
8. BIOLOGICAL RESOURCES

This EIR chapter describes the existing biological resources on the Marina Shores Village project site and in the project vicinity, potential project impacts on those resources, and identifies measures warranted to mitigate identified significant impacts.

The descriptions in this chapter are based on an independent evaluation conducted by the EIR consulting biologist, Wetlands Research Associates, based on field reconnaissance of the project site; review of a biological assessment and preliminary wetlands investigation and delineation prepared for the applicant by the Huffman-Broadway Group, Inc.;¹ review of the most current versions of the California Natural Diversity Data Base (2002); and review of pertinent biological resources publications and data available from other sources, including the U.S. Fish and Wildlife Service (USFWS), U.S. Environmental Protection Agency (USEPA), National Marine Fisheries Service (NMFS), U.S. Army Corps of Engineers (Corps), California Department of Fish and Game (CDFG), San Francisco Bay Regional Water Quality Control Board (RWQCB), Sequoia Audubon Society, and California Exotic Pest Plan Council (see section 8.4, References, herein).

8.1 SETTING

The project site is located in an area that has undergone significant human disturbance, including filling, vegetation removal, soil compaction, and altered runoff patterns.² Five habitat

¹The Huffman-Broadway Group, Inc., 2002a. *Biological Assessment: Marina Shores Village Project, Redwood City, California*. Larkspur, California. Prepared for Glenborough-Pauls, LLC, February 2002. Also, The Huffman-Broadway Group, Inc., 2002b. *Investigation of the Presence of Wetlands and Other Waters of the United States on the Marina Shores Village Project Site, Redwood City, California*. Larkspur, California. Prepared for Glenborough-Pauls, LLC, February 2002.

²The Huffman-Broadway Group, Inc., 2002a.

types, as defined by the California Wildlife Habitat Relationships System,³ are found on the site: estuarine, non-native annual grassland, fresh emergent wetland, saline emergent wetland, and urban habitats. These habitat types and associated wildlife are described in the following sections and identified on Figure 8.1. Figure 8.2 illustrates the project site in the context of the Bair Island National Wildlife Refuge and San Francisco Bay.

³Mayer, E. Kenneth and William F. Laudenslayer, Jr. (Eds.). *A Guide to Wildlife Habitats of California*, 1988.

Figure 8.1. Habitat Map.

Figure 8.2.

8.1.1 Habitats

(a) Estuarine Habitat. Estuarine habitat in the project vicinity includes Redwood Creek, Smith Slough, Pete's Harbor, and Peninsula Marina; the latter marina was vacated in November 2001 by order of the project applicant/property owner, with all docks and marina facilities removed. Like much of the San Francisco Bay shoreline, the quality of the estuarine habitat in the project vicinity has been adversely affected by local industrial and residential development and recreational boating.

Upstream of the project, Redwood Creek crosses under U.S. 101, passes through heavily industrialized areas, and serves as the area's main floodwater drainage corridor. The water upstream of U.S. 101 appears to be eutrophic and would be expected to carry a heavy load of contaminants, including *E. coli*, heavy metals, and industrial waste. Except during winter storm events, the contribution of water from the creek to the aquatic habitat at the project site is relatively low compared to daily tidal exchange with San Francisco Bay. The water quality in Redwood Creek, Smith Slough, and the abandoned Peninsula Marina is likely similar to ambient water quality throughout the South Bay.

(1) *Fish*. The estuarine area around the project site is used by numerous fish communities. Pelagic fish such as herring (*Clupea harengus*), anchovies (*Engraulis mordax*), striped bass (*Morone saxatilis*), and top smelt (*Atherinopsis californiensis*) use the water column between the surface and a meter or so above the bottom. The bottom of the channels constitutes benthic habitat that is essential habitat for fish and shellfish. Federally managed species regulated under U.S. Essential Fish Habitat legislation, such as leopard sharks (*Triakis semifasciata*) and brown rockfish (*Sebastes auriculatus*), use this habitat. Shallow subtidal habitat is essential habitat for many species of flatfish, such as starry flounder. Shallow benthic habitat is also used by many species, which are important forage to listed species of fish, marine mammals, and birds, such as the bay goby (*Lepidogobius lepidus*) and staghorn sculpins (*Leptocottus armatus armatus*). Some fish may also browse on the algae and invertebrates growing on the rip-rap along the banks of the channels. The only recorded fish species in Redwood Creek is the Threespine stickleback (*Gasterosteus aculeatus*).⁴

⁴Leidy, R.A. *Distribution and Ecology of Stream Fishes in the San Francisco Bay Drainage*. Hilgardia, Vol. 52, No. 8 (1984).

(2) *Birds*. Water birds use the estuarine area around the project site for feeding, resting, or swimming. A number of bird species were observed by the project applicant's biologists during summer and winter field surveys,⁵ including pied-billed grebe (*Podilymbus podiceps*), double-crested cormorant (*Phalacrocorax auritus*), black-crowned night heron (*Nycticorax nycticorax*), great (*Ardea alba*) and snowy egrets (*Egretta thula*), American coot (*Fulica americana*), killdeer (*Charadrius vociferus*), black-necked stilt (*Himantopus mexicanus*), American avocet (*Recurvirostra americana*), greater yellowlegs (*Tringa melanoleuca*), willet (*Catoptrophorus semipalmatus*), and Forrester's (*Sterna forsteri*) and Caspian terns (*Sterna caspia*). Waterfowl observed during winter surveys included mallard (*Anas platyrhynchos*), bufflehead (*Bucephala albeola*), lesser scaup (*Aythya affinis*), and common goldeneye (*Bucephala clangula*). Wintering gulls included California (*Larus californicus*), mew (*Larus canus*), ring-billed (*Larus delawarensis*), herring (*Larus argentatus*), western (*Larus occidentalis*), and glaucous-winged gulls (*Larus glaucescens*). All of the bird species observed on and around the project site are common species that are expected in the habitats present.

(b) Non-Native Annual Grassland Habitat. A small non-native annual grassland is present in the vacant (undeveloped) southwestern portion of the project site.

(1) *Vegetation*. Dominant species in this habitat include weedy, ruderal species such as bristly ox-tongue (*Picris echioides*), wild oat (*Avena fatua*), fennel (*Foeniculum vulgare*), and Italian thistle (*Carduus pycnocephalus*). This area has been subject to discing, vehicle activity, and other human disturbance. Such non-native annual grassland is common in ruderal, disturbed, areas on the San Francisco Peninsula.

(2) *Wildlife*. Wildlife abundance and diversity in non-native annual grassland habitats depends on the amount of ongoing disturbance and the characteristics of the resulting vegetation. The recent discing of the non-native annual grassland on the project site, as well as its small size, make this habitat type of limited importance for wildlife. Species found in urban landscape habitats (discussed below), are likely to be found in non-native annual grassland, since the two habitat types are intermingled.

(c) Fresh Emergent Wetland Habitat. A few scattered patches of fresh emergent wetland surrounded by urban landscape habitat are found in the low-lying area at the west end of the site. The extent of this and other on-site wetland habitat will be delineated by the U.S. Army Corps of Engineers during the Section 404 permitting process (see subsection 8.2.3.a herein).

(1) *Vegetation*. Dominant vegetation in this wetland area includes perennial ryegrass (*Lolium perenne*) and rabbitsfoot grass (*Polypogon monspeliensis*). These areas have been degraded by off-road vehicles and other human activities.

(2) *Wildlife*. Fresh emergent wetlands can represent important breeding and foraging habitats

⁵The Huffman-Broadway Group, Inc., 2002a.

for many types of avian and amphibian species. However, this habitat type is of limited importance for wildlife on the project site because of its limited extent and degraded quality.

(d) Saline Emergent Wetland Habitat. Saline emergent wetland is found at the boundaries of the project site along the shorelines of Redwood Creek, Smith Slough, and the marinas.

(1) *Vegetation.* Dominant plant species include pickleweed (*Salicornia virginica*), California cord grass (*Spartina foliosa*), fleshy jaumea (*Jaumea carnosa*), brass buttons (*Cotula spicata*), marsh gumplant (*Grindelia hirsutula hirsutula*), and alkali heath (*Frankenia grandifolia*). Adjacent upland cover species include wild oat, sweet fennel, and ice plant (*Carprobrotus chilensis*).

(2) *Fish.* Various fish species use the margin of vegetation in the shallow intertidal habitat for spawning, larval rearing, juvenile rearing, and adult foraging. Topsmelt (*Atherinopsis californiensis*) may use the base of the vegetation or substrate to attach their eggs. Juvenile crabs and shrimp also use this vegetation base for part of their life cycle. This type of habitat is also an important migratory corridor for salmon and steelhead⁶ and essential for many species of flatfish such as English sole (*Parophrys vetulus*), California halibut (*Paralichthys californicus*), and starry flounder (*Platichthys stellatus*).

(3) *Wildlife.* Saline emergent wetlands support a number of specialized wildlife species. Most of this habitat type in the San Francisco Bay area has been filled, drained for agriculture, or supports salt production; thus, many wildlife species associated with saline emergent wetlands have become protected, special-status species. The California clapper rail (*Rallus longrostris obsoletus*), California black rail (*Laterallus jamaicensis coturniculus*), Alameda song sparrow (*Melospiza melodia pusillula*), salt-marsh wandering shrew (*Sorex vagrans halicoetes*), and salt-marsh harvest mouse (*Reithrodontomys raviventris*) all depend on tidal emergent wetlands dominated by pickleweed and cord grass. Shallow marsh and channel habitat is important for many species of fish and invertebrates that form the prey base of the San Francisco Bay ecosystem.

The narrow shoreline band of saline emergent wetlands in the project vicinity is only marginally suited to the habitat needs of fish and wildlife and is extremely limited in size and quality. No special-status wildlife species was observed there, and it is unlikely that any special-status wildlife species would occur there except as transients or winter visitors.

(e) Urban Landscape Habitat. Urban landscape is the primary habitat found on the upland

⁶Baylands Ecosystem Habitat Goals: A Report of Habitat Recommendations Prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project. U.S. Environmental Protection Agency, San Francisco, California, and San Francisco Bay Regional Water Quality Control Board, Oakland, California, 1999.

portion of the project site. This habitat is dominated by introduced, opportunistic species adapted to high levels of disturbance.

(1) *Vegetation.* Common weedy species or ruderal species are prevalent in these areas. In addition, areas have been landscaped with introduced exotics, including groundcover, trees, and shrubs to provide erosion control, screening, and ornamental value. The areas surrounding the office buildings, restaurant, and parking areas are landscaped with ornamental species such as eucalyptus trees, junipers, and fan palms, as well as ruderal species such as Russian thistle (*Salsola tragus*), sheep sorrell (*Rumex acetosella*), bristly ox-tongue, and sweet fennel.

(2) *Wildlife.* Wildlife abundance and diversity in urban habitats depends on the amount of ongoing disturbance and the characteristics of the resulting vegetation. Vegetation, including landscaping for urban development and parking lots, provides cover and food resources for animals adapted to urban environments. Small mammals such as house mice (*Mus musculus*), Norway rats (*Rattus norvegicus*), raccoons (*Procyon lotor*), and striped skunks (*Mephitis mephitis*) may also be found in these urban locations. Although no California ground squirrels (*Spermophilus beecheyi*) were observed on-site, ground squirrel burrows were noticed on banks along Redwood Creek. Reptiles and amphibians expected to utilize the site include the western fence lizard (*Sceloporus occidentalis*) and Pacific treefrog (*Hyla regilla*).

(3) *Birds.* The urban landscape on and surrounding the project site provides suitable habitat for many birds, including those observed during summer and winter visits to the site by the applicant's biologists:⁷ mourning dove (*Zenaidura macroura*), rock dove (*Columba livia*), Anna's hummingbird (*Calypte anna*), black phoebe (*Sayornis nigricans*), western scrub-jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), American robin (*Turdus migratorius*), European starling (*Sturnus vulgaris*), northern mockingbird (*Mimus polyglottos*), California towhee (*Pipilo crissalis*), yellow-rumped warbler (*Dendroica coronata*), song sparrow (*Melospiza melodia*), white-crowned sparrow (*Zonotrichia leucophrys*), golden-crowned sparrow (*Zonotrichia atricapilla*), savannah sparrow (*Passerculus sandwichensis*), western meadowlark (*Sturnella neglecta*), brown-headed cowbird (*Molothrus ater*), Brewer's blackbird (*Euphagus cyanocephalus*), house finch (*Carpodacus mexicanus*), American goldfinch (*Carduelis tristis*), and house sparrow (*Passer domesticus*). Observed raptors included red-tailed hawk (*Buteo jamaicensis*), white-tailed kite (*Elanus leucurus*), and American kestrel (*Falco sparverius*). Also observed foraging on-site during the summer were barn (*Hirundo rustica*) and cliff swallows (*Petrochelidon pyrrhonota*), which nest under bridges and building overhangs.

8.1.2 Definitions of Special-Status Species

For purposes of this analysis and following common practice, "special-status species" are defined as those plants and animals that are legally protected under the State and Federal Endangered Species Acts or other regulations, and species that are considered rare by the

⁷The Huffman-Broadway Group, Inc., 2002a.

scientific community. Rare, endangered, or threatened species are protected by the Federal Endangered Species Act of 1973 (as updated in 50 CFR § 17.11 and 17.12, January 1992), the California Native Plant Protection Act of 1997, and the California Endangered Species Act of 1970 (California Administrative Code Title 14, section 670.2 and 670.51). The California Environmental Quality Act (CEQA) (January 1984) provides additional protection for unlisted species that meet the "rare" or "endangered" criteria defined in section 15380.

