Study Area
Robust spineflower <i>Chorizanthe robusta var. robusta</i>	FE	--	1B.1	Sandy or gravelly coastal dunes, coastal scrub, cismontane woodland and maritime chaparral. April – September	No Potential. This species is not expected as there is no suitable habitat on site.
Presidio clarkia <i>Clarkia franciscana</i>	FE	CE	1B.1	Serpentine outcrops in coastal scrub, and valley and foothill grassland. May – July	No Potential. Serpentine outcrop habitat within the Project Site is small, fragmented and highly disturbed, and provides only marginal habitat for this species. This species is not known to occur in disturbed areas. Species assemblages associated with known occurrences of this species are not consistent with site conditions. Rare plant surveys of Irish Hill in 2016 were negative for this species.

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Common Name <i>Scientific Name</i>	Federal Status	State Status	CRPR Ranking	Habitat Description / Blooming Period	Potential to Occur in the Study Area
Marin western flax <i>Hesperolinon congestum</i>	FT	CT	1B.1	Chaparral and grassland, usually on serpentine barrens. April – July	No Potential. Serpentine habitat within the Project Site is small, fragmented, and heavily disturbed. This species requires sparse vegetation on shallow soils, and is not known to occur in isolated, heavily disturbed habitat.
Beach layia <i>Layia carnosa</i>	FE	CE	1B.1	Sand dunes. March – July	No Potential. This species is not expected as there is no suitable habitat on site.
San Francisco lessingia <i>Lessingia germanorum</i>	FE	CE	1B.1	Coastal scrub, sandy soils free of competing species. July – November	No Potential. This species is not expected as there is no suitable habitat on site.
White rayed pentachaeta <i>Pentachaeta bellidiflora</i>	FE	CE	1B.1	Open, dry, rocky slopes and grassy areas, usually on serpentine. March – May	No Potential. Serpentine habitat within the Project Site is small, fragmented and heavily disturbed. There are no known occurrences of this species in habitats similar to that on site. Rare plant surveys of Irish Hill in 2016 were negative for this species.

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Common Name <i>Scientific Name</i>	Federal Status	State Status	CRPR Ranking	Habitat Description / Blooming Period	Potential to Occur in the Study Area
San Francisco popcornflower <i>Plagiobothrys diffusus</i>	--	CE	1B.1	Coastal prairie, and valley and foothill grasslands. March – June	No Potential. This species is not expected as there is no suitable habitat on site.
Adobe sanicle <i>Sanicula maritima</i>	--	Rare	1B.1	Moist clay or ultramafic soil in chaparral, coastal prairie, meadows, seeps, and valley and foothill grassland. February – May	No Potential. This species is not expected as there is no suitable habitat on site and the nearest CNDDB ¹ record for this species is considered extirpated.
California seablite <i>Suaeda californica</i>	FE		1B.1	Marshes and swamps (coastal salt) July - October	No Potential. A nearby CNDDB occurrence for a transplant is documented; however, the study area is out of the native range of this species. No suitable habitat is present on site.
Showy Indian (=two-fork) clover <i>Trifolium amoenum</i>	FE	--	1B.1	Valley grassland and wetland and riparian areas. Affinity to serpentine soils. April – June	No Potential. This species is not expected as there is no suitable habitat on site. Species requires heavy clay soils often associated with serpentine, conditions which are not present on site.

¹ California Natural Diversity Database (CNDDDB) is an inventory of the status and locations of rare plants and animals in California maintained by the California Department of Fish and Wildlife and other partners.

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Common Name <i>Scientific Name</i>	Federal Status	State Status	CRPR Ranking	Habitat Description / Blooming Period	Potential to Occur in the Study Area
CNPS California Rare Plant Ranked Species					
Franciscan onion <i>Allium peninsulare var. franciscanum</i>	--	--	1B.2	Clay, volcanic, or serpentine substrate in valley and foothill grassland and cismontane woodland. May - June	No Potential. Only marginal habitat for this species is present within the Project Site. This species is not known to occur in disturbed areas. Species assemblages associated with known occurrences of this species are not consistent with site conditions. Rare plant surveys of Irish Hill in 2016 were negative for this species.
Bent-flowered fiddleneck <i>Amsinckia lunaris</i>	--	--	1B.2	Coastal bluff scrub, cismontane woodland, and valley and foothill grassland. March – June	No Potential. This species is not expected as there is no suitable habitat on site.
Coast rockress <i>Arabis blepharophylla</i>	--	--	4.3	Rocky soils in broadleaf upland forest, coastal bluff scrub, coastal prairie, and coastal scrub. February - May	No Potential. While rocky soils occur at Irish Hill, other habitat elements preferred by this species are not present; therefore this species is not expected on site.

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Common Name <i>Scientific Name</i>	Federal Status	State Status	CRPR Ranking	Habitat Description / Blooming Period	Potential to Occur in the Study Area
Montara manzanita <i>Arctostaphylos montaraensis</i>	--	--	1B.2	Slopes and ridges in chaparral and coastal scrub. January – March	No Potential. No manzanita shrubs were observed during the reconnaissance survey of the Project Site and the supportive vegetation community for this species is not found within the study area. Regional occurrences are restricted to San Bruno Mountain and mountains west of San Mateo; therefore this species is not expected on site.
Carlotta Hall’s lace fern <i>Aspidotis carlotta-halliae</i>	--	--	4.2	Crevices, outcrops and slopes in chaparral and cismontane woodland, generally in serpentine soils. January - December	Low. While Irish Hill offers some of this species’ preferred habitat elements, the dry, exposed nature of the site is inhospitable to this species; therefore this species is not expected on site.
Nuttall’s (=ocean bluff) milkvetch <i>Astragalus nuttallii var. nuttallii</i>	--	--	4.2	Coastal bluff scrub and coastal dunes, January - November	No Potential. This species is not expected as there is no suitable habitat on site.

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Common Name <i>Scientific Name</i>	Federal Status	State Status	CRPR Ranking	Habitat Description / Blooming Period	Potential to Occur in the Study Area
Alkali milk-vetch <i>Astragalus tener var. tener</i>	--	--	1B.2	Alkali flats, flooded grassland, playas and vernal pools. March – June	No Potential. No suitable habitat present; species presumed extirpated in San Francisco.
Bristly sedge <i>Carex comosa</i>	--	--	2B.1	Lake margins, marshes, swamps, coastal prairie, and valley and foothill grasslands. May – September	No Potential This species is not expected as there is no suitable habitat on site.
Johnny-nip <i>Castilleja ambigua var. ambigua</i>	--	--	4.2	Wet sites in coastal bluff scrub, coastal prairie, marshes and swamps, valley and foothill grassland, and at the margins of vernal pools. March - August	No Potential. This species is not expected as there is no suitable habitat on site.
Pappose tarplant <i>Centromadia parryi ssp. parryi</i>	--	--	1B.2	Chaparral, coastal prairie, meadows, seeps, coastal salt marshes and swamps, and vernal mesic, often alkaline, valley and foothill grasslands. May – November	No Potential. This species is not expected as there is no suitable habitat on site.
Point Reyes bird's-beak <i>Chloropyron maritimum ssp. palustre</i>	--	--	1B.2	Coastal salt marshes and swamps. June – October	No Potential. This species is not expected as there is no suitable habitat on site.

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Common Name <i>Scientific Name</i>	Federal Status	State Status	CRPR Ranking	Habitat Description / Blooming Period	Potential to Occur in the Study Area
San Francisco spineflower <i>Chorizanthe cuspidata</i> var. <i>cuspidata</i>	--	--	1B.2	Sandy terraces and slopes of coastal bluff scrub, coastal dunes, coastal prairie and coastal scrub. April – July	No Potential. This species is not expected as there is no suitable habitat on site.
Franciscan thistle <i>Cirsium andrewsii</i>	--	--	1B.2	Coastal bluff scrub, coastal prairie, coastal mesic scrub, and broadleaf upland forest; sometimes on serpentine soils; often associated with seeps. March – July	No Potential. While Irish Hill offers some of this species' preferred habitat elements, the dry, exposed nature of the site, and lack of seep habitat, is inhospitable to this species; therefore this species is not expected on site
Compact cobwebby thistle <i>Cirsium occidentale</i> var. <i>compactum</i>	--	--	1B.2	Coastal scrub, grassland, and dunes; often associated with seeps. April – June	No Potential. This species is not expected as there is no suitable habitat on site.
Round-headed Chinese- houses <i>Collinsia corymbosa</i>	--	--	1B.2	Coastal dunes and coastal prairie. April – June	No Potential. No suitable habitat present; species has not been seen in San Francisco for more than 100 years.

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Common Name <i>Scientific Name</i>	Federal Status	State Status	CRPR Ranking	Habitat Description / Blooming Period	Potential to Occur in the Study Area
San Francisco collinsia <i>Collinsia multicolor</i>	--	--	1B.2	On humus-covered soil derived from mudstone in closed-cone coniferous forest and coastal scrub. March – May	No Potential. This species is not expected as there is no suitable habitat on site.
Slender cottongrass <i>Eriophorum gracile</i>	--	--	4.3	Acidic soils in bogs, and fens, meadows and seeps, and upper montane coniferous forest. May - September	No Potential. This species is not expected as there is no suitable habitat on site.
San Francisco wallflower <i>Erysimum franciscanum</i>	--	--	4.2, LS	Coastal scrub and grassland, often on serpentine soils. March – June	No Potential. The Irish Hill portion of the Project Site provides marginal serpentine habitat for this species. Some of the known occurrences of this species are located in disturbed, weedy habitats, and thus the high level of historic disturbance within the Project Site would not preclude this species. Rare plant surveys of Irish Hill in 2016 were negative for this species.
Marsh horsetail <i>Equisetum palustre</i>	--	--	3	Freshwater marsh and wetland and riparian areas.	No Potential. This species is not expected as there is no suitable habitat on site.

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Common Name <i>Scientific Name</i>	Federal Status	State Status	CRPR Ranking	Habitat Description / Blooming Period	Potential to Occur in the Study Area
Fragrant fritillary <i>Fritillaria liliacea</i>	--	--	1B.2	On clay, often serpentine derived soils in coastal scrub, grassland, and coastal prairie. February – April	No Potential. While Irish Hill offers some of this species' preferred habitat elements, a nearby 1895 CNDDDB occurrence from Potrero Hill is extirpated; therefore this species is not expected on site.
Blue coast gilia <i>Gilia capitata</i> spp. <i>chamissonis</i>	--	--	1B.1	Coastal dunes and scrub. April – July	No Potential. This species is not expected as there is no suitable habitat on site.
Dark-eyed gilia <i>Gilia millefoliata</i>	--	--	1B.2	Coastal dunes. April – July	No Potential. This species is not expected as there is no suitable habitat on site.
San Francisco gumplant <i>Grindelia hirsutula</i> var. <i>maritima</i>	--	--	3.2	Coastal scrub and grasslands. June – September	No Potential. This species is not expected as there is no suitable habitat on site.
Water star-grass <i>Heteranthera dubia</i>			2B.2	Marshes and swamps (alkaline, still or slow-moving water) July-October	No Potential. This species is not expected as there is no suitable habitat on site.

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Common Name <i>Scientific Name</i>	Federal Status	State Status	CRPR Ranking	Habitat Description / Blooming Period	Potential to Occur in the Study Area
Diablo helianthella <i>Helianthella castanea</i>	--	--	1B.2	On rocky soils in broadleaf upland forest, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland. March – June	No Potential. A historical CNDDDB occurrence is documented nearby the Project Site; however this species is possibly extirpated from San Francisco. Additionally, this species is not expected as there is no suitable habitat on site.
White seaside (=congested-headed hayfield) tarplant <i>Hemizonia congesta ssp. congesta</i>	--	--	1B.2	Grassy valleys and hills, often on fallow fields in coastal scrub. April – November	No Potential. Small undeveloped portions of the Project Site may have once supported coast grassland or coastal scrub; however these areas are highly disturbed and unsuitable for this species.
Short-leaved evax <i>Hesperevax sparsiflora var. brevifolia</i>	--	--	1B.2	Sandy bluffs and flats in coastal scrub and coastal dunes. March – June	No Potential. This species is not expected as there is no suitable habitat on site.
Kellogg's horkelia <i>Horkelia cuneata ssp. sericea</i>	--	--	1B.1	Coastal scrub, dunes, and openings of closed-cone coniferous forests. February – July	No Potential. This species is not expected as there is no suitable habitat on site.

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Common Name <i>Scientific Name</i>	Federal Status	State Status	CRPR Ranking	Habitat Description / Blooming Period	Potential to Occur in the Study Area
Coast iris <i>Iris longipetala</i>	--	--	4.2	Coastal prairie, lower montane coniferous forest, meadows and seeps, mesic sites. March - May	No Potential. This species is not expected as there is no suitable habitat on site.
Rose leptosiphon <i>Leptosiphon rosaceus</i>	--	--	1B.1	Coastal bluff scrub. April – July	No Potential. This species is not expected as there is no suitable habitat on site.
Arcuate bush mallow <i>Malacothamnus arcuatus</i>	--	--	1B.2	Gravelly alluvium in chaparral and cismontane woodland. April – September	No Potential. This species is not expected as there is no suitable substrate or habitat on site.
Mt. Diablo cottonweed <i>Micropus amphibolus</i>	--	--	3.2	Valley grassland, foothill woodland, and mixed evergreen forest with an affinity to serpentine soils. March - May	No Potential. Serpentine outcrop habitat within the Project Site is small, fragmented and highly disturbed, and provides only marginal habitat for this species. This species is not known to occur in disturbed areas. Species assemblages associated with known occurrences of this species are not consistent with site conditions. Rare plant surveys of Irish Hill in 2016 were negative for this species.

Table E-1. Special-Status or Otherwise Protected Plant Species That May Occur in the Study Area*

Common Name <i>Scientific Name</i>	Federal Status	State Status	CRPR Ranking	Habitat Description / Blooming Period	Potential to Occur in the Study Area
Marsh microseris <i>Microseris paludosa</i>	--	--	1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, and valley and foothill grassland. August – June	Low. Small undeveloped portions of the Project Site may have once supported coast grassland or coastal scrub; however these areas are highly disturbed and currently unlikely to support this species.
Northern curly-leaved Monardella Monardella sinuata ssp. nigrescens	--	--	1B.2	Coastal dunes and scrub, chaparral, lower montane coniferous forest. April - September	No Potential. This species is not expected as there is no suitable habitat on site.
Choris's popcorn-flower <i>Plagiobothrys chorisianus</i> <i>var. chorisianus</i>	--	--	1B.2	Mesic sites in chaparral, coastal scrub, and coastal prairie. March – June	No Potential. This species is not expected as there is no suitable habitat on site.
Hairless popcornflower <i>Plagiobothrys glaber</i>	--	--	1A	Coastal salt marshes and alkaline meadows. March – May	No Potential. This species is not expected as there is no suitable habitat on site. This species is presumed extirpated in California.
Oregon polemonium <i>Polemonium carneum</i>	--	--	2B.2	Coastal prairie, coastal scrub, lower montane coniferous forest. April – September	No Potential. This species is not expected as there is no suitable habitat on site.