(a) Federal Threatened Species. A species listed as "threatened" under the Federal Endangered Species Act is protected from unauthorized "take" (i.e., harass, harm, pursue, hunt, shoot, trap). "Take" of a federal-listed threatened species as part of an otherwise lawful activity requires permission from the USFWS prior to initiating the "take." (For further discussion of federal threatened species and the Federal Endangered Species Act, see subsection 8.2.2. below).

(b) Federal Candidate Species. Federal "candidate" species are those species for which enough data has been collected to support a proposal to list the species as either threatened or endangered under the Federal Endangered Species Act. Federal candidate species are not protected under the Federal Endangered Species Act.

(c) Federal Species of Concern. Federal "species of concern" are species for which the data are insufficient at this time to support a federal listing proposal. Additional field research and data collection are necessary in order to classify these species as either candidates for listing or remove them from consideration. Federal species of concern are not protected under the Federal Endangered Species Act.

(d) Federal Protected Fish. The federal Magnuson-Stevens Act, amended in 1996, mandated the identification of Essential Fish Habitat (EFH) for managed species as well as measures to conserve and enhance the habitat necessary for fish to carry out their life cycles. The Magnuson-Stevens Act requires cooperation among the NMFS, other federal and state agencies, fishing participants, and others in achieving EFH protection, conservation, and enhancement. Congress defined EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S.C. 1802[10]).

(e) State Fully Protected Birds. A total of 13 birds are fully protected under California Fish and Game Code 3511. Those species that may occur in the San Francisco Bay region include American peregrine falcon (*Falco peregrinus*), brown pelican (*Pelecanus occidentalis californicus*), California black rail, California clapper rail, California least tern (*Sterna antillarum*), golden eagle (*Aquila chrysaetos*), and white-tailed kite. Fully protected birds or parts thereof may not be taken or possessed at any time except for the following cases: (1) the California Fish and Game Commission may authorize the collecting of such species for necessary scientific research and may authorize the live capture and relocation of such species pursuant to a permit for the protection of livestock, and (2) legally imported fully protected birds or parts thereof may be possessed under a permit issued by the CDFG.

(f) State Fully Protected Mammals. A total of nine mammals are listed as fully protected under California Fish and Game Code 4700. Only the salt-marsh harvest mouse occurs in the project vicinity. Fully protected mammals or parts thereof may not be taken or possessed at any time except for the following cases: (1) the CDFG Commission may authorize the collecting of those species for necessary scientific research and (2) legally imported fully protected mammals or parts thereof may be possessed under a permit issued by the CDFG.

(g) State Protected Amphibians. A total of 41 amphibians are protected under California Fish and Game Code 5050 as species of special concern. As described above, this designation affords no legally mandated protection; however, pursuant to the CEQA Guidelines, some species of special concern would be considered "rare."

(h) State Species of Special Concern. California "species of special concern" are species listed by the CDFG as those California breeding populations are seriously declining and extirpation from all or a portion of their range is possible. This designation affords no legally mandated protection; however, pursuant to the CEQA Guidelines, some species of special concern would be considered "rare." Any unmitigated impacts to rare species would be considered under the CEQA Guidelines to be a "significant effect on the environment." Thus, species of special concern must be considered in any project that will or is currently undergoing CEQA review and/or must obtain an environmental permit(s) from a public agency.

(i) CNPS List Species. The California Native Plant Society (CNPS) maintains an inventory of special status species. The CNPS maintains four lists of species of varying rarity. Although plants of these lists have no formal legal protection (unless they are also listed state or federal species), the California Department of Fish and Game (CDFG) requests the inclusion of List 1 species in environmental documents. In addition, other state and local agencies may request the inclusion of species on other lists as well. List 1 species have the highest priority: List 1A species are thought to be extinct and List 1B species are known to still exist. List 2 species are rare in California, but more common elsewhere. Lists 3 and 4 contain species about which there is some concern; these are "review" and "watch" lists, respectively.

8.1.3 Methodology for Determining Occurrence or Potential Occurrence of Special-Status Species on the Project Site

(a) California Natural Diversity Database (CNDDDB) Listing. The CDFG maintains records for the distribution and known occurrences of sensitive species and habitats in the California Natural Diversity Database (CNDDDB). As defined under section 8.1.2 above, sensitive species include those species listed by the federal and state governments as endangered, threatened, or rare, or candidate species for these lists. The CNDDDB is organized into map areas based on 7.5-minute topographic maps produced by the U.S. Geological Survey. All known occurrences of sensitive species and important natural communities are mapped onto the quadrangle map. The database gives further detailed information on each occurrence, including specific location of the individual, population, or habitat (if possible) and the presumed current state of the population or habitat.

The project site is located in the northwestern portion of the Palo Alto 7.5-minute USGS quadrangle map near its border with Redwood Point quadrangle and adjacent to eastern portions of the San Mateo and Woodside quadrangles. Due to the project site's proximity to the border of these quadrangles, the CNDDDB records search conducted for this EIR evaluation included all four quadrangles.

The absence of a special animal, plant, or habitat from the report does not necessarily mean that it is absent from the area in question, only that no occurrence data exist in the CNDDDB inventory. The recorded occurrence of special-status species in the project vicinity may be an indication that they may also occur on the project site.

(b) Habitat Suitability Evaluation. A total of 32 special status wildlife species have been reported or potentially occur in the Palo Alto, Redwood Point, San Mateo, and Woodside quadrangles (see Table 8.1). Habitat suitability was evaluated for each special status species by classifying its potential for occurrence using the following criteria:

(1) *Not Present.* Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, nesting, cover, area). The species has an extremely low probability of being found on the site.

(2) *Low Potential.* Some habitat components meeting the species requirements are present; however, the majority of habitat on and adjacent to the site is unsuitable. The species has a low probability of being found on the site.

(3) *Moderate Potential.* Habitat components meeting the species requirements are present; however, some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

(4) *High Potential.* Habitat components meeting the species requirements are present and 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.

8.1.4 Determination: Special-Status Species Occurring or with the Potential to Occur on the Project Site

(a) Special-Status Plant Species Potentially Occurring On-Site. Table 8.1 includes a list of special-status plants that have been reported in the project vicinity. Based on this CNDDDB listing, field surveys, the known geographical ranges for sensitive species, and the habitat requirements for special-status species, the project applicant's biologist has determined that no special-status plant species are likely to occur on the project site.⁸ A total of 17 special-status

⁸The Huffman-Broadway Group, Inc., 2002a.

plant species have been reported in the Palo Alto, Redwood Point, San Mateo, and Woodside quadrangles. Most of these are species adapted to serpentine soils, which do not occur on the project site. Habitat conditions on the project site are potentially suitable for only one species, Point Reyes bird's beak (*Cordylanthus maritimus palustris*), but local occurrence of this species

SPECIAL-STATUS WILDLIFE AND PLANT SPECIES THAT HAVE BEEN DOCUMENTED TO OCCUR, OR MAY OCCUR, IN THE VICINITY OF THE PROPOSED MARINA SHORES VILLAGE PROJECT SITE

Table 8.1
 SPECIAL-STATUS WILDLIFE AND PLANT SPECIES THAT HAVE BEEN DOCUMENTED TO OCCUR, OR MAY OCCUR, IN THE VICINITY OF THE PROPOSED MARINA SHORES VILLAGE PROJECT SITE

<u>Species</u>	<u>Status*</u>	<u>Habitat Characteristics</u>	<u>Potential for Occurrence at Project Site</u>
Mammals			
salt marsh vagrant shrew <i>Sorex vagrans halicoetes</i>	FSC, CSC	Restricted to salt marshes in San Francisco Bay and occur in low densities. Prefer a low, dense cover of Salicornia.	Low Potential. Past and present disturbance, and narrow fragments of habitat reduce possibility of occurrence.
Townsend's western big-eared bat <i>Corynorhinus townsendii townsendii</i>	FSC, CSC	Primarily found in rural settings in a wide variety of habitats including oak woodlands and mixed coniferous-deciduous forest. Day roosts highly associated with caves and mines. Building roost sites must be cave like. Very sensitive to human disturbance.	Not Present. Suitable roost habitat is not present.
long-eared myotis (bat) <i>Myotis evotis</i>	FSC	Primarily a forest associated species. Day roosts in hollow trees, under exfoliating bark, rock outcrop crevices and buildings. Other roosts include caves, mines and under bridges.	Not Present. Suitable roost habitat is not present.
fringed myotis (bat) <i>Myotis thysanodes</i>	FSC	Associated with a wide variety of habitats including mixed coniferous-deciduous forest and redwood/sequoia groves. Buildings, mines and large snags are important day and night roosts.	Not Present. Suitable roost habitat is not present.
long-legged myotis (bat) <i>Myotis volans</i>	FSC	Generally associated with woodlands and forested habitats. Large hollow trees, rock crevices and buildings are important day roosts. Other roosts include caves, mines and buildings.	Not Present. Suitable roost habitat is not present.
small-footed myotis (bat) <i>Myotis californicus</i>	CSC	Commonly found in arid uplands of California. Feeds on a variety of small flying insects. Seeks cover in caves, buildings, mines, crevices, and occasionally under bridges.	Not Present. Suitable roost habitat is not present.
Yuma myotis (bat) <i>Myotis yumanensis</i>	FSC, CSC	Known for its ability to survive in urbanized environments. Also found in heavily forested settings. Day roosts in buildings, trees, mines, caves, bridges and rock crevices. Night roosts associated with man-made structures.	Low Potential. May occasionally forage over the site; suitable roost habitat may be present in some buildings.

SPECIAL STATUS WILDLIFE AND PLANT SPECIES THAT HAVE BEEN DOCUMENTED TO OCCUR, OR MAY OCCUR, IN THE VICINITY OF THE PROPOSED MARINA SHORES VILLAGE PROJECT SITE

<u>Species</u>	<u>Status*</u>	<u>Habitat Characteristics</u>	<u>Potential for Occurrence at Project Site</u>
greater western mastiff bat <i>Eumops perotis californicus</i>	FSC, CSC	Found in a wide variety of habitat. Distribution appears to be tied to large rock structures which provide suitable roosting sites, including cliff crevices and cracks in boulders.	Not Present. Suitable roost habitat is not present.
pallid bat <i>Antrozous pallidus</i>	CSC	Occupies a variety of habitats at low elevation including grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting.	Not Present. Suitable roost habitat is not present.
salt-marsh harvest mouse <i>Reithrodontomys raviventris</i>	FE, SE	Found only in saline emergent wetlands of San Francisco Bay. Prefers pickleweed habitat and requires higher areas for flood escape.	Low Potential. Past and present disturbance, and narrow fragments of habitat reduce possibility of occurrence.
harbor seal <i>Phoca vitulina</i>	FP	Favor near-shore coastal waters and frequent sandy beaches, mudflats, bays, and estuaries.	Low Potential. May occasionally enter sloughs and marinas at high tide. Haul-out habitat not present.
Birds			
California brown pelican <i>Pelecanus occidentalis californicus</i>	FE, SE	Found along the coast and the San Francisco bay. Nest on small, coastal islands.	Present. Forages in sloughs and marinas on and adjacent to Marina Shores site. Nesting habitat not present.
double-crested cormorant <i>Phalacrocorax auritus</i>	CSC	Nests along coasts in sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins	Present. Forages in sloughs and marinas on and adjacent to Marina Shores site. Nesting habitat not present.
Barrow's goldeneye <i>Bucephala islandica</i>	CSC	Winter resident of coastal California, found in sheltered coastal areas, inland lakes and rivers.	Low Potential. May rarely occur on sloughs or in marinas in winter or during migration.
northern harrier <i>Circus cyaneus</i>	CSC	Nests and forages in coastal salt and fresh-water marsh, grasslands.	Low Potential. May occasionally fly over the site; no suitable foraging or nesting habitat.
white-tailed kite <i>Elanus leucurus</i>	FSC, CFP	Year-long resident of coastal and valley lowlands; rarely found away from agricultural areas. Preys on small diurnal mammals and occasional birds, insects, reptiles, and amphibians.	Low Potential. May occasionally fly over the site; no suitable foraging or nesting habitat.