Table E-1. Special-Status or Otherwise Protected Plant Species That May Occur in the Study Area*

Common Name <i>Scientific Name</i>	Federal Status	State Status	CRPR Ranking	Habitat Description / Blooming Period	Potential to Occur in the Study Area
San Francisco campion <i>Silene verecunda ssp. verecunda</i>	--	--	1B.2	Mudstone, shale, or serpentine substrates in coastal scrub, coastal prairie, chaparral and valley and foothill grassland. March – June	No Potential. The Irish Hill portion of the Project Site provides marginal serpentine habitat for this species. Some of the known occurrences of this species are located in disturbed, weedy habitats, and thus the high level of historic disturbance would not preclude this species. Rare plant surveys of Irish Hill in 2016 were negative for this species.
Santa Cruz microseris <i>Stebbinsoseris decipiens</i>	--	--	1B.2	On sandstone, shale or serpentine derived seaward facing slopes in broadleaf upland forest, closed-cone coniferous forest, chaparral, coastal prairie, and coastal scrub. April – May	No Potential. The Irish Hill portion of the Project Site provides marginal serpentine habitat for this species. Some of the known occurrences of this species are located in disturbed, weedy habitats, and thus the high level of historic disturbance would not preclude this species. Rare plant surveys of Irish Hill in 2016 were negative for this species.

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Common Name <i>Scientific Name</i>	Federal Status	State Status	CRPR Ranking	Habitat Description / Blooming Period	Potential to Occur in the Study Area
Coastal triquetrella <i>Triquetrella californica</i>	--	--	1B.2	This moss grows on coastal bluffs and in coastal scrub habitats.	No Potential. This species is not expected as there is no suitable habitat on site.
San Francisco owl's clover <i>Triphysaria floribunda</i>	--	--	1B.2	Grasslands. April – June	No Potential. This species is not expected as there is no suitable habitat on site. A nearby CNDDDB occurrence in Potrero has been extirpated.
Locally Significant Species					
Menzies' fiddleneck <i>Amsinckia menziesii</i>	--	--	LS	Valley grassland. March - May	No Potential. This species is not expected as there is no suitable habitat on site.
Yellow carpet <i>Blennosperma nanum</i>	--	--	LS	Valley grassland, foothill woodland, and wetland-riparian areas. Often associated with vernal pool communities. February – April	No Potential. This species is not expected as there is no suitable habitat on site.
California larkspur <i>Delphinium californicum</i>	--	--	LS	Foothill woodland and mixed conifer forest. April – June	No Potential. This species is not expected as there is no suitable habitat on site.

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Common Name Scientific Name	Federal Status	State Status	CRPR Ranking	Habitat Description / Blooming Period	Potential to Occur in the Study Area
Coast larkspur <i>Delphinium decorum</i>	--	--	LS	Northern coastal scrub, coastal prairie, yellow pine forest and mixed evergreen forest. March - July	No Potential. This species is not expected as there is no suitable habitat on site.
Rough leaf aster <i>Eurybia radulina</i>	--	--	LS	Foothill woodland and mixed conifer forest. July – October	No Potential. This species is not expected as there is no suitable habitat on site.
Big squirrel tail grass <i>Elymus multisetus</i>	--	--	LS	Evergreen forests, foothill woodland, chaparral and valley grassland. May – July	No Potential. This species is not expected as there is no suitable habitat on site.
Leafy daisy <i>Erigeron foliosus</i>	--	--	LS	Evergreen forests, oak woodland, foothill woodland, coastal sage scrub, coastal strand, and Joshua Tree woodland. May – September	No Potential. This species is not expected as there is no suitable habitat on site.
California fescue <i>Festuca californica</i>	--	--	LS	Mixed evergreen forest and chaparral. February – April	No Potential. This species is not expected as there is no suitable habitat on site.
Nuttall's bedstraw <i>Galium porrigens</i>	--	--	LS	Forest, coastal scrub, and chaparral. February – April	Low. This species is not expected due to marginal habitat found on site.

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Common Name <i>Scientific Name</i>	Federal Status	State Status	CRPR Ranking	Habitat Description / Blooming Period	Potential to Occur in the Study Area
Purple spot gilia <i>Gilia clivorum</i>	--	--	LS	Valley grassland, northern coastal scrub, foothill woodland, and mixed evergreen forest. February - June	No Potential. This species is not expected as there is no suitable habitat on site.
Hill star <i>Lithophragma heterophyllum</i>	--	--	LS	Northern oak woodland and foothill woodland.	No Potential. This species is not expected as there is no suitable habitat on site.
Greene's saxifrage <i>Micranthes californica</i>	--	--	LS	Coastal sage scrub, closed-cone pine forest, red fir forest, foothill woodland and chaparral.	No Potential. This species is not expected as there is no suitable habitat on site.
Skunkweed <i>Navarretia squarrosa</i>	--	--	LS	Mixed evergreen forest, northern oak woodland and foothill woodland.	No Potential. This species is not expected as there is no suitable habitat on site.
Bitter cherry <i>Prunus emarginata</i>	--	--	LS	Evergreen forests. April – May	No Potential. This species is not expected as there is no suitable habitat on site.
Holly leaf cherry <i>Prunus ilicifolia</i>	--	--	LS	Chaparral and foothill woodland. February – April	No Potential. This species is not expected as there is no suitable habitat on site.
Chokecherry <i>Prunus virginiana</i> var. <i>demissa</i>	--	--	LS	Chaparral, yellow pine forest, foothill woodland and wetland and riparian areas. March – May	No Potential. This species is not expected as there is no suitable habitat on site.

Table E-1. Special-Status or Otherwise Protected Plant Species That May Occur in the Study Area*

Common Name <i>Scientific Name</i>	Federal Status	State Status	CRPR Ranking	Habitat Description / Blooming Period	Potential to Occur in the Study Area
Canyon gooseberry <i>Ribes menziesii</i>	--	--	LS	Redwood forest, mixed evergreen forest and chaparral. January – March	No Potential. This species is not expected as there is no suitable habitat on site.
Wood rose <i>Rosa gymnocarpa</i>	--	--	LS	Yellow pine forest, foothill woodland, chaparral and valley grassland. May – June	Low. This species is not expected as there is no suitable habitat on site and species was not observed during botanical surveys.
California groundsel (Rayless ragwort) <i>Senecio aronicoides</i>	--	--	LS	Chaparral, yellow pine forest, red fir forest, lodgepole forest, and sagebrush scrub. April – July	Low. This species is not expected as there is no suitable habitat on site and species was not observed during botanical surveys.
Simple campion <i>Silene scouleri</i> ssp. <i>scouleri</i>	--	--	LS	Northern coastal scrub. July – August	No Potential. This species is not expected as there is no suitable habitat on site.

Notes:

*The project study area for terrestrial biological resources includes the project site and landside areas adjacent to the project site with similar habitat composition that includes developed or paved areas with long-standing industrial uses.

The “Potential for Effect” category is defined as follows:

Present = Species was observed during reconnaissance or focused surveys of the project area.

High = Species is expected to occur, habitat meets species requirements and is of moderate or high quality, and the study area is within the known species range.

Moderate = Habitat is marginally suitable (i.e. of low or moderate quality) or the study area is within the known range of the species, even though the species was not observed during biological surveys.

Notes (Continued):

Low = Habitat does not meet species requirements as currently understood in the scientific community or the site is not within a species' geographic range.

No Potential = Habitat does not meet species requirements or the species is presumed to be extirpated from the project area or region based on the best scientific information available.

FESA = Federal Endangered Species Act, CESA = California Endangered Species Act,
 CNDDDB = California Natural Diversity Database

STATUS CODES:

Federal: U.S. Fish and Wildlife Service (USFWS)

FE = Listed as “endangered” under the FESA

FT = Listed as “threatened” under the FESA

FPD = Proposed delisted

FD = Delisted

State: California Department of Fish and Wildlife (CDFW)

CE = Listed as “endangered” under the CESA

CT = Listed as “threatened” under the CESA

CSC = CDFW designated “species of special concern”

CFP = CDFW designated “fully protected”

SC = CDFW designated “candidate threatened”

WL = CDFW designated “watch list”

California Rare Plant Rank (CRPR):

Rank 1A = Plants presumed extirpated in California and either rare or extinct elsewhere.

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 we need more information – a review list

Rank 4 = Plants of limited distribution – a watch list

An extension reflecting the level of threat to each species is appended to each rarity category as follows:

- .1 – Seriously endangered in California.
- .2 – Fairly endangered in California.
- .3 – Not very endangered in California.

LS = Locally Significant Plant Species for San Francisco County as designated by the CNPS Yerba Buena Chapter

Source: USFWS, 2015; CNDDDB, 2015; CDFW, 2015b; CNPS, 2015a; CNPS, 2015b.

Table E-2. Special-Status or Otherwise Protected Terrestrial Animal Species that May Occur in the Study Area*

Common Name Scientific Name	Federal Status	State Status	Habitat Description	Potential to Occur in the Study Area
SPECIES LISTED OR PROPOSED FOR LISTING				
Invertebrates				
San Bruno elfin butterfly <i>Callophrys mossii bayensis</i>	FE	--	Coastal scrub or grassland on rocky outcrops with broadleaf stonecrop (<i>Sedum spathulifolium</i>).	Low. Three known populations occur at San Bruno Mountain, Montara, and Pacifica. While rocky outcrops occur on Irish Hill, vegetation is dominated by non-native and invasive species; host plant not observed during rare plant surveys and therefore this species is not expected on site.
Bay checkerspot butterfly <i>Euphydryas editha bayensis</i>	FT	--	Serpentine grasslands with larval host plants dwarf plantain (<i>Plantago erects</i>) and purple owl's clover (<i>Castilleja exserta spp. exerta</i>).	No Potential. While Irish Hill may contain serpentine soils, vegetation is dominated by non-native and invasive species; host plant not observed during rare plant surveys and therefore this species is not expected on site.
Mission blue butterfly <i>Plebejus icarioides missionensis</i>	FE	--	Grassland with <i>Lupinus albifrons</i> , L. Formosa, and L. varicolor.	No Potential. The only undeveloped areas in the Project Site are highly disturbed and dominated by non-native and invasive species. Host plants not observed during rare plant surveys; therefore this species is not expected on site.

Table E-2. Special-Status or Otherwise Protected Terrestrial Animal Species that May Occur in the Study Area*

Common Name Scientific Name	Federal Status	State Status	Habitat Description	Potential to Occur in the Study Area
Callippe silverspot butterfly <i>Speyeria callippe callippe</i>	FE	--	Found in native grasslands with <i>Viola pedunculata</i> as larval food plant.	No Potential. Although a CNDDDB occurrence occurs 2.8 miles to the south, host plants were not observed during the rare plant surveys and site conditions are not conducive to supporting host plants; therefore this species is not expected on site.
Myrtle's silverspot butterfly <i>Speyeria zerene myrtleae</i>	FE	*	Host plants include <i>Grindelia hirsutula</i> , <i>Abronia latifolia</i> , <i>Mondardella</i> , <i>Cirsium vulgare</i> , <i>Erigeron glaucus</i> where found on the San Francisco and Marin peninsulas.	No Potential. The only undeveloped areas in the Project Site are highly disturbed and dominated by non-native and invasive species. Host plants not observed during rare plant surveys and site conditions are not conducive to supporting host plants; therefore this species is not expected on site.
Reptiles				
San Francisco garter snake <i>Thamnophis sirtalis tetrataenia</i>	FE	CE, CFP	Densely vegetated ponds near open hillsides with abundant small mammal burrows.	No Potential. This species is considered likely extirpated from San Francisco. No suitable habitat occurs in or near the study area; therefore this species is not expected on site.

Table E-2. Special-Status or Otherwise Protected Terrestrial Animal Species that May Occur in the Study Area*

Common Name Scientific Name	Federal Status	State Status	Habitat Description	Potential to Occur in the Study Area
Amphibians				
California red-legged frog <i>Rana draytonii</i>	FT	CSC	Freshwater ponds and slow streams with emergent vegetation for egg attachment.	No Potential. No suitable breeding or upland dispersal habitat occurs in or near the project site; therefore this species is not expected on site.
Birds				
Marbled murrelet <i>Brachyramphus marmoratus</i>	FT	CE	Breeds in coniferous forests near the coast with an affinity to old growth, mature stands. Nests on large horizontal branches high in the trees. Winters at sea.	Low (No nesting potential). May feed offshore of the study area in winter months.
Western snowy plover <i>Charadrius alexandrinus nivosus</i>	FT	CSC	Sandy beaches, salt pond levels and shores of alkali lakes. Needs sandy, gravelly or friable soils for nesting.	Low (No nesting potential). The shoreline is armored with riprap and the surrounding area is developed. Minimal beach foraging habitat is available onsite to attract this species.
American peregrine falcon <i>Falco peregrines anatum</i>	FD	CFP	Woodlands, coastal habitats, riparian areas, coastal and inland waters, human made structures that may be used as nest or temporary perch sites.	Moderate (Potential to nest). There are no adequate natural features for this species; however, the onsite buildings may provide potential nest sites. May hunt birds above the study area.

Table E-2. Special-Status or Otherwise Protected Terrestrial Animal Species that May Occur in the Study Area*

Common Name Scientific Name	Federal Status	State Status	Habitat Description	Potential to Occur in the Study Area
Bald eagle <i>Haliaeetus leucocephalus</i> (nesting and wintering)	FD	CE, CFP	Nests and forages on inland lakes, reservoirs, and rivers.	Low (No nesting potential). Unlikely to nest in an urban environment lacking nesting habitat. May forage for fish in the San Francisco Bay and scavenge for carcasses on the shoreline.
California black rail <i>Laterallus jamaicensis coturniculus</i>	--	CT	Salt and brackish marshes; also in freshwater marshes at low elevations.	No Potential. No suitable habitat present in the study area.
Brown pelican <i>Pelecanus occidentalis californicus</i>	FD	CFP	Pelagic forager along ocean and bay shorelines whose breeding range extends from the Channel Islands south to Mexico.	Present (No nesting potential). Forages in the San Francisco Bay.
Short-tailed albatross <i>Phoebastria (=Diomedea) albatrus</i>	FE	CSC	A pelagic species that spends most of its time at sea and returns to land only for breeding purposes.	Low Potential (No nesting potential). Breeds only at one or two sites off the coast of Japan, occasional visitor to California coast and could appear on a transient basis offshore of the study area.
Ridgway's rail <i>Rallus obsoletus obsoletus</i>	FE	CE, CFP	Salt marsh wetlands with dense vegetation along the San Francisco Bay.	No Potential (No nesting potential). A recent CNDDDB occurrence is documented nearby (1.5 miles south). Suitable habitat is not present within the study area and the species is not

Table E-2. Special-Status or Otherwise Protected Terrestrial Animal Species that May Occur in the Study Area*

Common Name Scientific Name	Federal Status	State Status	Habitat Description	Potential to Occur in the Study Area
				known to travel long distances; therefore this species is not expected on site.
Bank swallow <i>Riparia riparia (nesting)</i>	--	CT	Vertical banks and cliffs with sandy soil, near water. Nests in holes dug in cliffs and river banks.	Low (No nesting potential). No suitable nesting habitat in the study area. Species may occur on a transient basis while foraging.
California least tern <i>Sterna antillarum browni</i>	FE	CE	Open beaches free of vegetation along the California coast.	Low (No nesting potential). Forages near the Bay shoreline. The Project Site shoreline is nearly completely armored with riprap and is bounded by paved, active parking lots. Nesting sites are not known to the study area. Closest nesting site is located on Alameda NAS, and it is unlikely this species would travel as far as the Project Site for foraging.