SPECIAL STATUS WILDLIFE AND PLANT SPECIES THAT HAVE BEEN DOCUMENTED TO OCCUR, OR MAY OCCUR, IN THE VICINITY OF THE PROPOSED MARINA SHORES VILLAGE PROJECT SITE

<u>Species</u>	<u>Status*</u>	<u>Habitat Characteristics</u>	<u>Potential for Occurrence at Project Site</u>
California black rail <i>Laterallus jamaicensis coturniculus</i>	FSC, ST	Found in tidal salt marshes of the San Francisco Bay. Require higher areas with pickleweed vegetation to avoid flooding during nesting.	Low Potential. Past and present disturbance, and narrow fragments of habitat reduce possibility of occurrence.
California clapper rail <i>Rallus longirostris obsoletus</i>	FE, SE	Found in tidal salt marshes of the San Francisco Bay. Require mudflats for foraging and dense vegetation on higher ground for nesting.	Low Potential. Past and present disturbance, and narrow fragments of habitat reduce possibility of occurrence.
Western snowy plover (Coastal populations) <i>Charadrius alexandrinus nivosus</i>	FT, CSC	Nests, feeds, and takes cover on sandy or gravelly beaches along coast, estuarine salt ponds, and alkali lakes.	Not Present. Typical nesting and foraging habitat is not present on the site.
black skimmer <i>Rynchops niger</i>	CSC	Found in coastal and bay habitats. Nest on sandy beaches.	Not Present. Typical nesting and foraging habitat is not present on the site.
California least tern <i>Sterna antillarum browni</i>	FE, SE	Nest in colonies on sandy beaches associated with river mouths or estuaries.	Not Present. Typical nesting and foraging habitat is not present on the site.
long-billed curlew <i>Numenius americanus</i>	CSC	Breeds in northeastern California, winters in coastal estuaries, grasslands, and croplands.	Low Potential. May occasionally forage along margins of site; no suitable nesting habitat.
short-eared owl <i>Asio flammeus</i>	FSC, CSC	Found in open areas with few trees, such as annual and perennial grasslands, prairies, meadows, dunes, irrigated lands, and saline and fresh emergent marshes.	Not Present. Typical nesting and foraging habitat is not present on the site.
saltmarsh common yellowthroat <i>Geothlypis trichas sinuosa</i>	FSC, CSC	Frequents low, dense vegetation near water including fresh to saline emergent wetlands. Brushy habitats used in migration. Forages among wetland herbs and shrubs for insects primarily.	Low Potential. Past and present disturbance, and narrow fragments of habitat reduce possibility of occurrence.
Alameda song sparrow <i>Melospiza melodia pusillula</i>	FSC, CSC	Endemic to the San Francisco Bay, live and breed in tidal salt marshes.	Low Potential. Past and present disturbance, and narrow fragments of habitat reduce possibility of occurrence.
Reptiles and Amphibians			
western pond turtle	FSC, CSC	Occurs in perennial ponds, lakes, rivers and streams with suitable	Not Present. Suitable fresh to brackish

SPECIAL STATUS WILDLIFE AND PLANT SPECIES THAT HAVE BEEN DOCUMENTED TO OCCUR, OR MAY OCCUR, IN THE VICINITY OF THE PROPOSED MARINA SHORES VILLAGE PROJECT SITE

<u>Species</u>	<u>Status*</u>	<u>Habitat Characteristics</u>	<u>Potential for Occurrence at Project Site</u>
<i>Clemmys marmorata</i>		basking habitat (mud banks, mats of floating vegetation, partially submerged logs) and submerged shelter.	aquatic habitat not present.
San Francisco garter snake <i>Thamnophis sirtalis tetrataenia</i>	FE, SE	Found in the vicinity of freshwater marshes, ponds and slow moving streams in San Mateo County. Prefers dense cover and water depths of at least one foot. Upland areas important.	Not Present. Suitable freshwater habitat not present.
California tiger salamander <i>Ambystoma californiense</i>	FE, CSC	Inhabits annual grass habitat and requires underground refuges, especially ground squirrel burrows and vernal pools or other seasonal water sources for breeding.	Not Present. Suitable freshwater habitat not present.
California red-legged frog <i>Rana aurora draytonii</i>	FT, CSC	Associated with quiet perennial to intermittent ponds, stream pools and wetlands. Prefers shorelines with extensive vegetation. Documented to disperse through upland habitats after rains.	Not Present. Suitable freshwater habitat not present.
Fishes			
Coho salmon <i>Oncorhynchus kisutch</i>	FT, ST	Spawn in coastal streams at temps. from 4-14C. Prefer beds of loose, silt-free, coarse gravel and cover nearby for adults.	Not present. No known runs in south San Francisco Bay.
steelhead-Central California Coastal ESU <i>Oncorhynchus mykiss</i>	FT	Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating downstream to the ocean.	High Potential. Several streams in south San Francisco Bay support runs of steelhead; adults and outmigrant juveniles may move through waters on or adjacent to Marina Shores.
steelhead-Central Valley ESU <i>Oncorhynchus mykiss</i>	FT	Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating downstream to the ocean.	Low Potential. Adults and juveniles probably do not forage or migrate through south San Francisco Bay.
chinook salmon (winter run) <i>Oncorhynchus tshawytscha</i>	FE, SE	Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating downstream to the ocean.	Not present. No likely to forage or migrate through south San Francisco Bay.
chinook salmon (spring run) <i>Oncorhynchus tshawytscha</i>	FT, ST	Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating downstream to the ocean.	Not present. Not likely to forage or migrate though south San Francisco Bay.
chinook salmon (Central	FC, CSC	Adults migrate upstream to spawn in cool, clear, well-oxygenated	High Potential. Several streams in south

SPECIAL STATUS WILDLIFE AND PLANT SPECIES THAT HAVE BEEN DOCUMENTED TO OCCUR, OR MAY OCCUR, IN THE VICINITY OF THE PROPOSED MARINA SHORES VILLAGE PROJECT SITE

<u>Species</u>	<u>Status*</u>	<u>Habitat Characteristics</u>	<u>Potential for Occurrence at Project Site</u>
Valley fall/late fall run) <i>Oncorhynchus tshawytscha</i>		streams. Juveniles remain in fresh water for one or more years before migrating downstream to the ocean.	San Francisco Bay support runs; adults and outmigrant juveniles may move through waters on or adjacent to Marina Shores.
chinook salmon (California Coastal ESU) <i>Oncorhynchus tshawytscha</i>	FT	Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating downstream to the ocean.	Moderate potential. May occur as transitory migrant. Known to occur in Guadalupe River.
longfin smelt <i>Spirinchus thaleichthys</i>	FSC, CSC	Generally found in the Delta region and occurs only incidentally elsewhere in the San Francisco Bay.	Low potential. Site outside of known breeding and spawning range.
northern anchovy <i>Engraulis mordax</i>	EFH	Forage in pelagic habitat (water column between the surface and a meter or so above the bottom).	High potential. Abundant species in South San Francisco Bay.
Pacific sardine <i>Sardinops sagax caeruleus</i>	EFH	Coastal, pelagic species, commonly occurs up to 150 miles offshore in times of abundance. Filter feed on zooplankton and phytoplankton.	Low potential. Rare in South San Francisco Bay. Low salinity habitat not suitable.
English sole <i>Parophrys vetulus</i>	EFH	Use shallow marsh and channel habitat in the intertidal for spawning, larval rearing, juvenile rearing, and adult foraging.	High potential. Suitable aquatic habitat exists and site is within known range.
starry flounder <i>Platichthys stellatus</i>	EFH	Use shallow marsh and channel habitat in the intertidal for spawning, larval rearing, juvenile rearing, and adult foraging.	High potential Known to use low salinity habitat such as that at site for spawning and rearing.
California halibut <i>Paralichthys californicus</i>	EFH	Use shallow marsh and channel habitat in the intertidal for spawning, larval rearing, juvenile rearing, and adult foraging.	High potential Juveniles likely to use aquatic habitat in and adjacent to site.
leopard shark <i>Triakis semifasciata</i>	EFH	Use benthic habitat (water column at bottom of channels, bay, etc.) for foraging.	Present. Documented occurrence near site, suitable aquatic habitat available.
spiny dogfish <i>Squalus acanthias</i>	EFH	Prefer high salinity waters and migrate to warm waters seasonally.	Not present. Habitat not suitable. Salinity levels in south San Francisco Bay lower than required for species.
Pacific herring <i>Clupea harengus</i>	CSC	Forage in pelagic habitat (water column between the surface and a meter or so above the bottom).	Low potential. Larvae may occur at site though habitat generally unsuitable for spawning adults.

SPECIAL STATUS WILDLIFE AND PLANT SPECIES THAT HAVE BEEN DOCUMENTED TO OCCUR, OR MAY OCCUR, IN THE VICINITY OF THE PROPOSED MARINA SHORES VILLAGE PROJECT SITE

<u>Species</u>	<u>Status*</u>	<u>Habitat Characteristics</u>	<u>Potential for Occurrence at Project Site</u>
green sturgeon <i>Acipenser medirostris</i>	FSC, CSC	Anadromous fish that spawns in Sacramento river. Feeds in estuaries and bays, including San Francisco Bay.	Moderate potential. May occur to feed in south San Francisco Bay. Tolerant of low salinity levels. Uncommon species.
brown rockfish <i>Sebastes auriculatus</i>	EFH	Use benthic habitat (water column at bottom of channels, bay, etc.) for foraging.	Low potential. Salinity levels not ideal. May occur as a migrant.
Cabezon <i>Scorpaenichthys marmoratus</i>	EFH	Abundant in shallow inshore coastal water and also offshore to moderate depths.	Not present. Salinity level is unsuitable.
big skate <i>Raja binoculata</i>	EFH	Forages over soft bottoms from depths of 10'-360' (3-110 meters) for small fishes and crustaceans.	Not present. Salinity level is unsuitable.
southern shark <i>Galeorhinus zyopterus</i>	EFH	Found in temperate ocean habitat.	Not present. Salinity level is unsuitable.
sand sole <i>Psettichthys melanosticus</i>	EFH	Bottom dwelling fish that prefers a sandy bottom.	Low potential. Juveniles may occur in area. Habitat not generally suitable for adults.
lingcod <i>Ophiodon elongatus</i>	EFH	Found inshore among rocky areas. Carnivorous, feeding on other fish, crustaceans, octopi and smaller lingcod.	Not present. Salinity levels unsuitable.
shiner surfpeach <i>Cymatogaster aggregata</i>	CSC	Use rocky shorelines such as riprap to browse on algae and invertebrates.	High potential. Suitable habitat available, known to occur abundantly in south San Francisco Bay.
Invertebrates			
Bay checkerspot butterfly <i>Euphydryas editha bayensis</i>	FT, CSC	Restricted to native grasslands on outcrops of serpentine soil in the vicinity of San Francisco Bay. <i>Plantago erecta</i> is the primary host plant.	Not Present. Host plant is not present.
Plants			
<i>Acanthomintha duttoni</i>	FE, SE	Chaparral, valley and foothill grassland, coastal scrub. Endemic to	Not Present. Project site is below the

SPECIAL STATUS WILDLIFE AND PLANT SPECIES THAT HAVE BEEN DOCUMENTED TO OCCUR, OR MAY OCCUR, IN THE VICINITY OF THE PROPOSED MARINA SHORES VILLAGE PROJECT SITE

<u>Species</u>	<u>Status*</u>	<u>Habitat Characteristics</u>	<u>Potential for Occurrence at Project Site</u>
San Mateo thorn mint	List 1B	San Mateo County. Known only from serpentinite vertisol clay. 50-200 meters (m) elevation range.	known elevation range for this species.
<i>Allium peninsulare</i> var. <i>franciscanum</i> Franciscan onion	List 1B	Cismontane woodland, valley and foothill grassland. Found in clay soils, often on serpentine dry hillsides. 100-300m elevation range.	Not Present. Project site is below the known elevation range for this species.
<i>Arctostaphylos regismontana</i> Kings mountain manzanita	List 1B	Broadleafed upland forest, chaparral, north coast coniferous forest, grantici or sandstone. 305-730m elevation range.	Not Present. Project site is below the known elevation range for this species.
<i>Centromadia parryi</i> ssp. <i>congdonii</i> Congdon's tarplant	FSC, List 1B	Valley and foothill grasslands. Alkaline soils. 1-230m elevation range.	Not Present. Uplands on site dominated by development.
<i>Cirsium praeteriens</i> lost thistle	List 1A	Unknown, historically from Palo Alto area. 0-100m elevation range.	Not Present. Uplands on site dominated by development.
<i>Collinsia multicolor</i> san francisco collinsia	List 1B	Closed-cone coniferous forest, coastal scrub, sometimes serpentinite. 30-250m elevation range.	Not Present. Project site is below the known elevation range for this species.
<i>Cordylanthus maritimus</i> ssp. <i>palustris</i> Point Reyes bird's beak	FSC, List 1B	Coastal salt marshes and swamps. 0-10m elevation range.	Low Potential. Small fragments of tidal salt marsh vegetation are present along the project margins; past disturbance and rip-rapping likely precludes presence.
<i>Dirca occidentalis</i> western leatherwood	List 1B	broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland. 50-395m elevation range.	Not Present. Project site is below the known elevation range for this species.
<i>Eryngium aristulatum</i> var. <i>hooveri</i> Hoover's button-celery	FSC, List 1B	Vernal pools. 3-45m elevation range.	Not Present. Vernal pool habitat is not present on the project site.
<i>Fritillari liliacea</i> fragrant fritillary	FSC, List 1B	Often on serpentine soils in grasslands, also coastal scrub, coastal prairie. 3-410m elevation range.	Not Present. Uplands on site dominated by development.
<i>Hesperolinon congestum</i> Marin western flax	FE, SE	Chaparral, valley and foothill grasslands. Known only from Marin, S.F., and San Mateo Counties. Serpentine soils. 30-365m elevation	Not Present. Project site is below the known elevation range for this species.