OTHER SPECIAL-STATUS SPECIES**Invertebrates**

Monarch butterfly <i>Danaus plexippus</i>	--	*	Eucalyptus groves (wintering sites).	Low. Several records of this species in Golden Gate Park but no wintering sites have been identified within the study area. Few eucalyptus trees are located at the base of Irish Hill and individuals may occur during
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Table E-2. Special-Status or Otherwise Protected Terrestrial Animal Species that May Occur in the Study Area*

Common Name Scientific Name	Federal Status	State Status	Habitat Description	Potential to Occur in the Study Area
				migration; however, the eucalyptus trees are not abundant and protected enough to support a roosting colony.
Tomales isopod <i>Caecuditea tomalensis</i>	--	--	Still to slow-moving water in vegetated ponds, preferably spring-fed.	No Potential. No suitable habitat present in the study area; therefore this species is not expected on site.
Reptiles				
Western pond turtle <i>Emys marmorata</i>	--	CSC	Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires basking sites and suitable upland habitat for egg-laying. Nest sites most often characterized as having gentle slopes (<15%) with little vegetation or sandy banks.	No Potential. No freshwater habitat on or near the study area; therefore this species is not expected on site.
Birds				
Tricolored blackbird <i>Agelaius tricolor</i>	--	CSC	Nests in dense colonies within sloughs, swamps, and marshes where tall aquatic vegetation is present. Nests can extend into upland scrub habitat on colony fringes.	Low (No nesting potential). No suitable nesting or foraging habitat is present in the study area. May occur on a transient basis during migration.

Table E-2. Special-Status or Otherwise Protected Terrestrial Animal Species that May Occur in the Study Area*

Common Name Scientific Name	Federal Status	State Status	Habitat Description	Potential to Occur in the Study Area
Great blue heron <i>Ardea herodias</i>	--	§3503	Shallow estuaries and fresh and saline emergent wetlands.	Moderate (No nesting potential). May forage along the study area shoreline. No existing rookeries occur within the study area; therefore this species is not expected to nest on site.
Short-eared owl <i>Asio flammeus</i>	BCC	CSC	Open, flat, treeless terrain. Marshes, grasslands, or fields.	Low (No nesting potential). No suitable nesting or foraging habitat is present in the study area that is almost entirely developed; therefore this species is not expected on site.
Western burrowing owl <i>Athene cunicularia</i>	BCC	CSC	Open grasslands with low or no vegetation where existing rodent burrows occur for occupation.	Low (No nesting potential). No suitable nesting or foraging habitat is present in the study area that is almost entirely developed. Ruderal vegetation within the Project Site (tall fennel) does not provide habitat elements preferred by this species; therefore this species is not expected on site.

Table E-2. Special-Status or Otherwise Protected Terrestrial Animal Species that May Occur in the Study Area*

Common Name Scientific Name	Federal Status	State Status	Habitat Description	Potential to Occur in the Study Area
Oak titmouse <i>Baeolophus inornatus</i>	BCC	§3503	Open, dry oak woodlands.	Low (No nesting potential). No suitable nesting or foraging habitat is present in the study area that is almost entirely developed and lacks oak trees; therefore this species is not expected on site.
Great horned owl <i>Bubo virginianus</i>	--	§3503.5	Riparian, coniferous, chaparral and desert habitats.	Moderate (Potential to nest). Large eucalyptus trees in the study area could support nests for this species.
Red-tailed hawk <i>Buteo jamaicensis</i>	--	§3503	Found in nearly all habitats and elevations.	Moderate (Potential to nest). Large eucalyptus trees in the study area could support nests for this species.
Red-shouldered hawk <i>Buteo lineatus</i>	--	§3503	Riparian woodlands with swamps and emergent wetlands.	Moderate (Potential to nest). Large eucalyptus trees in the study area could support nests for this species.
Red knot <i>Calidris canutus ssp. roselaari</i>	BCC	§3503	Shoreline mudflats and beaches.	Low (No nesting potential). Uncommon winter migrant that could occur on mudflats beyond the study area.
Olive-sided flycatcher <i>Contopus cooperi</i>	BCC	CSC	Forest and woodland habitats.	Low (No nesting potential). No suitable nesting or foraging habitat is present in the study area that is almost entirely

Table E-2. Special-Status or Otherwise Protected Terrestrial Animal Species that May Occur in the Study Area*

Common Name Scientific Name	Federal Status	State Status	Habitat Description	Potential to Occur in the Study Area
				developed. Conifer species preferred by this species do not occur within the study area; therefore this species is not expected on site.
San Francisco common yellowthroat <i>Geothlypis trichas sinuosa</i>	BCC	CSC	Forages in various marsh, riparian and upland habitats. Nests on or near the ground in concealed locations.	Low (No nesting potential). No suitable nesting or foraging habitat is present in the study area that is almost entirely developed and lacks riparian vegetation; therefore this species is not expected on site.
California gull <i>Larus californicus</i>	--	WL, §3503	Colonial nester, sometimes with other bird species. Breeds primarily at lakes and marshes in interior western North America from Canada south to eastern California and Colorado. Birds that breed inland are migratory, most moving to the Pacific coast in winter.	Present (Potential to nest). Breeds in large numbers at the salt ponds of south San Francisco Bay. Known to nest on roofs in the study area and could nest on warehouse roofs of the Project Site. May forage off-shore of the study area.
Western gull <i>Larus occidentalis</i>	--	§3503	Colonial nester on offshore islands or piers, sometimes with seabirds.	Present (Potential to nest). Breeds in San Francisco Bay. May forage off-shore of the study area and nest on building roofs of the study area and the dilapidated offshore pier

Table E-2. Special-Status or Otherwise Protected Terrestrial Animal Species that May Occur in the Study Area*

Common Name Scientific Name	Federal Status	State Status	Habitat Description	Potential to Occur in the Study Area
				northeast of the Project Site. Previous nesting sites documented at Pier 60 and 64 north of the study area ² .
Short-billed dowitcher <i>Limnodromus griseus</i>	BCC	§3503	Saltwater tidal flats, beaches, and salt marshes during migration.	Low (No nesting potential). Common winter migrant that could occur on mudflats of the study area.
Marbled godwit <i>Limosa fedoa</i>	BCC	§3503	Shoreline mudflats and beaches.	Low (No nesting potential). Common winter migrant that could occur on mudflats of the study area.
Alameda song sparrow <i>Melospiza melodia pusillula</i>	--	CSC	Salt marshes of eastern and south San Francisco Bay.	Low (No nesting potential). No suitable nesting or foraging habitat is present in the study area that is almost entirely developed and saltmarsh vegetation required by this species; therefore this species is not expected on site.
San Pablo song sparrow <i>Melospiza melodia samuelis</i>	--	CSC	Salt marshes of eastern and north San Francisco Bay.	No Potential (No nesting potential). No suitable nesting or foraging habitat is present in the study area that is almost entirely

³ Golden Gate Audubon Society and San Francisco Bay Bird Observatory, 2009. *Summary Report of Avian Surveys Conducted in 2008 at Dilapidated Piers and Other Structures along the Port of San Francisco's Southern Waterfront Properties*. Prepared by Noreen Weeden and Michael Lynes, September 23.

Table E-2. Special-Status or Otherwise Protected Terrestrial Animal Species that May Occur in the Study Area*

Common Name Scientific Name	Federal Status	State Status	Habitat Description	Potential to Occur in the Study Area
				developed and saltmarsh vegetation required by this species; therefore this species is not expected on site.
Long-billed curlew <i>Numenius americanus</i>	BCC	WL, §3503	Breeds in upland shortgrass prairies and wet meadows in northeastern California in gravelly soils.	Low (No nesting potential). May be a winter visitor to mudflats of the study area.
Whimbrel <i>Numenius phaeopus</i>	BCC	§3503	Saltwater tidal flats, beaches, and salt marshes during migration.	Low (No nesting potential). Common winter migrant that could occur on beaches and mudflats of the study area.
Osprey <i>Pandion haliaetus</i>	--	WL, §3503	Habitat varies greatly and usually includes adequate supply of accessible fish, shallow waters, open and elevated nest sites (10-60 feet in height), and artificial structures such as towers. Builds large platform stick nests near or in open waters.	Moderate (Potential to nest). Known to forage in San Francisco Bay and recently nest at Pier 80. Towers adjacent to the south of the Project Site provide potential nesting sites for this species.
Double-crested cormorant <i>Phalacrocorax auritus</i>	--	WL, §3503	Rookery breeder in coastal areas and inland lakes in fresh, saline, and estuarine waters.	Present (Potential to nest). Abundant in San Francisco Bay. May forage off-shore of the study area and nest on the dilapidated offshore pier northeast of the Project Site.

Table E-2. Special-Status or Otherwise Protected Terrestrial Animal Species that May Occur in the Study Area*

Common Name Scientific Name	Federal Status	State Status	Habitat Description	Potential to Occur in the Study Area
Nuttall's woodpecker <i>Picoides nuttallii</i>	BCC	§3503	Oak and riparian woodlands.	Low (No nesting potential). No suitable nesting or foraging habitat is present in the study area that is almost entirely developed and lacks riparian vegetation and oak woodlands; therefore this species is not expected on site.
Allen's hummingbird <i>Selasphorus sasin</i>	BCC	§3503	Brush and woodlands.	Low (Potential to nest). May forage on fennel and eucalyptus of the Project Site.
Yellow warbler <i>Setophaga petechia</i>	BCC	CSC	Nests in dense riparian cover and montane chaparral. Breeding distribution includes coast ranges and western slopes of the Sierra Nevada. Rare to uncommon in lowland areas.	Low (No nesting potential). No suitable nesting or foraging habitat is present in the study area that is almost entirely developed and lacks riparian vegetation; therefore this species is not expected on site.
Lawrence's goldfinch <i>Spinus lawrencei</i>	BCC	§3503	Open woodlands, chaparral near fields for foraging seeds.	Low (No nesting potential). Uncommon to San Francisco. Could occur on a transient basis and forage on fennel of the Project Site.
Caspian tern <i>Sterna caspia</i>	BCC	*	Nests on shorelines and feeds on fish and crustaceans in open water or shorelines.	Present (Potential to nest). Breeds in San Francisco Bay. May forage off-shore of the study area and nest on the

Table E-2. Special-Status or Otherwise Protected Terrestrial Animal Species that May Occur in the Study Area*

Common Name Scientific Name	Federal Status	State Status	Habitat Description	Potential to Occur in the Study Area
				dilapidated offshore pier northeast of the Project Site. Previous nesting sites documented at Pier 60 and 64 north of the study area ³ .
Barn owl <i>Tyto alba</i>	--	§3503.5	Open areas including chaparral, grassland, riparian, wetlands.	Moderate (Potential to nest). Could forage over ruderal habitat within the study area and nest in open rafters of Project Site warehouses.
Mammals				
Pallid bat <i>Antrozous pallidus</i>	--	CSC, WBWG: High	Prefers caves, crevices, hollow trees, or buildings in areas adjacent to open space for foraging. Associated with lower elevations in California.	Moderate. Suitable roosting habitat for this species is available within buildings of the Project Site.
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	--	CSC, SC, WBWG: High	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings of rocky areas with caves or tunnels. Roosting sites limited. Extremely sensitive to human disturbance.	Low. Suitable roosting habitat for this species is available within buildings of the Project Site; however high levels of human disturbance may discourage use.

³ Golden Gate Audubon Society and San Francisco Bay Bird Observatory, 2009. *Summary Report of Avian Surveys Conducted in 2008 at Dilapidated Piers and Other Structures along the Port of San Francisco's Southern Waterfront Properties*. Prepared by Noreen Weeden and Michael Lynes, September 23.

Table E-2. Special-Status or Otherwise Protected Terrestrial Animal Species that May Occur in the Study Area*

Common Name Scientific Name	Federal Status	State Status	Habitat Description	Potential to Occur in the Study Area
Western red bat <i>Lasiurus blossevillii</i>	--	CSC, WBWG: High	Roosts primarily in trees, 2-40 feet above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	Low. The few eucalyptus trees of the Project Site are fairly exposed and are unlikely to support roosting sites for this species that prefers broad-leaved riparian trees.
Hoary bat <i>Lasiurus cinereus</i>	--	*, 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.	Low. The few eucalyptus trees of the Project Site are fairly exposed and are unlikely to support roosting sites for this species.
Yuma myotis <i>Myotis yumanensis</i>	--	*, WBWG: Low- Medium	Optimal habitats are open forests and woodlands with water sources to feed over. Roosts in buildings, trees, mines, caves, bridges, and rock crevices. Maternity colonies active May through July.	Moderate. Suitable roosting habitat for this species is available within buildings of the Project Site.
American badger <i>Taxidea taxus</i>	--	CSC	Open grasslands with loose, friable soils.	No Potential. No suitable habitat present on site.
Point Reyes jumping mouse <i>Zapus trinotatus orarius</i>	--	CSC	Upland areas of bunch grass in marshes in Point Reyes.	No Potential. Study area is south of the known range for this species. No suitable habitat is present on site.

Notes:

*The project study area for terrestrial biological resources includes the project site and landside areas adjacent to the project site with similar habitat composition that includes developed or paved areas with long-standing industrial uses.

The “Potential for Effect” category is defined as follows:

Present = Species was observed during reconnaissance or focused surveys of the project area.

High = Species is expected to occur, habitat meets species requirements and is of moderate or high quality, and the study area is within the known species range.

Moderate = Habitat is marginally suitable (i.e. of low or moderate quality) or the study area is within the known range of the species, even though the species was not observed during biological surveys.

Low = Habitat does not meet species requirements as currently understood in the scientific community or the site is not within a species’ geographic range.

No Potential = Habitat does not meet species requirements or the species is presumed to be extirpated from the project area or region based on the best scientific information available.

FESA = Federal Endangered Species Act, CESA = California Endangered Species Act,

CNDDDB = California Natural Diversity Database

STATUS CODES:

Federal: U.S. Fish and Wildlife Service (USFWS)

FE = Listed as “endangered” under the FESA

FT = Listed as “threatened” under the FESA

FPD = Proposed delisted

FD = Delisted

BCC = Bird of Conservation Concern

Other: Western Bat Working Group (WBWG)

Low = Stable population

Medium = Need more information about the species, possible threats, and protective actions to implement.