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SPECIAL STATUS WILDLIFE AND PLANT SPECIES THAT HAVE BEEN DOCUMENTED TO OCCUR, OR MAY OCCUR, IN THE VICINITY OF THE PROPOSED MARINA SHORES VILLAGE PROJECT SITE

<u>Species</u>	<u>Status*</u>	<u>Habitat Characteristics</u> range.	<u>Potential for Occurrence at Project Site</u>
<i>Lathyrus jepsonii</i> var. <i>jepsonii</i> Delta tule pea	FSC, List 1B	Marshes and swamps (freshwater and brackish). 0-10m elevation range.	Not Present. Freshwater and brackish marshes are not present.
<i>Lessingia hololeuca</i> woolly-headed lessingia	List 3	Broadleafed upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland/ clay, serpentinite. 15-305m elevation range.	Not Present. Project site is below the known elevation range for this species.
<i>Malacothamnus arcuatus</i> arcuate bush mallow	List 1B	Chaparral. 15-355m elevation range.	Not Present. Project site is below the known elevation range for this species.
<i>Micropus amphibolus</i> Mt. Diablo cottonweed	List 3	Broadleafed upland forest, chaparral, cismontane woodland, valley and foothill grassland/ rocky. 45-825m elevation range.	Not Present. Project site is below the known elevation range for this species.
<i>Potamogeton filiformis</i> slender-leaved pondweed	List 2	Marshes and swamps (assorted shallow freshwater). 300-2150m elevation range.	Not Present. Project site is below the known elevation range for this species.
<i>Tropidocarpum capparideum</i> caper-fruited tropidocarpum	FSC, List 1A	Valley and foothill grassland (alkaline hills). 1-455m elevation range.	Not Present. Uplands on site dominated by development.

*** Key to status codes:**

- None Although no status is given, rookery sites are monitored by DFG
- Draft CSC 4 April 2000 Draft CDFG Species of Special Concern
- CSC CDFG Species of Special Concern
- EFH Essential Fish Habitat
- FSC Federal Species of Concern
- CFP CDFG Fully Protected Animal
- SE State Endangered
- FE Federal Endangered
- FT Federal Threatened
- FC Federal Candidate
- 1A CNPS 1A List, Endangered, Threatened, or Rare in California
- 1B CNPS 1B List, Endangered, Threatened, or Rare in California

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SPECIAL STATUS WILDLIFE AND PLANT SPECIES THAT HAVE BEEN DOCUMENTED TO OCCUR, OR MAY OCCUR, IN THE VICINITY OF THE PROPOSED MARINA SHORES VILLAGE PROJECT SITE

<u>Species</u>	<u>Status*</u>	<u>Habitat Characteristics</u>	<u>Potential for Occurrence at Project Site</u>
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SOURCE: Wetlands Research Associates.

Note: This list was compiled from a search of the USGS Palo Alto, Redwood Point, San Mateo, and Woodside quads of the California Department of Fish and Game (CDFG) Natural Diversity Data Base (NDDB) (2002), California Native Plant Society (CNPS) electronic inventory, and Robert Abbott, Ph.D.

is known only from collections made approximately 100 years ago at the mouth of Redwood Creek and Belmont Slough.⁹

(b) Special-Status Fish and Wildlife Species Potentially Occurring On-Site. Table 8.1 includes a list of special-status wildlife species that have been reported in the project vicinity. Based on the CNDDDB listing,¹⁰ the known geographical ranges for sensitive species,¹¹ the habitat requirements for special-status species, field surveys, and the project applicant's biologist, the EIR consulting biologist (Wetlands Research Associates) has determined that four special-status species may potentially occur on the project site: steelhead-Central California Coast ESU¹² (*Oncorhynchus mykiss*), chinook salmon (Central Valley fall/late fall run and California Coastal ESU) (*Oncorhynchus tshawytscha*), and green sturgeon (*Acipenser medirostris*). These species and their relevant habitat characteristics are described in more detail below:

Steelhead-Central California Coastal ESU (*Oncorhynchus mykiss*). Steelhead is a federally listed threatened species. Two genetically distinct populations of steelhead occur in San Francisco Bay; both populations are federally listed as threatened. The Central Valley ESU includes steelhead that spawn in the tributaries to the Sacramento and San Joaquin Rivers. The Central California Coastal steelhead ESU includes steelhead that run in coastal basins from the Russian River south to Soquel Creek and in tributaries to San Francisco Bay. Steelhead spawn in Coyote Creek, Guadalupe River, Stevens Creek, San

⁹Ibid.

¹⁰California Department of Fish and Game. *Natural Diversity Data Base*. Wildlife Habitat Data Analysis Branch, Sacramento, California, 2002.

¹¹Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White. California's Wildlife, Volume II: Birds. California Statewide Wildlife Habitat Relationships System, California Department of Fish and Game, Sacramento, California, 1990.

¹²ESU = a genetically distinct species or "Evolutionary Significant Unit"

Francisquito Creek, Permanente Creek and Alameda Creek. Steelhead are known to frequent virtually all the estuaries from tributaries feeding into San Francisco Bay.¹³

¹³Leidy.

Preferred habitat for steelhead includes well-oxygenated streams with riffles and a loose, silt-free gravel substrate. Appropriate spawning habitat is not present within Redwood Creek or Smith Slough, the two drainages adjacent to the project site. The nearest area where this species is known to spawn is San Francisquito Creek, near Palo Alto.¹⁴ However, according to the NMFS, steelhead may use marinas, creeks, and sloughs on the Bay shore for resting or foraging during migration. Marinas, creeks, and sloughs exist on or adjacent to the project site (i.e., Peninsula Marina, Pete's Harbor, Redwood Creek, and Smith Slough). Therefore, the steelhead-Central Valley ESU is considered to have a **high potential** for occurrence on the project site (see Table 8.1).

Chinook Salmon (*Oncorhynchus tshawytscha*)-Central Valley Fall/Late Fall Run and California Coastal ESU. Chinook salmon migrate from the Pacific Ocean through San Francisco Bay to their natal streams to spawn. The vast majority stay well north of the Bay Bridge, migrating directly to the tributaries of the Sacramento River and the San Joaquin River, where they spawn and die. The juvenile salmon migrate downstream through the San Francisco Estuary and out to the Pacific Ocean. Most spend very little time in San Francisco Bay.

There are five genetically distinct species, or Evolutionarily Significant Units (ESU), of chinook salmon that move through the Bay. The Central Valley fall/late fall run of chinook salmon is an identified federal candidate for listing and state-listed species of special concern. Some of these species may linger for a few months in San Francisco Bay, but most migrate directly to the ocean.

In addition to the chinook salmon that spawn in the California Central Valley tributaries, small numbers of chinook salmon spawn in Coyote Creek and Guadalupe River a few miles south of the project site. The genetic origin of these salmon is not clear. They may be strays from hatchery releases or fall run salmon, or they may belong to the California Coastal chinook salmon ESU, which is a federally listed threatened species.

There are no known runs of chinook salmon in Redwood Creek. A few juvenile chinook salmon are captured in the south Bay by CDFG midwater trawl gear in their monthly sampling program. The origin of these salmon are generally unknown.

¹⁴The Huffman-Broadway Group, Inc., 2002a.

Though it is assumed that salmon and steelhead have used all the tributaries to San Francisco Bay, there is no direct information suggesting that salmon or steelhead have used Redwood Creek during the previous 100 years. The project site is not in the *direct* path of migration for salmon or steelhead; however, both species are known to forage near shore, in marinas, and in the intertidal estuaries of tributaries throughout San Francisco Bay.¹⁵ Based on the on-site suitability of habitat, the chinook salmon-Central Valley fall run and late fall run ESU are considered to have **high potential** for occurrence at the project site (see Table 8.1).

Green Sturgeon (*Acipenser medirostris*). Green sturgeon is a CDFG Species of Special Concern and USFWS Species of Concern. Green sturgeon are anadromous fish that spawn in the Sacramento River. They spend time in fresh water only while young and spawning. Adult fish and older juveniles are commonly found in estuaries and marine environments, including San Francisco Bay. Sturgeons in general are highly vulnerable to habitat alteration and over-fishing due to their specialized habitat requirements, the long time it takes them to reach breeding maturity, and their sporadic reproductive success. They are slow-growing and late-maturing fish that apparently spawn every 4 to 11 years during the spring and summer months. Due to the presence of estuarine habitat on the site, there is a moderate potential for the sturgeon to occur. Therefore, the green sturgeon is considered to have a **moderate potential** for occurrence at the project site (see Table 8.1).

8.1.5 Commercially Important Species with Potential to Occur On-Site

A number of fish species in the project vicinity are important forage for commercial, recreational, and special-status fish species. Commercially and recreationally important fish species are also likely present in the estuarine habitat at the project site. Important fish and estuarine forage species known to be present in the project vicinity and potentially present in the estuarine habitat at the project site include the following: white sturgeon (*Acipenser transmontanus*), bat ray (*Myliobatus californica*), topsmelt (*Atherinopsis californiensis*), Pacific staghorn sculpin (*Leptocottus armatus armatus*), bay gobies (*Lepidogobius lepidus*), threespine stickleback (*Gasterosteus aculeatus*), prickly sculpin (*Cottus asper*), striped bass (*Morone saxatilis*), arrow goby (*Clevelandia ios*), opossum shrimp (*Neomysis mercedis*), dungeness crab (*Cancer magister*), and rock crab (*Cancer antennarius*).

8.2 PERTINENT PLANS AND POLICIES

8.2.1 Redwood City General Plan Policies

¹⁵Leidy.

The City of Redwood City Strategic General Plan was adopted on January 22, 1990. The stated goal of the General Plan *Conservation Element* is to “promote lead roles in environmental preservation, air and water quality, wildlife protection, resource recovery, and cultural enrichment in concert with economic development.” The *Conservation Element* contains the following specific policy pertinent to consideration of the proposed project and its potential biological resources implications:

- *Environmentally unique open spaces such as San Francisco Bay, its tributaries, sloughs, and marshlands should be protected and enhanced for conservation and recreation purposes.* (Policy C-3, page 10-4)

The stated goal of the General Plan *Open Space Element* is to “reserve open space areas within the urban complex to enhance the value of other lands and the quality of life in the community.” The *Open Space Element* contains the following specific policies pertinent to consideration of the proposed project and its potential biological resources implications:

- *The City should discourage the unnecessary or premature conversion of open space lands to urban use and should discourage urban development patterns which are either environmentally or monetarily costly to the community. Conversion of open space land to urban use should be based on fiscal impact analysis and environmental impact analysis.* (Policy O-2, page 9-3)
- *Open space areas which are primary wildlife habitats or which have major or unique ecological significance should be protected and conserved.* (Policy O-3, page 9-3)
- *The City should preserve and enhance small parcels of open space in developed areas, wherever practical, especially in those neighborhoods with the greatest park deficiency.* (Policy O-4, page 9-3)

8.2.2 Federal and State Legislation and Policies

Those sections of the Federal and State Endangered Species Acts, the Federal Migratory Bird Treaty Act, the Magnuson-Stevens Fishery Management and Conservation Act, the California Fish and Game Code, and CEQA that are most pertinent to consideration of the biological resources implications of the proposed project are summarized below.

(a) Federal Endangered Species Act. The U.S. Fish and Wildlife Service (USFWS) is responsible for implementing the Federal Endangered Species Act (ESA). The purpose of the ESA is “to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved” (16 USC 1531). The ESA establishes an official listing process for plants and animals considered to be in danger of extinction, requires development of specific plans of action for the recovery of listed species, and restricts activities perceived to harm or kill listed species or affect critical habitat (16 USC 1532, 1536).

The ESA also requires federal agencies to ensure that their actions do not jeopardize the continued existence of listed species or destroy or adversely modify critical habitat (16 USC 1536). Therefore, the ESA is invoked when the property contains a federally listed threatened or endangered species that may be affected by a permit decision. In the event that listed species are involved and a Corps permit is required for impacts to jurisdictional waters, the Corps must initiate consultation with the USFWS (or the National Marine Fisheries Service, NMFS) pursuant to section 7 of the ESA (16 USC 1536; 40 CFR Sec. 402). If formal consultation is required, USFWS or NMFS will issue a biological opinion stating whether the permit action is likely to jeopardize the continued existence of the listed species, recommending reasonable and prudent measures to ensure the continued existence of the species, establishing terms and conditions under which the project may proceed, and authorizing incidental take of the species.

The USFWS also has the responsibility for project review under the Fish and Wildlife Coordination Act. This statute requires that all federal agencies consult with the USFWS, NMFS, and the state's wildlife agency (California Department of Fish and Game, CDFG) for activities that affect, control, or modify streams and other water bodies. Under the authority of the Fish and Wildlife Coordination Act, USFWS, NMFS, and CDFG review applications for permits issued under Section 404 and provide comments to the Corps about potential environmental impacts. Because the project site may support federally listed species and will require Corps authorization for impacts to jurisdictional waters, ESA Section 7 consultations likely will be required with the USFWS and NMFS. The Corps likely will serve as the lead federal agency in these consultations.

(b) California Endangered Species Act. In 1984 the State legislated the California Endangered Species Act (CESA) (Fish and Game Code section 2050). The basic policy of CESA is to conserve and enhance endangered species and their habitats. State agencies will not approve private or public projects under their jurisdiction that would jeopardize threatened or endangered species if reasonable and prudent alternatives are available.