High = Imperiled or at high risk of imperilment.

State: California Department of Fish and Wildlife (CDFW)

CE = Listed as “endangered” under the CESA

CT = Listed as “threatened” under the CESA

CSC = CDFW designated “species of special concern”

CFP = CDFW designated “fully protected”

SC = CDFW designated “candidate threatened”

WL = CDFW designated “watch list”

Notes (Continued):

§3503 = Eggs, Nests, and Nestlings Protected under Section
3503 of the California Fish and Game Code

§3503.5 = Eggs, Nests, and Nestlings of Falconiformes and
Strigiformes Protected under Section
3503.5 of the California Fish and Game Code

* = California special animal

Source: USFWS, 2015; CNDDDB, 2015; CDFW, 2015a; eBird, 2015.

Table E-3. Special-Status Fish and Marine Mammal Species that May Occur within the Bay Waters of the Project Area

Common Name Scientific Name	Listing Status		General Habitat	Potential for Species Occurrence Within Project Area	Time Period Present in Project Area Waters
	Federal FESA/ MMPA	State CESA			
Sacramento River winter-run ESU Chinook salmon <i>Oncorhynchus tshawytscha</i>	FE/-	CE	Ocean waters, Sacramento and San Joaquin Rivers; Migrates from ocean through San Francisco Bay-Delta to freshwater spawning grounds	Low. No foraging of spawning habitat for this species is present. No streams supporting spawning runs are present within or in the vicinity of the Project site. There is a low potential for incidental occurrence of this species if individuals are lost or swept into the area by currents.	Adults - November and December Juveniles – fall and winter
Central Valley spring-run ESU Chinook salmon <i>O. tshawytscha</i>	FT/-	CT	Ocean waters, Sacramento and San Joaquin Rivers; Migrates from ocean through San Francisco Bay-Delta to freshwater spawning grounds	Low. No foraging of spawning habitat for this species is present. No streams supporting spawning runs are present within or in the vicinity of the Project site. There is a low potential for incidental occurrence of this species if individuals are lost or swept into the area by currents.	Adults - late winter to spring Juveniles - fall through spring

Table E-3. Special-Status Fish and Marine Mammal Species that May Occur within the Bay Waters of the Project Area

Common Name Scientific Name	Listing Status		General Habitat	Potential for Species Occurrence Within Project Area	Time Period Present in Project Area Waters
	Federal FESA/ MMPA	State CESA			
Central Valley fall-run/late fall-run Chinook salmon <i>O. tshawytscha</i> .	FSC/-	-	Ocean waters, Sacramento and San Joaquin Rivers; Migrates from Ocean through San Francisco Bay-Delta to freshwater spawning grounds	Low. No foraging of spawning habitat for this species is present. No streams supporting spawning runs are present within or in the vicinity of the Project site. There is a low potential for incidental occurrence of this species if individuals are lost or swept into the area by currents.	Adults - June through September Juveniles - winter through summer
Central California coast ESU Coho salmon <i>Oncorhynchus kisutchs</i>	FE/-	CE	Ocean waters, Sacramento and San Joaquin Rivers; Migrates from ocean through San Francisco Bay-Delta to freshwater spawning grounds	No Potential. Although historically present in San Francisco Bay, Coho salmon are currently considered extirpated from San Francisco Bay.	Not Applicable
Central Valley DPS steelhead trout <i>O. Mykiss</i>	FT/-	-	Ocean waters, Sacramento and San Joaquin Rivers; Migrates from ocean through San Francisco Bay-Delta to freshwater spawning grounds	Low. No foraging or spawning habitat for this species is present. No streams supporting spawning runs are present within or in the vicinity of the aquatic Study	Adults - winter and spring Juveniles - year-round

Table E-3. Special-Status Fish and Marine Mammal Species that May Occur within the Bay Waters of the Project Area

Common Name Scientific Name	Listing Status		General Habitat	Potential for Species Occurrence Within Project Area	Time Period Present in Project Area Waters
	Federal FESA/ MMPA	State CESA			
				Area. There is a low potential for incidental occurrence of this species if individuals are lost or swept into the area by currents.	
Central California coast DPS steelhead trout <i>O. mykiss</i>	FT/-	CSC	Ocean waters, Sacramento and San Joaquin Rivers; Migrates from Ocean through San Francisco Bay-Delta to freshwater spawning grounds	Low. No foraging or spawning habitat for this species is present. No streams supporting spawning runs are present within or in the vicinity of the aquatic Study Area. There is a low potential for incidental occurrence of this species if individuals are lost or swept into the area by currents.	Adults - winter Juveniles – year-round
Green Sturgeon (Southern DPS) <i>Acipenser medirostris</i>	FT/-	CSC	Marine and estuarine environments and Sacramento River; All of San Francisco Bay-Delta	High. This species may forage in or near the Project area.	year-round

Table E-3. Special-Status Fish and Marine Mammal Species that May Occur within the Bay Waters of the Project Area

Common Name Scientific Name	Listing Status		General Habitat	Potential for Species Occurrence Within Project Area	Time Period Present in Project Area Waters
	Federal FESA/ MMPA	State CESA			
Tidewater goby <i>Eucyclogobius newberryi</i>	FE/-	CSC	Coastal lagoons, estuaries, and marshes in coastal California from the Smith River (Del Norte County) to Aqua Hedionda Lagoon (San Diego County)	No Potential. Species presumed to be extirpated from San Francisco Bay-Delta.	Not Applicable.
Delta smelt <i>Hypomesus transpacificus</i>	FT/-	CE	Sacramento-San Joaquin Delta, Suisun Bay, San Pablo Bay, river channels and sloughs in Delta	No Potential. Outside of known species range.	Not Applicable.
Longfin smelt <i>Spirinchus thaleichthys</i>	FC/-	CT	Throughout the nearshore coastal waters and open waters of San Francisco Bay- Delta including the river channels and sloughs of the Delta	Moderate. This species is documented to inhabit the deep channels of Central Bay for most of the year, including the waters adjacent to the Project Site.	Year-round
Pacific harbor seal <i>Phoca vitulina richardsii</i>	-/P	-	Coastal waters, and throughout Bay-Delta	High. Species frequents the waters of the San Francisco shoreline. .	Year-round

Table E-3. Special-Status Fish and Marine Mammal Species that May Occur within the Bay Waters of the Project Area

Common Name Scientific Name	Listing Status		General Habitat	Potential for Species Occurrence Within Project Area	Time Period Present in Project Area Waters
	Federal FESA/ MMPA	State CESA			
California sea lion <i>Zalophus californianus</i>	-/P	-	Coastal waters, and throughout Bay-Delta	Low-Moderate. Species frequents the waters of the San Francisco shoreline, predominantly in west Central Bay, but will forage throughout the Bay.	Year-round
Harbor porpoise <i>Phocoena phocoena</i>	-/P	-	An inshore species inhabiting shallow, coastal waters and occasional large rivers, including San Francisco Bay-Delta	Low. The resident population has been steadily increasing in numbers and extending its foraging range within the Bay beyond the waters between the Golden Gate and Alcatraz Island. Observations have been made as far north as the Napa River mouth to the north and the Oakland-San Francisco Bay Bridge to the south.	Year-round
Northern Elephant Seal <i>Mirounga angustirostris</i>	-/P	-	Northern elephant seals are the largest phocid, or "true" seal, in the Northern Hemisphere. They are found in the	Low. Occurrence and presence within Central Bay has steadily increased over recent years with individuals	Primarily April to August with occasional occurrences in October and November. Not known to be present