CESA requires that all State lead agencies (as defined under CEQA) conduct an endangered species consultation with CDFG if their actions could affect a State-listed species. The State lead agency and /or project applicants must provide information to CDFG on the project and its likely impacts. CDFG must then prepare written findings on whether the proposed action would jeopardize a listed species or would result in the direct take of a listed species. Because CESA does not have a provision for "harm," CDFG considerations pursuant to CESA are limited to those actions that would result in the direct take of a listed species.

If CDFG determines that a proposed project could affect a State-listed threatened or endangered species, CDFG will provide recommendations for "reasonable and prudent" project alternatives. The CEQA lead agency can approve a project only if these alternatives are implemented unless it finds that the project's benefits clearly outweigh the costs, reasonable

mitigation measures are adopted, there has been no “irreversible or irretrievable” commitment of resources made in the interim, and the resulting project would not result in the extinction of the species. In addition, if there would be threatened or endangered species impacts, the lead agency typically requires project applicants to demonstrate that they have acquired “incidental take” permits from CDFG and/or USFWS (if it is a federal-listed species) prior to allowing/permitting impacts to such species.

CESA allows for take incidental to otherwise lawful development projects. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate mitigation planning to offset project-caused losses of listed species populations and their essential habitats. The Department may authorize, through permits and memoranda of understanding, the take and possession of State-listed species for scientific, educational, and management purposes. The Habitat Conservation Planning Branch (HCPB) administers this permitting process. Permits are required for all individuals on both public and private lands.

(c) Migratory Bird Treaty Act. The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, wading birds, seabirds, and passerine birds (such as warblers, flycatchers, swallows, etc.)

(d) California Fish and Game Code Sections 3503, 3503.5, and 3800. These sections of the Fish and Game Code prohibit the “take, possession, or destruction of birds, their nests or eggs.” Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered a “take.” Such a take would violate the Migratory Bird Treaty Act.

(e) Magnuson-Stevens Fishery Management and Conservation Act. Under the Magnuson-Stevens Fishery Management and Conservation Act (Public Law 94-265 as amended through October 11, 1996), the National Marine Fisheries Service (NMFS), regional fishery management councils, and the federal agencies sponsoring projects are mandated to identify and protect important marine and anadromous fish habitat. The concept of Essential Fish Habitat and three fishery management plans were created to achieve this goal.

(1) Essential Fish Habitat (EFH). The regional fishery management councils, with the assistance of the NMFS, are required to delineate “essential fish habitat” (EFH) for all managed species of fish. The Act defines EFH as “...those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity.” Federal action agencies that fund, permit, or carry out activities that may adversely impact EFH are required to consult with the NMFS regarding the potential effects of their actions on EFH and respond in writing to the NMFS

recommendations. Essential Fish Habitat consultations can generally be met through a Section 7 consultation with representatives of the NMFS.

(2) *Pacific Salmon Management Plan*. The Pacific Salmon Management Plan covers salmon species that migrate upstream from the Pacific Ocean. Chinook salmon/winter run (*Oncorhynchus tshawytscha*) is the only species of salmon covered by the plan that may occur in the project vicinity. Though steelhead are the same genus as salmon, they are not part of the commercial salmon fishery and not managed as part of the plan.

(3) *Coastal Pelagic Species Management Plan*. The Coastal Pelagic Species Management Plan covers species that use the upper part of the water column such as the Pacific sardine (*Sardinops sagax caeruleus*) and the northern anchovy (*Engraulis mordax*). San Francisco Bay constitutes only a small fraction of these species' habitat.

(4) *Pacific Groundfish Management Plan*. The Pacific Groundfish Management Plan covers species that tend to use the benthic or bottom of the ocean as their habitat for most of their lives. This fisheries resources management plan protects and manages approximately 80 species, including flatfish, sharks, and rockfish.

8.2.3 Regulatory Requirements Pertaining to "Waters of the United States"

The criteria used by the U.S. Army Corps of Engineers, the California Regional Water Quality Control Board, the State Water Resources Control Board, and the CDFG to determine those areas within a project site that would be subject to their regulations are presented below.

(a) U.S. Army Corps of Engineers Jurisdiction and General Permitting Definition of "Waters of the United States." Pursuant to section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (Corps) regulates the disposal of dredged or fill material into "waters of the United States." This requires project applicants to obtain authorization from the Corps prior to discharging dredged or fill materials into any "water of the United States." In the Federal Register "waters of the United States" are defined as, "...all interstate waters including interstate wetlands...interstate lakes, river, streams (including intermittent streams), wetlands, [and] natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce..."

Those aspects of the proposed Marina Shores Village project that involve fill of open water and wetlands would be under the jurisdiction of the Corps. The proposed project would therefore require a Corps permit (for fill of open water and wetlands).

(b) California Regional Water Quality Control Board Jurisdiction. Section 401 of the Clean Water Act requires that an applicant for a federal license or permit provide a certification that any discharges from the facility will comply with the Act, including water quality standard requirements. This certification, made by the state in which the discharge originates, declares that the discharge will comply with applicable provisions of the Act, including water quality

standards requirements. Corps Section 404 permits are not valid until the Regional Water Quality Control Board (RWQCB) has been notified and the applicant has obtained a certification that the proposed discharge complies with state water quality standards.

Section 402 of the Clean Water Act requires that all applicants planning to discharge at point sources must obtain a permit that specifies the type and amount of pollutants they may discharge, managed under the "National Pollution Discharge Elimination System" (NPDES). NPDES permits should incorporate the applicable effluent controls, i.e., dischargers must control pollution using technology that is able to guarantee a certain level of pollution removal, depending on the type of discharge involved. In November 1990, the U.S. Environmental Protection Agency published final regulations that establish stormwater permit application requirements for specified categories of industries. The regulations provide that discharges of stormwater from construction projects that encompass five or more acres of soil disturbance are effectively prohibited unless the discharge is in compliance with an NPDES permit. The California State Water Quality Control Board has developed a general construction stormwater permit to implement this requirement. The permit requires submittal of a Notice of Intent to comply, fees, and the implementation of a Storm Water Pollution Prevention Plan (SWPPP).

The proposed Marina Shores Village project would involve such discharges and will involve more than five acres, and thus will require a Notice of Intent and associated SWPPP. The project will also require a Corps Section 404 permit. The required RWQCB certification for this permit would be under the jurisdiction of the San Francisco Bay Regional Water Quality Control Board in Oakland, California. The Regional Board also regulates discharges of dredged or fill material to wetlands (including isolated wetlands) pursuant to its Porter-Cologne Act authority.

(c) San Francisco Bay Conservation and Development Commission. The San Francisco Bay Conservation and Development Commission (BCDC) has state-authorized "Bay jurisdiction" over tidal areas (the upper limit is the line of mean tidal level plus five vertical feet in areas with wetland vegetation) along Smith Slough to its confluence with Redwood Creek (see Figure 8.1). BCDC also has jurisdiction within a 100-foot shoreline band along the Bay shore (i.e., the upland area 100 feet inland from and parallel to the Bay). BCDC also has state-authorized "certain waterways jurisdiction" in Redwood Creek from its confluence with Smith Slough downstream (bayward). Certain waterways jurisdiction is the same as Bay jurisdiction except that there is no additional shoreline band jurisdiction associated with it. This jurisdiction, if it exists on the project site, would be limited to a small area at the northern tip of the project site coincident with the Smith Slough/Redwood Creek confluence. The reach of Redwood Creek upstream of the confluence is not within BCDC jurisdiction. Any project-proposed work within BCDC's Bay jurisdiction, the 100-foot shoreline band, or certain waterways jurisdiction will require a BCDC permit.

BCDC is authorized to issue or deny permits for any filling of the Bay within its Bay jurisdiction. Section 66605 of the McAteer-Petris Act allows the Commission to authorize Bay fill only for water-oriented uses, and minor fill to improve shoreline appearance or public access.

Furthermore, the McAteer-Petris Act requires that the fill be authorized only if there is no feasible upland location, the fill is the minimum amount necessary, the fill minimizes harmful effects to the Bay, and the public benefits clearly exceed its detriments.

The proposed project would require a BCDC permit for shoreline improvements and development within the 100-foot band from the Smith Slough shoreline. Other portions of the project (e.g., marina reconfiguration) would not require BCDC approval.

(d) California Department of Fish and Game. Pursuant to Fish and Game Code sections 1601-1603, the California Department of Fish and Game (CDFG) regulates activities that use materials from any streambed; or divert, obstruct, or change the natural flow or bed of any river, stream, or lake. Sections 1601-1603 allow CDFG to review any proposed construction and to propose reasonable modifications for the protection and construction of a fish or game resource that might be substantially adversely affected by such construction. CDFG enters into a Streambed Alteration Agreement with a project applicant and can impose conditions on the agreement to prevent adverse impacts to fish and wildlife resources and ensure no net loss of wetlands. If mutual agreement between the CDFG and the affected agency is not reached, agreement will be reached through an arbitration procedure to be completed prior to construction of the proposed project.

As described above, under authority of the Fish and Wildlife Coordination Act, CDFG may review applications for permits issued under Section 404 and provide comments to the Corps regarding environmental impacts. Fish and Game Code section 5650F gives CDFG jurisdiction over the input of any deleterious substances, such as silt, into the waters of the State of California, resulting from construction activities.

Project-proposed shoreline development along Redwood Creek and Smith Slough may require a Streambed Alteration Agreement with CDFG.

(e) California State Lands Commission. The California State Lands Commission (SLC) is the agency responsible for the management of state-owned sovereign lands. Should the project or its components use sovereign lands of the State of California under the jurisdiction of the SLC, the activity would be subject to the permitting requirements of the SLC, and the SLC will be a Responsible Agency under CEQA. If the project indirectly affects lands or resources under the jurisdiction of the SLC, the SLC would be a Trustee Agency under CEQA.

At this preliminary point in the project design, it is not known if the project would directly encroach on lands under state ownership. The applicant's biological assessment¹⁶ states, "[I]t is not believed that the project will directly encroach upon lands owned by the SLC." This conclusion is based on the project applicant's intent to retain Outer Pete's Harbor, which is under SLC jurisdiction, intact as part of the project.

¹⁶The Huffman-Broadway Group, Inc., 2002a.

8.3 IMPACTS AND MITIGATION MEASURES

This EIR section evaluates potential project impacts on biological resources (i.e., project construction activity, the proposed filling of the marinas, and general urbanization) and identifies measures for eliminating or reducing those impacts to less-than-significant levels. The proposed project would develop approximately 40.99 acres of the 46.45-acre site with a mix of residential, office, and retail uses, and proposes fill of approximately 11.54 acres of estuarine habitat.

8.3.1 Significance Criteria

Significance criteria for impacts to biological resources were developed based on section 15065 and Appendices G and I of the CEQA Guidelines, and section 21083 of the Public Resources Code. Direct and indirect adverse impacts are classified in this analysis as either *significant*, *potentially significant*, or *less-than-significant*. An impact is considered *potentially significant* when the presence of a special-status species or resource is uncertain and project construction could result in its loss. Impacts would generally be considered *less-than-significant* if habitat and species effects are common and widespread in the region and state.

The CEQA Guidelines state that a project will normally have a *significant* effect on the environment if it will “*substantially affect a rare or endangered species of animal or plant or the habitat of the species.*” According to these guidelines, a project would have a potentially significant or significant impact on biological resources if it would:¹⁷

- (1) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plan, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
- (2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
- (3) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

¹⁷CEQA Guidelines, Appendix G, item IV(a-f); and CEQA Guidelines, Section 15065(a).

- (4) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- (5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- (6) Cause a fish or wildlife population to drop below self-sustaining levels; or
- (7) Conflict with the any applicable land use plan, policy, or regulation adopted by the City of Redwood for the purpose of avoiding or mitigating an adverse effect on vegetation and wildlife.

For the purposes of this EIR, three principal aspects of the significance criteria outlined above were considered:

- magnitude of the impact (e.g., substantial/not substantial);
- uniqueness of the affected resource (rarity); and
- susceptibility of the affected resource to perturbation (sensitivity).

The evaluation of significance must consider the interrelationship of these three aspects. For example, a relatively small magnitude impact to breeding California clapper rails (*Rallus longirostris obsoletus*) would be considered significant because the species is increasingly rare in the San Francisco Bay area and is believed to be very susceptible to disturbance. On the other hand, a plant community such as Non-Native Annual Grassland is not rare or as sensitive to disturbance. Therefore, a much larger magnitude of impact would be required to result in a significant impact.

Significant impacts on biological resources are not limited in this EIR to project effects on federal and/or state-listed endangered species. A species will be considered "rare and endangered," and any substantive project effects on that species will be considered "significant," if it can be shown that the affected species meet the following criteria (CEQA Guidelines, section 15380):

- When its survival and reproduction in the wild are in immediate jeopardy from one or more causes; or
- It is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or

- It is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

8.3.2 Identified Impacts on Special-Status Plants

Impacts on Special-Status Plants. No special-status plant species have been observed on the project site and, based on the lack of suitable habitat, none are likely to occur. Therefore, no impacts to special-species plant populations are expected from the proposed project.