Table E-3. Special-Status Fish and Marine Mammal Species that May Occur within the Bay Waters of the Project Area

Common Name Scientific Name	Listing Status		General Habitat	Potential for Species Occurrence Within Project Area	Time Period Present in Project Area Waters
	Federal FESA/ MMPA	State CESA			
			eastern and central North Pacific Ocean. They range as far north as Alaska and as far south as Mexico, with established Central California breeding colonies on the Farallon Islands, at Año Nuevo State Park, and near San Simeon, California. In recent years, young -of-the-year individuals have been observed hauling out on the sandy beach at Crissy field.	entering the Bay on an annual basis. Additionally, its presence beyond the Central Bay waters between the Golden Gate and Alcatraz Island is also increasing with recent occurrences in North Bay. No sightings in south Central Bay have been reported as yet.	beyond the western segment of Central Bay.
Bottlenose Dolphin <i>Tursiops truncatus</i>	-/P	–	Found along the California coastline, bottlenose dolphins segregate into coastal or oceanic ecotypes with the coastal ecotype inhabiting waters within 1- Kilometer of shore normally between Baja, California and Point	Low. Documented Central Bay presence is currently limited to waters between the Golden Gate and Alcatraz Island; individuals are capable of foraging over a larger area if prey fish are present.	Potentially Year-round

Table E-3. Special-Status Fish and Marine Mammal Species that May Occur within the Bay Waters of the Project Area

Common Name Scientific Name	Listing Status		General Habitat	Potential for Species Occurrence Within Project Area	Time Period Present in Project Area Waters
	Federal FESA/MMPA	State CESA			
			Conception. During El Niño events and in recent years, bottlenose dolphins have been observed as far as San Francisco Bay with individuals making occasional forays to the Golden Gate.		
Southern Sea Otter <i>Enhydra lutris</i>	-/P	–	Nearshore environments between Santa Barbara and Half Moon Bay. Although historic inhabitants of San Francisco Bay prior to being hunted to near extinction, occasional sightings of otters within the Bay occur.	Low. Species is an infrequent visitor to San Francisco Bay and historically have limited their visitations to the waters between the Golden Gate and Alcatraz Island, including Richardson Bay.	Potentially Year-round

Table E-3. Special-Status Fish and Marine Mammal Species that May Occur within the Bay Waters of the Project Area

Common Name Scientific Name	Listing Status		General Habitat	Potential for Species Occurrence Within Project Area	Time Period Present in Project Area Waters
	Federal FESA/MMPA	State CESA			
Gray whale <i>Eschrichtus robustus</i>	FDL/P	-	Predominantly coastal waters, although occasional individuals enter the Bay-Delta and have been observed swimming up the Sacramento River and into the South Bay.	Low. Species is an infrequent visitor to San Francisco Bay.	December to April, during migration from Alaska to Baja California, occasionally enter Bay-Delta, transient
Humpback whale <i>Megoptera noveangli</i>	FE/FD	-	Predominantly coastal waters, although occasional individuals enter the Bay-Delta	Low. Species is an infrequent visitor to San Francisco Bay.	April to December, during migration, occasionally enter the Bay-Delta, transient

Notes:

The “Potential for Occurrence within the Project Area” category is defined as follows:

High = Suitable foraging or spawning/rookeries/birthing habitat is present and/or the species has been documented to be present throughout the year and/or in substantial numbers.

Moderate = Suitable foraging or spawning//rookeries/birthing habitat is present and/or the species has been documented to be present for part of the year

Low = Suitable foraging or spawning/rookeries/birthing habitat is present, but the species has either not been documented to be present or if present, the presence is infrequent.

No Potential = Suitable foraging or spawning/rookeries/birthing habitat is not known to be present and the species has not been documented to occur.

FESA = Federal Endangered Species Act, MMPA = Marine Mammal Protection Act, CESA = California Endangered Species Act

Table E-3. Special-Status Fish and Marine Mammal Species that May Occur within the Bay Waters of the Project Area

Common Name Scientific Name	Listing Status		General Habitat	Potential for Species Occurrence Within Project Area	Time Period Present in Project Area Waters
	Federal FESA/ MMPA	State CESA			

Notes (Continued):

STATUS CODES:

Federal: U.S. Fish and Wildlife Service (USFWS)

FDL = Delisted

FE = Listed as “endangered” (in danger of extinction) under FESA

FT = Listed as “threatened” (likely to become Endangered within the foreseeable future) under FESA

FC = Candidate to become a proposed species

FSC = Former “federal species of concern”. The USFWS no longer lists Species of Concern but recommends that species considered to be at potential risk by a number of organizations and agencies be addressed during project environmental review. *NMFS still lists “Species of Concern”.

Federal: National Oceanographic and Atmospheric Administration (NOAA) MMPA

FD = Depleted Population

P = Federally Protected

State: California Department of Fish and Wildlife (CDFW)

CE = Listed as “endangered” under the CESA

CT = Listed as “threatened” under the CESA

CSC = CDFW designated “species of special concern”

Sources: Bartling 2006; Bay Institute 2007; NMFS 2005, NOAA 2015; NOAA 2009; Sommer and Mejia 2013, USFWS 2013.

Table E-4. Managed Fish Species Known to Occur in San Francisco Bay under the Magnuson-Stevens Act

Fisheries Management Plan	Common Name	Scientific Name	Life Stage	Abundance
Coastal Pelagic	Northern anchovy	<i>Engraulis mordax</i>	J, A	Abundant
	Jack mackerel	<i>Trachurus symmetricus</i>	E, L	Present
	Pacific Chub Mackerel	<i>Scomber japonicus</i>	J, A	Present
	Pacific sardine	<i>Sardinops sagax</i>	J, A	Present
	English sole	<i>Parophrys vetulus</i>	J, A	Abundant
	Sand sole	<i>Psettichthys melanostictus</i>	L, J, A	Present
	Curlfin sole	<i>Pleuronichthys decurrens</i>	J, A	Present
	Pacific sanddab	<i>Citharichthys sordidus</i>	E, L, J, A	Present
	Starry flounder	<i>Platichthys stellatus</i>	J, A	Present
	Lingcod	<i>Ophiodon elongatus</i>	E, L, J, A	Present
Pacific Groundfish	Brown rockfish	<i>Sebastes auriculatus</i>	J	Present
	Blue Rockfish	<i>Sebastes melanostomus</i>	L, J, A	Present
	China Rockfish	<i>Sebastes nebulosus</i>	E, L, J, A	Present
	Pacific whiting (hake)	<i>Merluccius productus</i>	E, L	Rare
	Kelp greenling	<i>Hexagrammos decagrammus</i>	E, L, J, A	Present
	Leopard shark	<i>Triakis semifasciata</i>	J, A	Present
	Spiny dogfish	<i>Squalus acanthias</i>	J, A	Present
	Skates	<i>Raja</i> ssp.	J, A	Present
	Soupfin shark	<i>Galeorhinus galeus</i>	J, A	Rare
	Bocaccio	<i>Sebastes paucispinis</i>	L, A	Rare
Pacific Coast Salmonids	Cabazon	<i>Scorpaenichthys marmoratus</i>	J	Rare
	Chinook salmon	<i>Oncorhynchus tshawytscha</i>	J, A	Seasonally Present
	Coho salmon	<i>Oncorhynchus kisutch</i>	J, A	Historically Present, Current Occurrence unknown

Notes: A = Adult J = Juvenile L = Larvae E = Egg
Bolded common names indicate species that have been documented to inhabit the study area.