Habitat conditions on the project site are potentially suitable for Point Reyes bird's beak (*Cordylanthus maritimus palustris*), but this species is known only from collections made approximately 100 years ago at the mouth of Redwood Creek and Belmont Slough,¹⁸ and it is not expected to currently occur in the project vicinity.

Mitigation. No significant impact has been identified; no mitigation is required.

8.3.3 Identified Impacts on Special-Status Wildlife

Impact 8-1: Impacts on Steelhead and Chinook Salmon. The proposed project would fill approximately 11.54 acres of estuarine habitat for the steelhead, a federally listed threatened species, chinook salmon-California Coastal ESU, also a federally listed threatened species, and chinook salmon-Central Valley fall/late fall run, a federally listed species of concern and state-listed species of special concern. Construction activities could also result in increased water turbidity, contaminant release, noise, and underwater shock waves within this habitat. These possible effects represent a **potentially significant impact** (see criteria 1, 2, 3, and 7 in subsection 8.3.1, "Significance Criteria," above).

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As explained in previous subsection 8.1.4(b) of this chapter, steelhead (*Oncorhynchus mykiss*) and the chinook salmon-California Coastal ESU (*Oncorhynchus tshawytscha*) are federally listed threatened species. The Central Valley fall/late fall run chinook salmon (*Oncorhynchus tshawytscha*) is a federal candidate for listing and a state-listed species of special concern. Steelhead and chinook salmon migrate from the Pacific Ocean through San Francisco Bay to their natal streams to spawn. The majority stay well north of the Bay Bridge, migrating directly to the Sacramento River and the San Joaquin River, where they spawn and die. Juveniles migrate downstream through the San Francisco Estuary to the Pacific Ocean. The three species are known to forage near the shore, in marinas, and in the intertidal estuaries of tributaries through San Francisco Bay.

¹⁸The Huffman-Broadway Group, Inc., 2002a.

Juvenile salmon and steelhead forage in the sloughs, marinas, and the tributaries to San Francisco Bay. Filling the marina areas will result in the loss of habitat for these species as well as the loss of habitat for the species that they forage on as they migrate through the Bay. This loss, if left unmitigated, represents a *significant impact*.

Direct effects from construction include disturbance to aquatic organisms in the vicinity of the construction activity and the presence of people and machinery near or in the water. Turbidity can be caused by construction dust falling into the water as well as dredging, pile driving, and filling activities. Turbidity created by the re-suspension of sediments can reduce the levels of light available for photosynthesis for algae, clog the gills of fish and invertebrates, and interfere with the foraging activities of piscivorous (fish-eating) fish and birds.

Pollutants such as DDT, mercury, copper, and PCP have been deposited into the Bay for years. Many of these contaminants became bound to particles in the water and eventually settled on the bottom of the Bay. These pollutants can be re-suspended and released back into the water, causing great harm to the aquatic food chain. These effects represent a *potentially significant impact*.

Destruction of aquatic wildlife would result from the filling of the marinas and the dredging of the proposed flushing channel. A variety of sessile aquatic invertebrates such as clams, worms, larval shrimp, and small fish, which form an important prey base for protected fish and EFH species, would be destroyed up to several hundred feet away from the areas of construction due to sediment re-suspension and equipment disturbances. After the completion of construction, the areas affected by dredging and bank stabilization are expected to be rapidly recolonized.¹⁹ The construction-related losses to the aquatic ecosystem food web essential to fish, marine mammals, and birds are anticipated to be *less-than-significant*.

¹⁹Soule, D.F., M. Ouri and G.H. Jones. *The Marine Environment of Marina del Rey, July 1992 to June 1993 and 1976-1993 Summary*. Harbors Environmental Projects, University of Southern California, 1993.

Noise and underwater shock waves from construction may alter fish behavior, cause them to avoid the area, or result in fish mortalities. For example, pile driving in Puget Sound affected the migration pattern of salmon,²⁰ and the Caltrans Pile Installation Demonstration Project (PIDP) revealed that large numbers of fish may be killed as a result of pile driving.²¹ These possible effects represent a *potentially significant impact*.

Mitigation 8-1. The applicant shall: (1) coordinate with the NMFS and CDFG on steelhead and chinook salmon issues; and (2) formulate and implement a *Habitat Mitigation and Monitoring Plan* (HMMP) for these species to the satisfaction of the NMFS and CDFG. The HMMP should include, but not be limited to, the following provisions:

- The construction contractor shall use a silt curtain around the area where dredging activities are likely to release sediment into Redwood Creek or Smith Slough and where construction activities are directly adjacent to estuarine habitat.
- The water shall be monitored to verify that the silt curtains contain turbidity to no more than 10 percent above ambient levels.
- The contractor shall minimize dust through regular watering of bare ground and use Best Management Practices to prevent construction debris and loose soil from falling into the Bay.
- The dredging contractor (i.e., for the flushing channel) shall continuously monitor the quality of sediments being mobilized, and Best Management Practices will be employed to prevent the re-suspension of contaminants in the Bay.

²⁰Feist, B.E., J.J. Anderson and R. Miyamoto. *Potential Impacts of Pile Driving on Juvenile Pink (Oncorhynchus gorbuscha) and Chum (O. keta) Salmon Behavior and Distribution*. Report No. FRI-UW-9603, Fisheries Research Institute, School of Fisheries, University of Washington, Seattle, 1996.

²¹Abbott, Robert T. *Pile Installation Demonstration Project: Fisheries Impact Assessment*. San Francisco-Oakland Bay Bridge East Span Seismic Safety Project, PIDP EA 012081 Caltrans PIDP 04-ALA-80-0.0/0.5, 2001.

- The dredging procedure (i.e., for the flushing channel) shall involve the use of a suction dredge that minimally disturbs adjacent sediments. Clamshell dredging shall not be used unless all the sediments have been previously determined to be free of pesticides, heavy metals, PCPs, and fossil fuel by-products.
- In order to minimize hydroacoustic shockwaves from pile driving, the contractor shall use a vibratory hammer to drive sheet pile and piles in the marinas. In the event that a percussive pile-driving hammer is required for driving piles in the water, the contractor shall integrate an approved bubble curtain into the pile-driving system.

Also, implement *Mitigation 8-5* for the loss of approximately 11.54 acres of estuarine habitat.

The City of Redwood City shall not issue a grading permit for the project until the steelhead and chinook salmon issues are resolved to the satisfaction of the NMFS and CDFG. Copies of written correspondence between NMFS and CDFG and the applicant shall be submitted to the City prior to issuance of a grading permit.

Implementation of these measures would reduce these impacts to a ***less-than-significant level***.

Impact 8-2: Impacts on Essential Fish Habitat. The proposed project would fill approximately 11.54 acres of estuarine Essential Fish Habitat. Impacts on federally managed species protected under Essential Fish Habitat regulations are similar to impacts on salmon and steelhead. Filling the bottom of the Bay would result in a loss of essential benthic habitat for many species of rockfish, flat fish, sharks, and rays. Filling the water column would adversely impact several federally managed species, including Pacific sardine and the northern anchovy. Construction activities could also result in increased water turbidity, contaminant release, noise, and underwater shock waves. These possible effects represent a ***potentially significant impact*** (see criteria 1, 2, 3, and 7 in subsection 8.3.1, "Significance Criteria," above).

Of the 13 Essential Fish Habitat species listed in Table 8.1, five species (northern anchovy, English sole, starry flounder, California halibut, and leopard shark) have a high potential to occur on the project site. Estimates of potential occurrence are largely based on reported

similar habitat (the 24 parts per thousand salinity gradient) found on the project site.²² Construction impacts include disturbance, increases in turbidity, mobilization of contaminants, and underwater noise and shock waves from pile driving. Flatfish such as starry flounder and sharks are less affected by underwater shockwaves, since they do not have a gas bladder.

Mitigation 8-2. The applicant shall implement *Mitigation 8-1* above with respect to Essential Fish Habitat. This measure would reduce the project's impact on Essential Fish Habitat to a ***less-than-significant level***.

Impact 8-3: Impacts on the California Clapper Rail. Project construction would result in direct long-term loss of intertidal wetland along Redwood Creek and Smith Slough sufficient to support incidental foraging by the California clapper rail, a federal- and state-listed endangered species. Noise from project construction and project disturbance of intertidal habitat could interfere with the ability of the clapper rails to detect predators. Impacts on clapper rails from noise associated with pile driving, heavy construction, and earthmoving equipment in particular are potentially significant. These possible effects represent a ***potentially significant impact*** (see criteria 1, 3, 6, and 7 in subsection 8.3.1, "Significance Criteria," above).

The California clapper rail (*Rallus longirostris obsoletus*) is a federal- and state-listed endangered species. The proposed project could have direct and indirect impacts on populations of California clapper rail. California clapper rail populations are known to occur along Smith Slough, including marshes on Middle Bair Island across Smith Slough from the project site. Short-term effects could result from construction-related disturbances at the north end of the site adjacent to Smith Slough. High noise levels have been documented to interfere with the ability of clapper rails to detect predators by sound, and background noise is known to have detrimental effects on predator avoidance by other bird species.

²²Baxter, Randall, Kathhryn Hieb, Suzanne DeLeon, Kevin Fleming and James Orsi. *Report on the 1980-1995 Fish, Shrimp, and Crab Sampling in the San Francisco Estuary, California*. Technical Report 63, California Department of Fish and Game, Sacramento, California, November 1999.

Long-term indirect effects on California clapper rail could result if the project were to result in a permanent significant increase in intrusion into the tidal marsh by residents, domestic animals, and the artificially augmented populations of raccoons, rats, mice, and skunks associated with urban dwellings. An increased number of residents in the vicinity of Bair Island could result in greater human-related disturbance along levees and in adjacent outboard tidal marshes and diked non-tidal wetlands of Inner Bair Island. Current access to levees along Smith Slough and recreational use by local residents for jogging and dog exercise have been documented by the Sequoia Audubon Society.²³ The current access has a minor impact on California clapper rails known to occur on both sides of Smith Slough. However, future project residents might seek recreational use of levees surrounding Inner Bair Island.

Convenient access to the levee trail from the project site does not currently exist. Residents attempting to access the levee system along Smith Slough would need to do so from the access near the U.S. 101/Whipple Avenue interchange, approximately 0.5 mile from the project site. This distance would limit the number of project residents expected to access the recreational trail after development of the project.

Although indirect impacts to wildlife as a result of increased human and pet intrusion may occur, these impacts would be insignificant. Any such indirect impacts would most likely occur on the west side of Smith Slough, which is accessible by levees and currently used by recreationists.

Concerns regarding indirect impacts are not an issue at Middle or Outer Bair Island because the lack of bridges or crossings of Smith Slough prevents access by people, pets, and most land-based predators. If implemented creatively, breaching of levees on the west side of Smith Slough as part of the Bair Island restoration plan would create habitat for rails at Inner Bair Island and would also eliminate continuous levee access, thus mitigating any issues of current or future recreational impacts to clapper rails along Smith Slough.

Mitigation 8-3. The applicant shall: (1) coordinate with the USFWS and CDFG on California clapper rail issues; and (2) formulate and implement a *Habitat Mitigation and Monitoring Plan* (HMMP) for this potentially affected species to the satisfaction of the USFWS and CDFG. The HMMP should stipulate avoidance of construction operations during the California clapper rail breeding season. To determine presence of breeding special-status species in the project vicinity, USFWS-approved clapper rail surveys should be conducted during the breeding season, prior to construction. If breeding surveys detect clapper rail or other special-status

²³Sequoia Audubon Society. *Survey of Recreational Uses of Bair Island*, 2001.

bird species' breeding territories in adjacent wetlands, the USFWS and CDFG shall be consulted to determine if the distance of the territory from the construction activity is a suitable buffer requiring no further action. If breeding territories are found to be potentially affected by construction-related noise, all construction activities should be prohibited within the buffer area as specified by the USFWS and/or CDFG.

The City of Redwood City shall not issue a grading permit for the project until the California clapper rail issues are resolved to the satisfaction of the USFWS and CDFG. Copies of written correspondence between USFWS and CDFG and the applicant shall be submitted to the City prior to issuance of a grading permit. Implementation of these measures would reduce this potential impact to a **less-than-significant level**.

Impact 8-4: General Construction Noise Impacts on Wildlife. Foraging and reproductive activities of wildlife in the adjacent sensitive habitat areas, including habitat of special-status species, could be disrupted by project construction activity and noise. Noise impacts resulting from dredging, pile driving, and other construction activities could disrupt reproductive success if conducted during the breeding and nesting seasons of California clapper rail and California least tern, each federal- and state-listed endangered species; Western snowy plover, a federally listed threatened species and state-listed species of special concern; California black rail, a federally listed species of concern and state-listed threatened and fully protected species; northern harrier, a state-listed species of special concern; and the short-eared owl, saltmarsh common yellowthroat, and Alameda song sparrow, which are each federally listed species of concern and state-listed species of special concern. These possible effects represent a **potentially significant impact** (see criteria 1, 6, and 7 in subsection 8.3.1, "Significance Criteria," above).

Mitigation 8-4. The applicant shall: (1) coordinate with the USFWS and CDFG on noise issues related to special-status species in the adjacent sensitive habitats; and (2) formulate and implement an associated *Habitat Mitigation and Monitoring Plan* (HMMP) for these potentially affected species to the satisfaction of the USFWS and CDFG. The HMMP shall stipulate avoidance of construction operations during special-status species' breeding season. To determine the presence of breeding special-status species in the project vicinity, USFWS and CDFG approved special-status species surveys shall be conducted during the breeding season, prior to construction. If breeding surveys detect special status species' breeding territories

in adjacent wetlands, the USFWS and CDFG shall be consulted to determine if the distance of the territory from the construction activity is a suitable buffer requiring no further action. If breeding territories are found to be potentially impacted by construction-related noise, all construction activities should be prohibited within the buffer area as specified by the USFWS and/or CDFG.

The City of Redwood City shall not issue a grading permit for the project until the noise issues are resolved to the satisfaction of the USFWS and CDFG. Copies of written correspondence between USFWS and CDFG and the applicant shall be submitted to the City prior to issuance of a grading permit.

Implementation of these measures would reduce this potential impact to a ***less-than-significant level***.

Impacts on the Salt Marsh Harvest Mouse. The proposed project would have minor indirect effects, but *no significant adverse effects*, on the salt marsh harvest mouse.

Any adverse effects to the harvest mouse would occur within the portion of the project vicinity located north of Smith Slough on Middle Bair Island, which is known to be inhabited by the species, but is not part of the project site. The indirect effects on salt marsh harvest mice would primarily result from construction activities (e.g., noise). Indirect impacts from increased intrusion into pickleweed-dominated wetlands by domestic and feral cats, competitor species (e.g., house mice), and predator species (e.g., rats) would not occur on Middle Bair Island since it is surrounded by sloughs and other open water areas.

Mitigation. No significant impact has been identified; no mitigation is required.

Impacts on the California Brown Pelican and Double-Crested Cormorant. These two bird species are known to forage in the sloughs and marinas on and adjacent to the Marina Shores Village project site. The protected status of these species refers to nesting colonies and rookery sites only; any impacts to foraging habitat would be considered *less-than-significant*. No breeding habitat is available for these species in the project vicinity; therefore, *no significant impact* would occur as a result of project construction.

Mitigation. No significant impact has been identified; no mitigation is required.

Impacts on the Western Snowy Plover and California Least Tern. These two bird species have nested at Middle Bair Island, which is located across Smith Slough from the project site. Because this nesting location is not accessible by boat, project-related indirect impacts to nesting plovers and least terns from increased predation or disturbance would be *less-than-significant*.

Note: If project construction activities were to occur during the nesting season, indirect impacts (e.g., noise) could affect nesting success of the western snowy plover and California least tern. Such potential construction noise impacts to Middle Bair Island special-status species are addressed herein under *Impact 8-4*.

Mitigation. No significant impact from increased predation or disturbance has been identified; no mitigation is required.

Impacts on the California Red-Legged Frog. California red-legged frogs are unlikely to survive on or adjacent to the project site due to lethal salinity levels in the adjacent sloughs, and absence of suitable freshwater habitat for breeding. Therefore, the project would not have a significant impact on this species.

According to a comment letter responding to the Redwood City Planning Department's Notice of Preparation (dated April 19, 2002 from M. Behrend), an adult California red-legged frog was accidentally killed in the Peninsula Marina parking lot in February 2001. This occurrence is not documented in the CDFG Natural Diversity Data Base. If a California red-legged frog occurred on the site, its presence may have been the result of being washed downstream from suitable habitat in Redwood Creek upstream of Highway 101 during a significant storm event.

Mitigation. No significant impact has been identified; no mitigation is required.

Impacts on Aquatic Waterbird Foraging Habitat. Filling of approximately 11.54 acres of open water within the marina areas will eliminate foraging habitat for pelicans, cormorants, terns, grebes, and diving ducks. These water birds typically feed on fish, crustaceans, and mollusks located in the water column or on the bottom. Foraging habitat for these birds is widespread in San Francisco Bay and along its shoreline; therefore, the filling of the marinas represents a relatively very small elimination of the available waterbird foraging habitat and is considered *less-than-significant*.

Mitigation. No significant impact has been identified; no mitigation is required.

Impacts on General Terrestrial Wildlife. Because of the existing poor upland habitat conditions on the proposed site, the project's general impacts to terrestrial wildlife are considered *less-than-significant*.

A potential long-term impact of the project on terrestrial wildlife would be the general removal and disturbance of biotic habitat. The construction of the project would eliminate any species not able to emigrate to adjacent habitat, such as reptiles, amphibians, and some burrowing mammals. Other mobile species would be expected to attempt to colonize nearby habitat. Emigration to other habitat areas, presuming they are available at the time of construction, often leads to decreased survivorship due to lower quality habitat and unsuccessful competition for resources. Project-related noise and lighting would also contribute to the general disturbance of wildlife, both during construction and when the project is complete. In sum, all local wildlife species would be disturbed by the construction of the project.

Coupled with this decrease in natural species diversity would be an increase in disturbance-related species diversity. Species that are attracted to human development and presence would be expected to increase substantially. Such species are typically attracted to disturbed open spaces, lack of natural predators, and resources (food and cover) provided by human presence.

Mitigation. No significant impact has been identified; no mitigation is required.

Shadow Impacts. A study to determine the extent of increased shadow area resulting from the proposed towers was conducted by Environmental Vision (see EIR chapter 5, Visual Factors). Based on the results of this study, potential impacts to biological resources resulting from an increase in shade are considered *less-than-significant*.

Based on the shadow patterns illustrated in chapter 5, nearby sensitive habitats would be temporarily shaded during winter mornings. The impact on wildlife behavior would be less-than-significant, however, because many winter days are overcast or foggy, and on clear days the sensitive areas would be shaded for a relatively brief period.

Phytoplankton production is an important component in the aquatic food web. The main factors limiting phytoplankton production in south San Francisco Bay are benthic grazing by clams and mussels, freshwater discharge, wind mixing, tidal driven shoal-channel exchange, and turbidity.²⁴ The relatively brief periods of shading during the winter months may have a minor,

²⁴Jassby, Alan D., Jeffrey R. Koseff and Stephen G. Monismith. 1996. Processes underlying phytoplankton variability in San Francisco Bay. pp. 325-349. In *San Francisco Bay: the ecosystem*. James Hollibaugh (Ed.). Pacific Division of the American Association for the Advancement of Science. San Francisco, CA.

temporary, and localized limiting effect on primary phytoplankton production, but associated effects on the health and integrity of the aquatic food web in the project vicinity would be less-than-significant given numerous other factors affecting primary production that would not be affected.

Mitigation. No significant impact has been identified; no mitigation is required.

8.3.4 Impacts to Wetland Habitats

Impact 8-5: Project-Related Loss of Estuarine Navigable Waters and Other Waters of the U.S. The proposed project would fill approximately 11.54 acres of “navigable and other waters of the United States” that are within the jurisdiction of the Corps of Engineers under section 10 of the Rivers and Harbors Act (“navigable waters”) and section 404 of the Clean Water Act (“other waters of the U.S.”), including approximately 10.30 acres within the Peninsula Marina property and 1.24 acres within the Pete’s Harbor property. This would represent a **potentially significant impact** (see criteria 2 through 7 in subsection 8.3.1, “Significance Criteria,” above).

The proposed project would reduce the Peninsula Marina estuarine habitat from approximately 14.10 to 3.80 acres (10.30-acre loss) and Pete’s Harbor from approximately 2.90 to 1.66 acres (1.24-acre loss). This would represent a total loss of approximately 11.54 acres of “navigable” and “other waters of the United States.” This would also represent a loss of possible habitat for steelhead and Chinook salmon protected as threatened species under the Federal Endangered Species Act (see *Impact 8-1*) and loss of possible Essential Fish Habitat protected under the Magnuson-Stevens Fishery Management and Conservation Act (see *Impact 8-2*).

Mitigation 8-5. The applicant shall: (1) obtain Section 10 and 404 permits from the Army Corps of Engineers (Corps); (2) obtain a Section 401 Clean Water Certification or Waiver from the Regional Water Quality Control Board (RWQCB); and, if required, (3) obtain a 1603 Streambed Alteration Agreement with the California Department of Fish and Game (CDFG). The applicant shall also: (1) coordinate with the NMFS, USFWS, and CDFG on steelhead and chinook salmon issues (see *Mitigation 8-1*); (2) coordinate with NMFS on Essential Fish Habitat issues (see *Mitigation 8-2*); and (3) formulate and implement a *Habitat Mitigation and Monitoring Plan* (HMMP) for these potentially affected special-status estuarine species to the satisfaction of the Corps, NMFS, USFWS, CDFG, and RWQCB. The HMMP should include a compensatory mitigation plan to replace estuarine, navigable, and other waters of the U.S. filled by the project. Such an

(continued)

Mitigation 8-5 (continued).

HMMP would be required by the Corps and USFWS as a condition of the Section 404 permit, by the RWQCB as a condition of Section 401 Clean Water Certification or Waiver, and by the CDFG as a condition of a Section 1603 Streambed Alteration Agreement (if required).

The City of Redwood City shall not issue a grading permit for the project until the permits have been obtained by the applicant and the associated mitigation and monitoring plans are approved by the responsible agencies. Implementation of these measures would reduce this potential impact to a ***less-than-significant level***.

(a) Section 10 Permit. Corps of Engineers jurisdiction under section 10 of the Rivers and Harbors Act applies to any “navigable waters of the United States” (33 U.S.C. 403). In tidally influenced areas, the upper limit of “navigable waters” has been defined as “mean high water” (FR Doc 86-25301, 329.12.b). In addition to waters that are currently navigable, the Corps has jurisdiction, under section 10 of the Rivers and Harbors Act, over historically navigable waters that are no longer navigable due to modifications such as dikes, levees, or dams. The portion of the project shoreline and marinas below mean high water are “navigable waters of the U.S.,” and fill in those areas will require a Section 10 permit.

(b) Section 404 Permit. The Clean Water Act authorizes the Corps to regulate activities that discharge dredged or fill material into wetlands and “other waters of the U.S.” Section 404(a) of the Act authorizes the Corps to issue permits for discharges of dredged or fill material into wetlands and other “waters of the U.S.” Because the project proposes to fill a significant area of tidal “waters of the U.S.,” under section 404 of the Clean Water Act the applicant would likely be required to obtain an Individual Permit from the Corps of Engineers. Individual Permits require an Alternative Analysis pursuant to the Environmental Protection Agency’s (EPA) Clean Water Act Section 404(b)(1) Guidelines. Under these guidelines the applicant would be required to demonstrate that the project has no practicable alternatives. The Individual Permit process also requires public review of the permit application.

As part of the Section 404 Permit process, the applicant must prepare a *mitigation and monitoring plan* following Corps guidelines (1991) to be submitted with the permit application.

The Corps also has a “no net loss” policy, which has generally required a minimum one-to-one replacement of lost wetlands and waters “in-kind” and “on-site.” If this is not feasible, or if the Corps and coordinating agencies determine that it is not preferable to create the same habitat or create replacement habitat near the project site, the applicant may propose alternative mitigation approaches.

In a recent Regulatory Guidance Letter, the Corps clarified its interpretation of the national "no net loss" policy as providing "...at a minimum, one-to-one functional replacement, i.e., no net loss of functions, with an adequate margin of safety to reflect anticipated success. Focusing on the replacement of the functions provided by a wetland, rather than only calculation of acreage impacted or restored, will in most cases provide a more accurate and effective way to achieve the environmental performance objectives of the no net loss policy."²⁵

(c) Section 401 Permit. Section 401 of the Clean Water Act prohibits discharges of dredged or fill material that violate state water quality standards, and requires discharges authorized under Section 404 to obtain water quality certification from the Regional Water Quality Control Board (RWQCB). Corps of Engineers Section 404 permits are not valid until the RWQCB has granted certification (or certification waiver) that the proposed discharge does not violate state water quality standards. The RWQCB may require mitigation in addition to that required by the Corps of Engineers' Section 10 and 404 Permits.

(d) 1603 Streambed Alteration Agreement. The California Department of Fish and Game (CDFG) regulates, under sections 1601-1603 of the Fish and Game Code, activities that occur within the bed or banks of any river, stream, or lake. Sections 1601-1603 of the code allow CDFG to review any proposed alterations and to recommend modifications to prevent substantial adverse impacts to a fish and game resource. Shoreline improvements along Redwood Creek may require a Streambed Alteration Agreement from CDFG.

(e) Consistency with City of Redwood City Strategic General Plan Conservation Element. The City of Redwood City's *Conservation Element* states:

Environmentally unique open spaces such as San Francisco Bay, its tributaries, sloughs, and marshlands should be protected and enhanced for conservation and recreation purposes. (Policy C-3, page 10-4)

This general policy expresses the same goals as the more specific policies of the Corps, USFWS, CDFG, NMFS, and RWQCB. Mitigation measures (including the HMMP) required for the Corps of Engineers' Section 10 and 404 Permits, Regional Water Quality Control Board Section 401 Certification, and any Streambed Alteration Agreement, would implement the City's policy of protecting slough habitats.

Impact 8-6: Project-Related Loss of Saline Emergent Wetlands. The proposed

²⁵U.S. Army Corps of Engineers. Regulatory Guidance Letter (No. 02-2), December 24, 2002, p. 3.

project may fill saline emergent wetlands. Loss of saline emergent wetlands would represent a **potentially significant impact** (see criteria 2, 3, 4, 5, and 7 in subsection 8.3.1, "Significance Criteria," above).

The project applicant's wetland delineation²⁶ identified saline emergent wetlands along the edges of Redwood Creek, Smith Slough, and the marinas. The applicant has submitted the wetland delineation report to the Corps of Engineers, but the delineation has not yet been verified by the Corps. These wetlands would constitute "waters of the U.S." subject to jurisdiction by the Corps of Engineers under section 404 of the Clean Water Act, and the Regional Water Quality Control Board under section 401 of the Clean Water Act. Saline Emergent Wetlands along the northwestern shoreline (see Figure 8.1) of the project site fall under the jurisdiction of the San Francisco Bay Conservation and Development Commission (BCDC) under the McAtteer-Petris Act. Because the wetland delineation has not been verified by the Corps of Engineers, exact wetland acreage and project impacts are not currently available.

Mitigation 8-6. The applicant shall: (1) obtain a Section 404 permit from the Army Corps of Engineers; (2) obtain a Section 401 Clean Water Certification or Waiver from the Regional Water Quality Control Board (RWQCB); and (3) obtain a permit from BCDC. As required by these agencies, the applicant shall prepare and implement an HMMP that includes a compensatory mitigation plan to replace saline emergent waters of the U.S. filled by the project. Such an HMMP would be required by the Corps of Engineers as a condition of the Section 404 permit and the by the RWQCB as a condition of Section 401 Clean Water Certification or Waiver.

The City of Redwood City shall not issue a grading permit for the project until the permits have been obtained by the applicant and the associated mitigation and monitoring plans are approved by the responsible agencies. Implementation of these measures would reduce this potential impact to a **less-than-significant level**.

(a) Section 404 Permit. The Clean Water Act authorizes the Corps to regulate activities that discharge dredged or fill material into wetlands and "other waters of the U.S." Section 404(a) of the Act authorizes the Corps to issue permits for discharges of dredged or fill material into wetlands and other "waters of the U.S." The extent of the fill would determine what type of permit would be required.

²⁶The Huffman-Broadway Group, Inc., 2002b. *Investigation of the Presence of Wetlands and Other Waters of the United States on the Marina Shores Village Project Site, Redwood City, California*. Larkspur, California. Prepared for Glenborough-Pauls, LLC, February 2002.

As part of the Section 404 Permit process, the applicant must prepare a *mitigation and monitoring plan* following Corps guidelines (1991) to be submitted with the permit application.

The Corps also has a “no net loss” policy, which has generally required a minimum one-to-one replacement of lost wetlands and waters “in-kind” and “on-site.” If this is not feasible, or if the Corps and coordinating agencies determine that it is not preferable to create the same habitat or create replacement habitat near the project site, the applicant may propose alternative mitigation approaches.

In a recent Regulatory Guidance Letter, the Corps clarified its interpretation of the national “no net loss” policy as providing “...at a minimum, one-to-one functional replacement, i.e., no net loss of functions, with an adequate margin of safety to reflect anticipated success. Focusing on the replacement of the functions provided by a wetland, rather than only calculation of acreage impacted or restored, will in most cases provide a more accurate and effective way to achieve the environmental performance objectives of the no net loss policy.”²⁷

(b) Section 401 Permit. Section 401 of the Clean Water Act prohibits discharges of dredged or fill material that violate state water quality standards, and requires discharges authorized under Section 404 to obtain water quality certification from the Regional Water Quality Control Board (RWQCB). Corps of Engineers Section 404 permits are not valid until the RWQCB has granted certification (or certification waiver) that the proposed discharge does not violate state water quality standards. The RWQCB may require mitigation in addition to that required by the Corps of Engineers’ Section 404 Permit.

(c) BCDC Permit. BCDC is authorized under the McAteer-Petris Act to issue or deny permits for development within a 100-foot band landward of its Bay jurisdiction. BCDC’s Bay jurisdiction extends to Mean High Water in areas without tidal marsh and to five feet above Mean Sea Level in areas with a tidal marsh. The proposed project would require a BCDC permit for shoreline improvements and development within the 100-foot shoreline band extending shoreward within its jurisdiction along Smith Slough.

Impact 8-7: Project-Related Loss of Fresh Emergent Wetlands. The proposed project would fill fresh emergent wetlands. Loss of fresh emergent wetlands would represent a **potentially significant impact** (see criteria 2, 3, 4, 5, and 7 in subsection 8.3.1, “Significance Criteria,” above).

²⁷U.S. Army Corps of Engineers, p. 3.

The applicant's wetland delineation identified fresh emergent wetlands in the southwest end of the project site (see Figure 8.1). If these wetlands are determined to be "adjacent" to navigable waters by the Corps of Engineers, they would constitute "waters of the U.S.," subjecting them to jurisdiction by the Corps of Engineers under section 404 of the Clean Water Act. If the Corps of Engineers determines that these wetlands are "isolated," they would not be jurisdictional under Section 404 of the Clean Water Act, but may remain within the jurisdiction of the Regional Water Quality Control Board under its Porter-Cologne Act authority. The applicant's biologist²⁸ determined that all wetlands on the site are adjacent to navigable waters; however, the wetland delineation has not yet been verified by the Corps of Engineers, so final wetland area, isolated status, and project impacts are not currently available.

Mitigation 8-7. The applicant shall implement *Mitigation 8-6*. The City of Redwood City shall not issue a grading permit for the project until the permits have been obtained by the applicant and the associated mitigation and monitoring plans have been approved by the responsible agencies. Implementation of these measures would reduce this potential impact to a ***less-than-significant level***.

(a) Section 404 Permit. The Clean Water Act authorizes the Corps to regulate activities that discharge dredged or fill material into wetlands and "other waters of the U.S." Section 404(a) of the Act authorizes the Corps to issue permits for discharges of dredged or fill material into wetlands and other "waters of the U.S." The extent of the fill would determine what type of permit would be required.

As part of the Section 404 Permit process, the applicant must prepare a *mitigation and monitoring plan* following Corps guidelines (1991) to be submitted with the permit application.

The Corps also has a "no net loss" policy, which has generally required a minimum one-to-one replacement of lost wetlands and waters "in-kind" and "on-site." If this is not feasible, or if the Corps and coordinating agencies determine that it is not preferable to create the same habitat or create replacement habitat near the project site, the applicant may propose alternative mitigation approaches.

In a recent Regulatory Guidance Letter, the Corps clarified its interpretation of the national "no net loss" policy as providing "...at a minimum, one-to-one functional replacement, i.e., no net loss of functions, with an adequate margin of safety to reflect anticipated success. Focusing on the replacement of the functions provided by a wetland, rather than only calculation of acreage impacted or restored, will in most cases provide a more accurate and

²⁸The Huffman-Broadway Group, Inc., 2002b.

*effective way to achieve the environmental performance objectives of the no net loss policy."*²⁹

(b) Section 401 Permit. Section 401 of the Clean Water Act prohibits discharges of dredged or fill material that violate state water quality standards, and requires discharges authorized under Section 404 to obtain water quality certification from the Regional Water Quality Control Board (RWQCB). Corps of Engineers Section 404 permits are not valid until the RWQCB has granted certification (or certification waiver) that the proposed discharge does not violate state water quality standards. The RWQCB may require mitigation in addition to that required by the Corps of Engineers' Section 404 Permit.

8.3.5 General Plant and Wildlife Impacts

Impact 8-8: Project-Related Bird Collisions. The project proposes to construct up to thirteen 21- to 23-story towers, and additional office space and low-rise flats ranging from four to nine stories. Such structures are likely to cause substantial bird collision mortality due to lighting and window hazards. These collisions are inevitable and constitute a ***significant unavoidable impact*** (see criteria 1, 4, 6, and 7 in subsection 8.3.1, "Significance Criteria," above).

²⁹U.S. Army Corps of Engineers, p. 3.

The collision of migrating birds with human-built structures and windows is a worldwide problem that results in the mortality of millions of birds each year in North America alone.³⁰ Birds killed or injured at such structures are due to two main factors: (1) the lighting of structures at night, which “traps” many species of nocturnal migrants; and (2) the presence of windows, which birds in flight either cannot detect or misinterpret. In combination, these two factors result in a high level of anthropogenic mortality. Bird mortality at human-built structures receives relatively little public attention, but structural hazards are actually responsible for more bird kills than higher profile catastrophes such as oil spills.³¹ Collisions of birds with the high-rise residential buildings at Marina Shores Village would be inevitable and would constitute a significant unavoidable impact.

Mitigation 8-8. Although bird collisions are a **significant unavoidable impact**, collisions may be reduced by adopting, as part of the project's architectural review process, a lighting policy that strives for minimal exterior night-lighting, requires adoption of low-intensity exterior lighting, uses cutoff lights and shielding techniques that focus exterior light downward, and includes perimeter lights that are timed by project management to shut off automatically when not in use.

Impact 8-9: Project-Related General Outdoor Lighting Impacts on Biological Resources. The project would result in additional lighting at a close distance to sensitive wetland habitats. Outdoor lighting from the proposed project may adversely affect nocturnal, roosting, and nesting birds, and disrupt natural diurnal rhythms of a wide range of animals and plants. These possible effects represent a **potentially significant impact** (see criteria 1, 4, and 6 in subsection 8.3.1, “Significance Criteria,” above).

³⁰Ogden, Lesley J. *Collision Course: The Hazards of Lighted Structures and Windows to Migrating Birds*. World Wildlife Fund Canada and the Fatal Light Awareness Program, 1996.

³¹Ibid.

The ecological effects of artificial lighting are still poorly understood, but an appreciation of the main impacts is important. Generally, ecologists prefer a precautionary approach of mitigating potential lighting impacts, especially close to sites of high conservation value or to known populations of rare species.³²

Development of lighting in rural areas has implications for wildlife because day length, which influences the activities of plants and animals, may become altered or extended. Impacts are most prevalent among insect populations and nocturnal mammal species, although nesting or roosting birds may also be affected, and natural diurnal rhythms may be disrupted in a wide range of animals and plants.

Nocturnal animals are likely to be disturbed by the presence of bright illumination and could be deterred from using established foraging areas. Since many mammals are already under threat, this represents a further pressure on remaining populations. For the Marina Shores Village project, security lighting in foraging areas or near other areas of open habitat may be seriously detrimental.

The attraction of birds to lights has been known for a long time. A close correlation has been demonstrated between commencement of dawn singing in thrushes and critical light intensity at sunrise, suggesting that artificial lighting may modify the timing of natural behavior patterns. Reproduction in birds is photoperiodically controlled, and artificial increase of day length can induce hormonal, physiological, and behavioral changes, initiating breeding. Around 60 species of wild birds have been brought into breeding condition prematurely by exposure to artificially long days in winter. Nocturnal species, many of which are already under threat, are particularly likely to be disturbed by bright illumination.³³

Mitigation 8-9. Implementation of *Mitigation 8-8* would reduce this potential impact to a ***less-than-significant level***.

Impact 8-10: Project-Related Introduction of Invasive, Non-Native Plants.
Since the project site is adjacent to Middle Bair Island, a federally managed wildlife reserve, invasive non-native plant species could have an adverse on native

³²Department of the Environment, Transport and the Regions. *Lighting in the Countryside: Towards Good Practice*. <http://www.detr.gov.uk/planning/litc/03.htm>, accessed April 15, 2002.

³³*Ibid.*

vegetation and special-status wildlife in the area. Special-status wildlife species known from the area, such as California clapper rail and salt marsh harvest mouse, are dependent on native salt marsh vegetation and adjacent upland areas. Displacement of native vegetation by invasive non-native species would adversely impact habitat for these and other special-status wildlife species. In a preliminary landscape plan supplied by the project architect, the project proposes to landscape the site with non-native plants that include seven species that have the potential and one species that is known to vigorously invade and displace native plants. Use of these plants in landscaping would therefore present a **potentially significant impact** (see criteria 1, 2, 4, and 5 in subsection 8.3.1, "Significance Criteria," above).

Invasive non-native plants are generally aggressive, opportunistic invaders, able to exploit disturbed areas quickly, outcompeting and displacing native species. Non-native plants (identified from a proposed landscape plan supplied by the project applicant) with the potential to invade and displace native plants include rock rose (*Cistus* sp.), cotoneaster (*Cotoneaster* sp.), coprosma (*Coprosma* sp.), pittosporum (*Pittosporum tabira*), pride of Maderira (*Echium candicans*), gazania (*Gazania* sp.), and Aaron's beard (*Hypericum calycinum*). Cape weed (*Arctotheca calendula*) is a non-native species known to vigorously invade and displace native species, and is listed as a "Red Alert" species on the CalEPPC List of Exotic Pest Plants of Greatest Ecological Concern in California.³⁴

Wherever feasible, native plant species should be used in the landscape plan. Native species are adapted to local environmental conditions and, therefore, can generally thrive with less or no dependence on inputs of irrigation and fertilizer compared to ornamental, non-native species. Wildlife species are adapted to using native species for food and cover; increasing the acreage of native species would provide additional habitat for wildlife species, as well as eliminate the threat of invasion of non-native species in adjacent habitats.

Mitigation 8-10. Eliminating the invasive, non-native species listed above from the landscape plan would reduce this identified potential impact of using non-native species to a **less-than-significant level**.

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